



## Panel 2. FX Interventions and International Reserves. 2<sup>nd</sup> Annual International Roles of the U.S. Dollar Conference.

RESTRICTED MATERIAL

Administrative Unit: DGOBC  
Last Update: May, 2023

Gerardo García, General Director of Central Banking Operations  
May 19th, 2023

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# FXIs' Objectives

- Foreign exchange interventions (FXIs) were an important part of the policymakers' toolkit during the early stages of the COVID-19 pandemic. FXIs also increased markedly in 2022 during the initial phase of monetary policy tightening in advanced economies.
- There is a broad agreement on the objectives of FX interventions, but priorities might differ.



## Emerging Market Economies<sup>1/</sup>

### Containing stressed trading conditions

Building up international reserves  
FX funding shortages

Reduce FX speculation  
Price stability

1/ Capital Flows management, smoothing commodity prices and enhancing external competitiveness are considered of little importance.



## Advanced Economies<sup>2/</sup>

### Price stability

Containing stressed trading conditions

2/ All other objectives are considered of little importance.



# FXIs' Intricacies

- There might be less agreement on how to conduct FXIs and best achieve the aforementioned goals.



## When to intervene? Timing

- Dictated by a **comprehensive analysis of market functioning**.
- CBs depend on market intelligence activities.
  - Flows, assessment of liquidity, depth, volatility, and price discovery.



## How to intervene? Size Instrument Discretionary/ Rules- based

- **Spot intervention remains most common**, but the majority of EM central banks also rely on derivatives (e.g. hedge, avoid reduction of international reserves).
- **FXIs mostly discretionary**, but rules-based interventions have ticked up.
  - Maintaining a “surprise element” is important



## Where and with whom? Market (on/offshore) Counterparties/ platforms

- Most interventions are carried **on-shore**, but several CBs have emphasized the need to intervene off-shore.
- Given the **changes in FX market microstructure** (e.g. automated platforms, algorithmic trading, HFT), should CBs consider **expanding their eligible counterparties** for FXIs?



## FXI Effectiveness

- CBs consider that interventions are effective, but recognize that their **effectiveness might be short-lived**.
- **Assessing effectiveness is difficult** due to the absence of counterfactuals; and factors outside a central bank's control that might have a bearing on FXI objectives and are challenging to account for.
- The **side of intervention** may matter for effectiveness (e.g. buying or selling FX)



## FXI Costs

- **Moral hazard** in financial markets.
  - Presence of FXI might **hamper the development of FX derivatives markets**.
  - Potential inconsistencies between monetary policy and exchange rate policy objectives ( $\Rightarrow$  communication).
  - **Carrying costs**. Considered secondary relative to policy objectives.
    - Global Financial Safety Net: IMF lines and central bank liquidity swap lines are helpful in mitigating these costs, as they function as complements to international reserves ( $\Rightarrow$  potential stigma?).
- $\rightarrow$  **The more developed the markets, the lesser the need for intervention. But developing markets is much harder.**

# FXIs' Challenges

## Communication



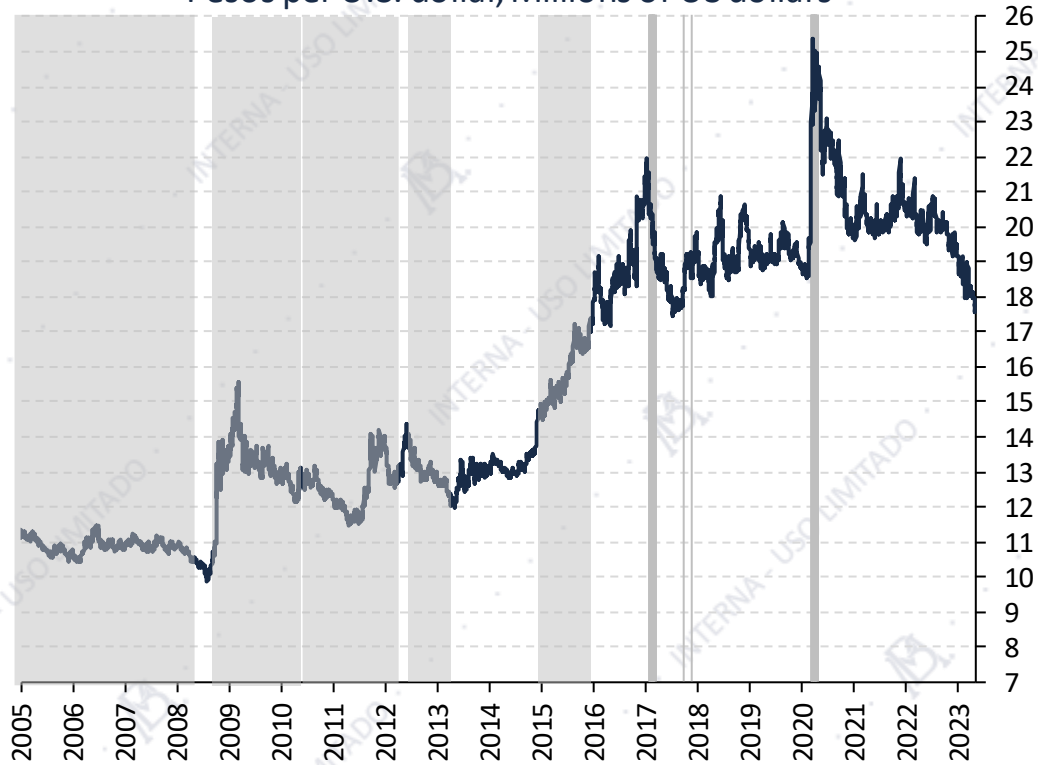
- Hard to **convince the public at large that a bad equilibrium in the FX market has been avoided**, compared to explaining the direct costs of intervention (e.g. a reduction in international reserves).
- **Communicating the limits to FX interventions is challenging.** Expectations might be unrealistic, or calls for intervening might be unwarranted.
- **Transparency of FX interventions is most commonly implemented ex-post.** Timing varies.



# Some reflections about FXI in Mexico

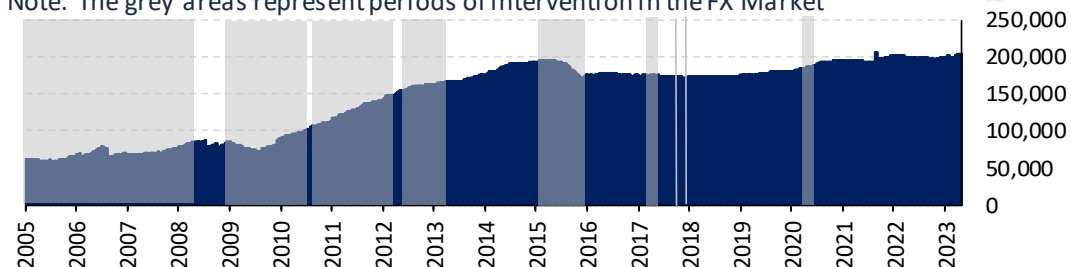
## Mexican Peso Exchange Rate and Foreign Exchange Reserves

Pesos per U.S. dollar, Millions of US dollars



Source: Bloomberg.

Note: The grey areas represent periods of intervention in the FX Market



- Mexico has a **free floating exchange rate regime**. It stands out among EM because of its **developed exchange rate market**. The Mexican Peso is the third most traded EME currency, it is highly liquid, fully deliverable, and PvP eligible. As mentioned, a **more developed market entails a lesser need for intervention**.
- **The best way to maintain an orderly functioning of the exchange rate market is by promoting sound economic policy and fundamentals.**
- Nonetheless, there have been **extreme situations** (exceptions) in which the Exchange Rate Commission has deemed appropriate to intervene to temper FX volatility.
- **The currency of choice has been the US dollar.**
- **Interventions have evolved through time.**
  - From being implemented in spot to derivative markets.
  - From having as counterparties banks in Mexico to having both banks in Mexico and off-shore ones and platforms.
  - From being primarily rules-based to both rules-based and discretionary interventions.

## Some broader anecdotal observations about FXIs

- Recent **calls from international organizations** to enhance the policy toolkit to deal with capital flows' volatility seem to have **reduced the threshold for conducting FXIs**, though it seems there are important regional differences in the attitude towards FXIs.
  - Not sure about the extent to which this will lead to better and more stable equilibriums in the International Monetary System.
- The **growing trend among EMEs of using derivatives** in FXIs, particularly the use of NDFs settled in domestic currency, calls for an assessment on whether at least a fraction of international reserves could be invested with a long-term horizon.
- The **availability of US dollar liquidity seems to be gaining importance as a factor for conducting FXIs**. Anecdotal evidence suggests that the assessment of dollar liquidity varies significantly from region to region and from country to country. Hence, aggregated measures of US dollar liquidity might prove ineffective in understanding countries' decisions to intervene.
- For EMEs, having a large international reserve portfolio to conduct FXIs can entail significant financial costs. Such **costs could be minimized by enhancing the Global Financial Safety Net**, which necessarily involves more international cooperation.



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# FX intervention as a monetary policy instrument: The SNB's view

Kerstin Kehrle

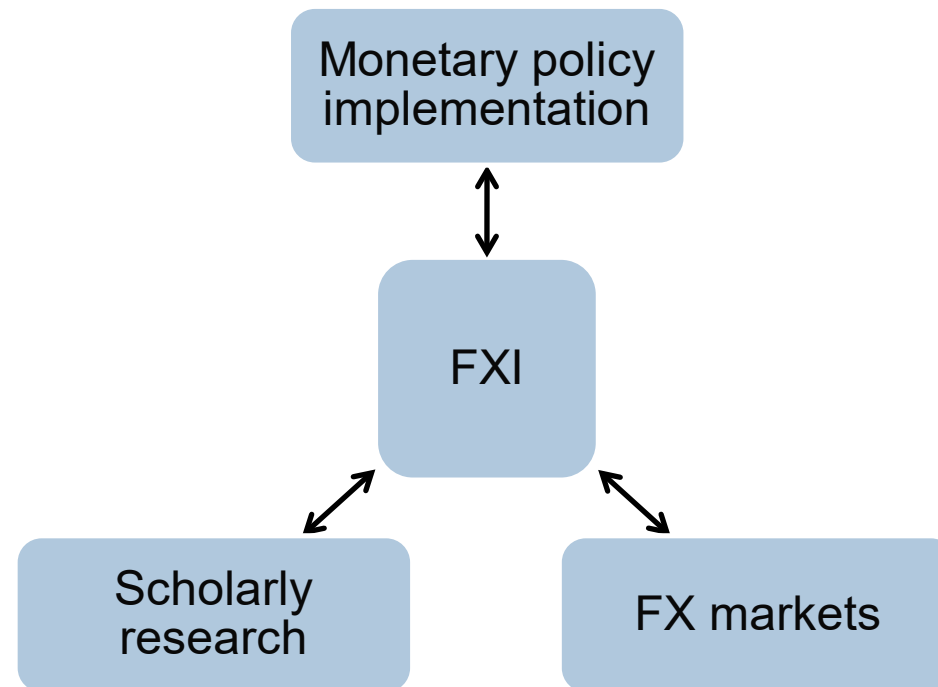
Second Annual Conference on the  
International Roles of the U.S. Dollar  
New York, 18-19 May, 2023

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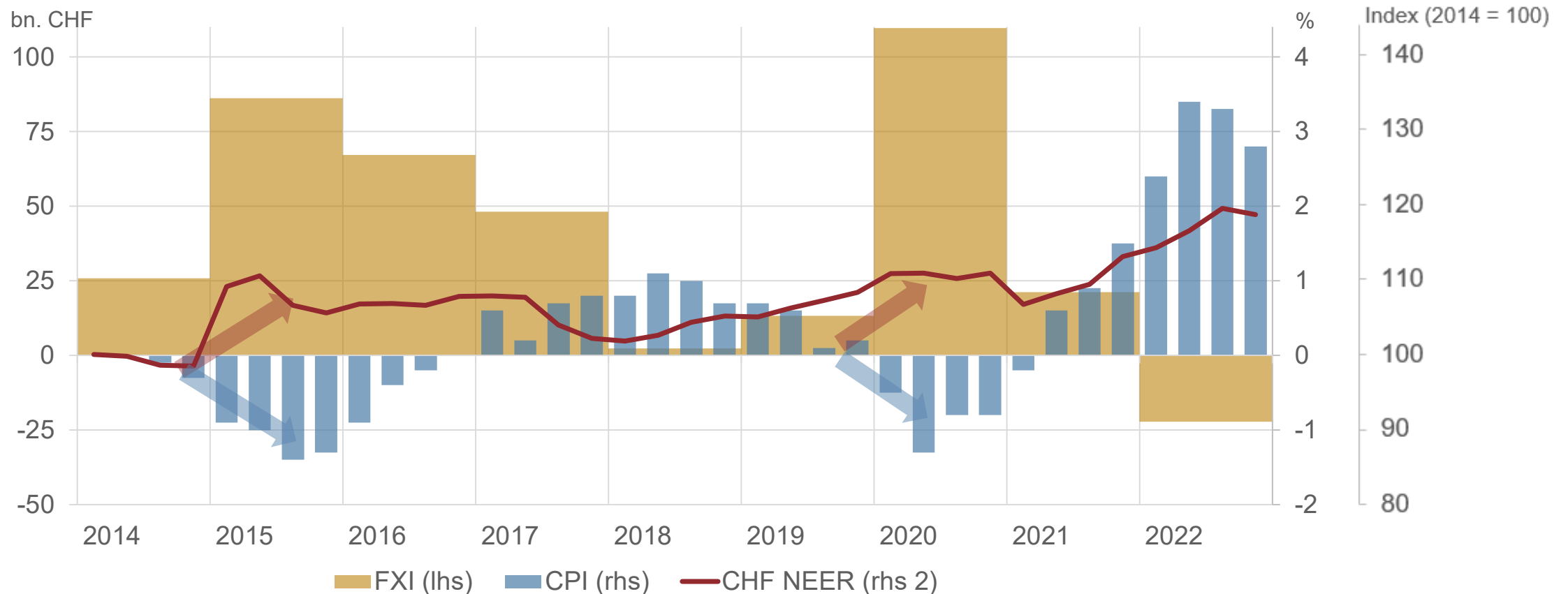
# FX intervention is an integral part of SNB monetary policy implementation toolkit

- The SNB's main instrument is the SNB policy rate
- The SNB uses foreign exchange intervention (FXI) as an additional tool to influence monetary conditions



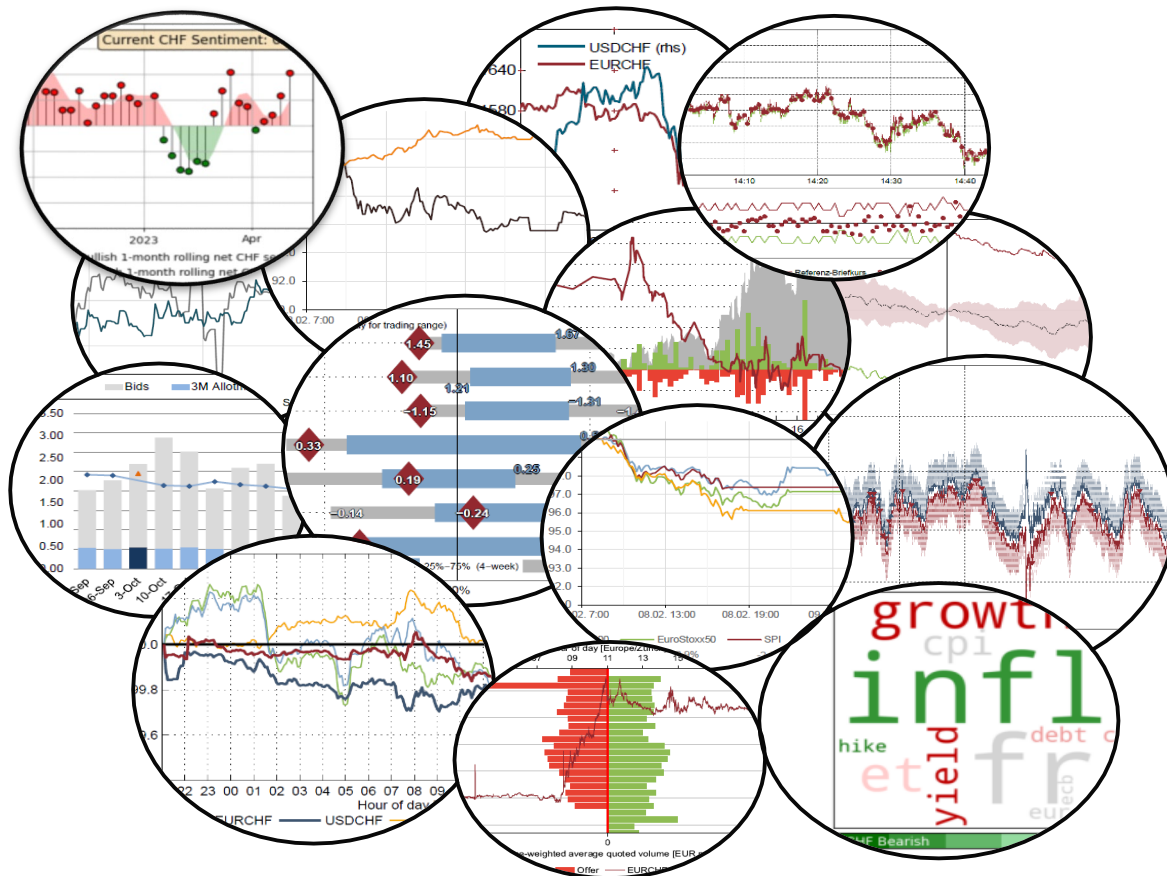
# The value of the CHF is an important driver of Swiss inflation – SNB uses FXI to counter both deflationary and inflationary pressures

## CPI, CHF NEER and FXI



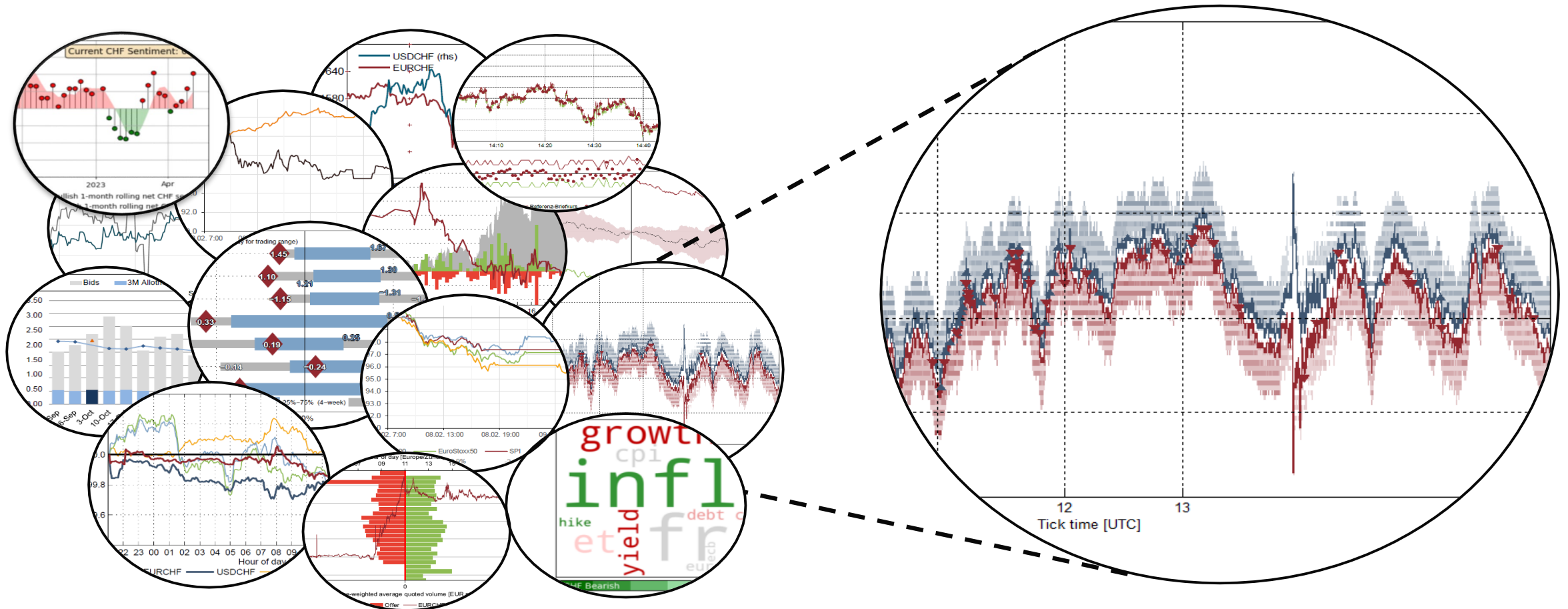
Source: Bloomberg, SNB

# To identify key drivers of FX market dynamics, SNB seeks to understand the market's microstructure



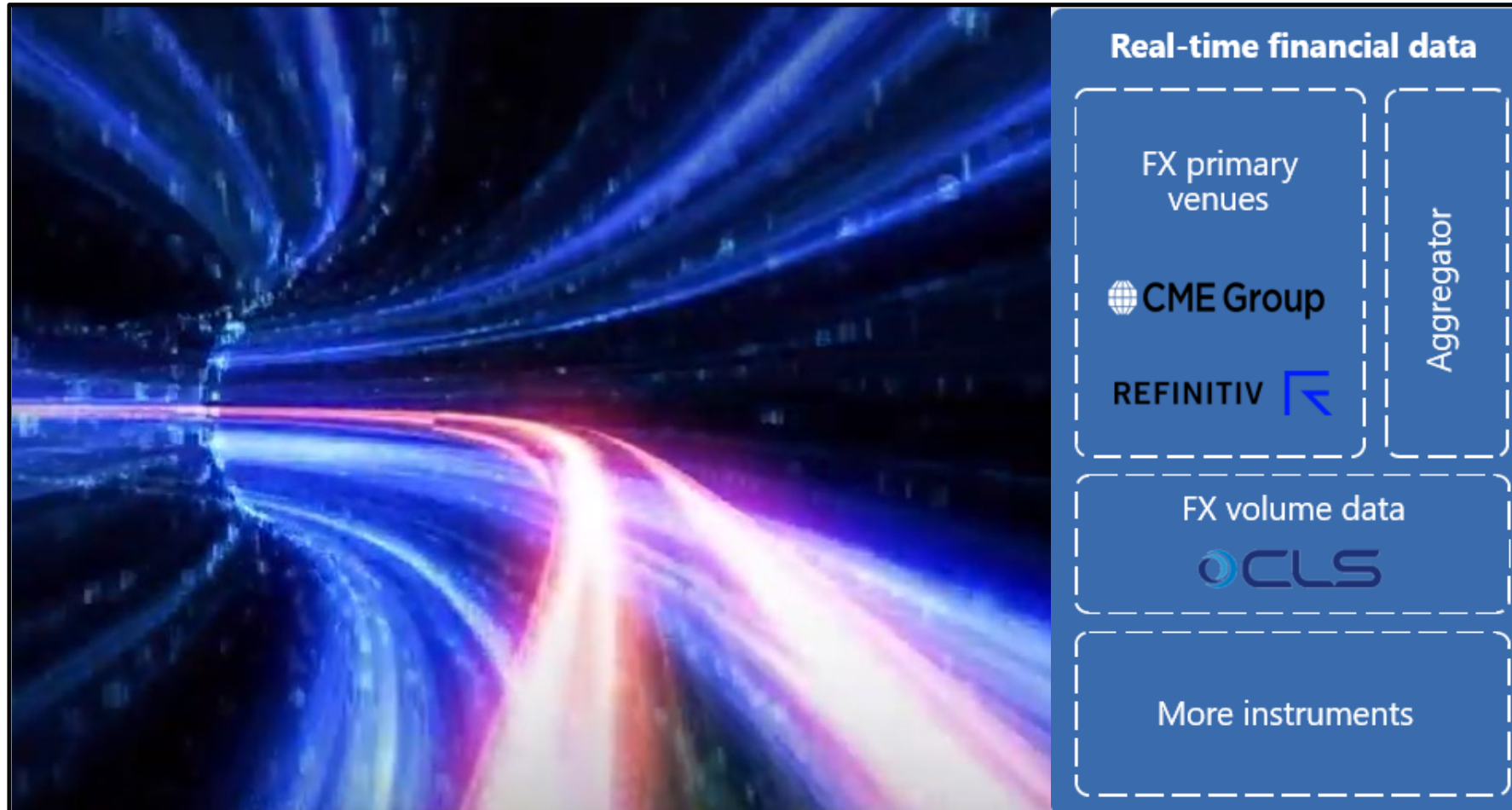
Source: SNB

# To identify key drivers of FX market dynamics, SNB seeks to understand the market's microstructure



Source: SNB

# Fast-paced FX markets and high data complexity compel SNB to stay at forefront of technological innovation



Source: SNB

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Thank you.

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# Foreign Exchange Interventions and Foreign Exchange Reserves

Jens Nordvig, Founder & CEO

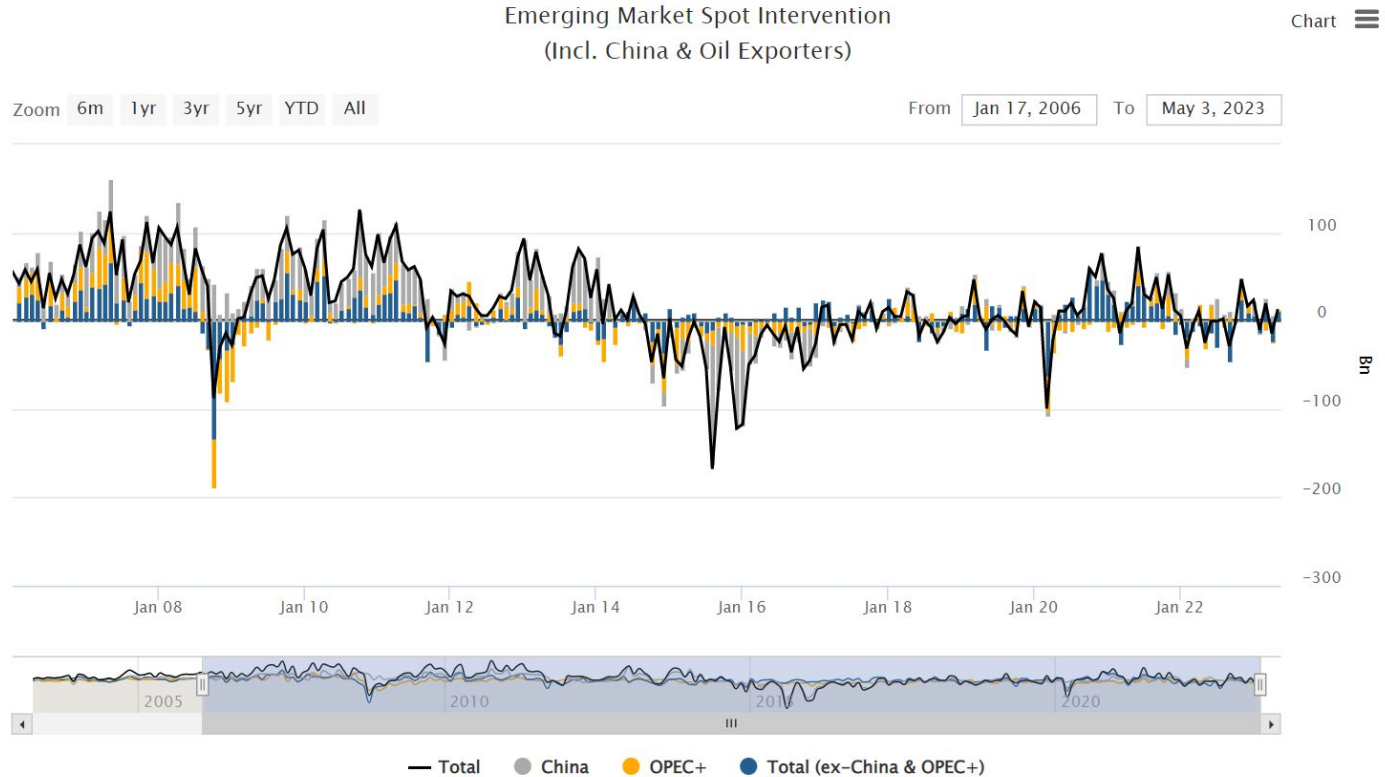
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May 18-19, 2023

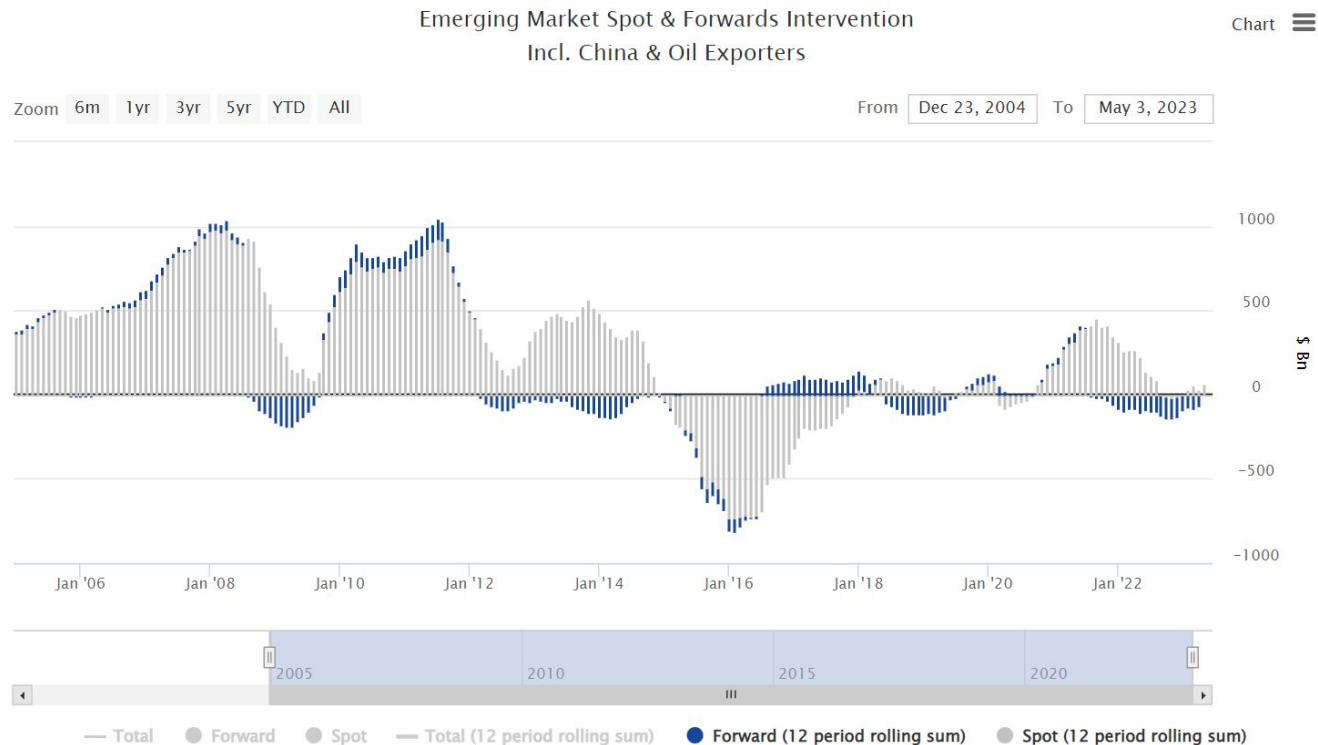
Federal Reserve Bank of New York  
“Dollar Conference”



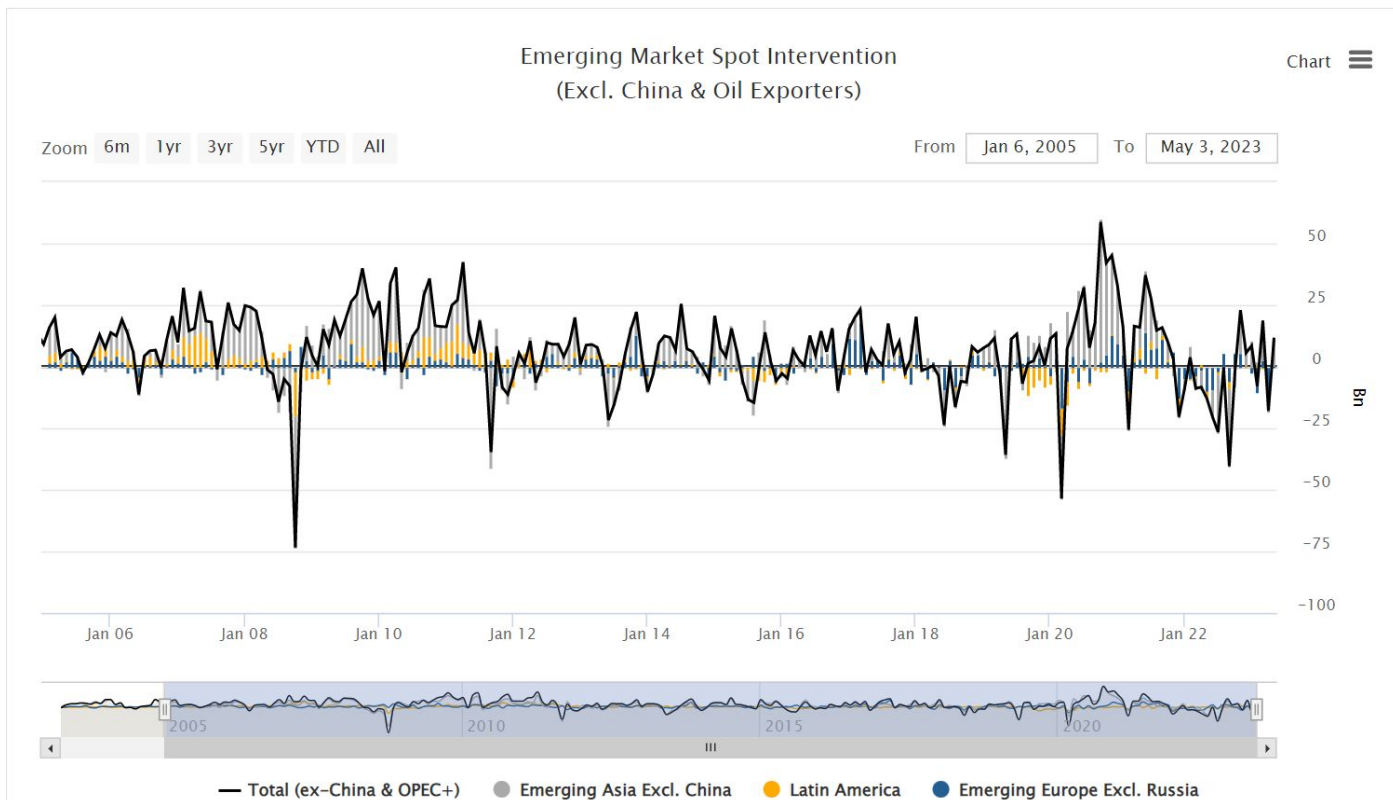
# Aggregate EM Intervention More Moderate than Pre-GFC



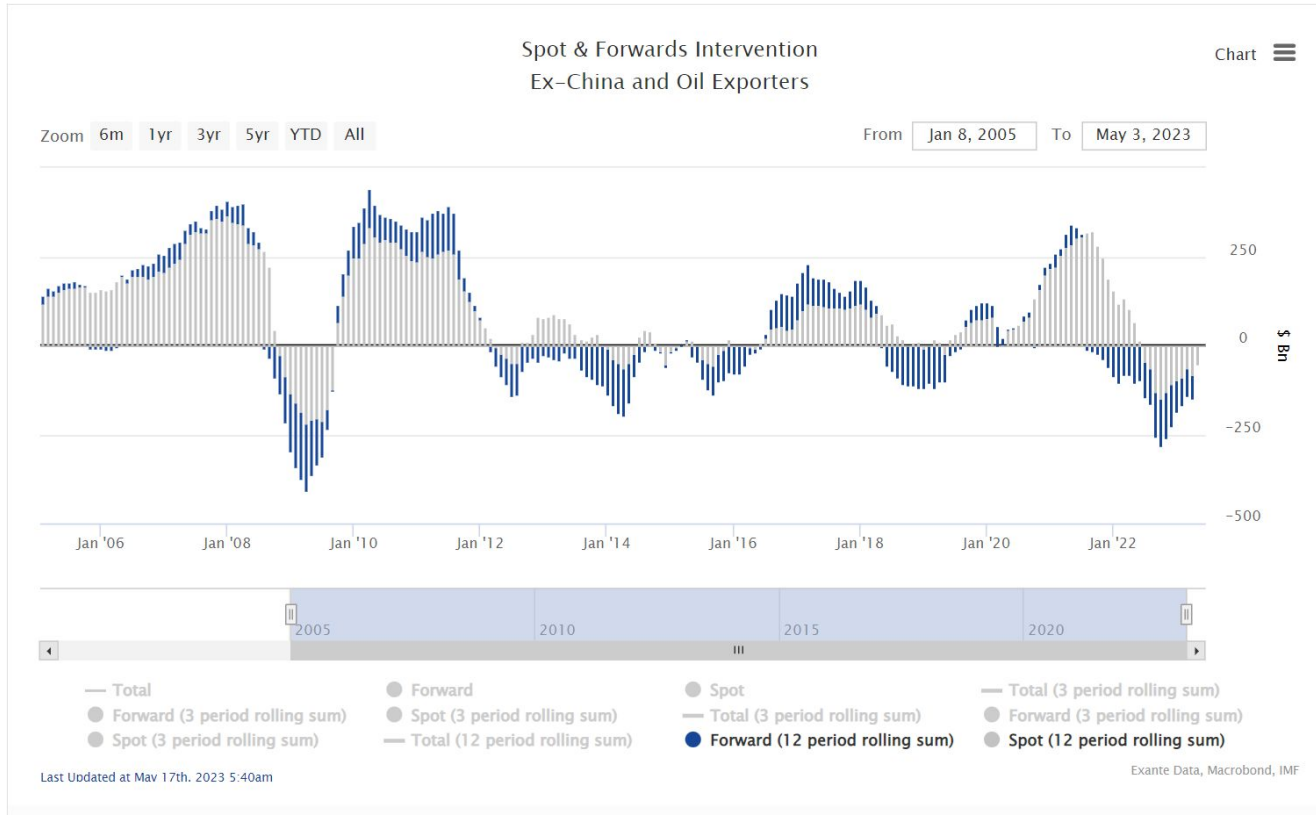
# Spot + Forward Intervention: EM + China + OPEC+



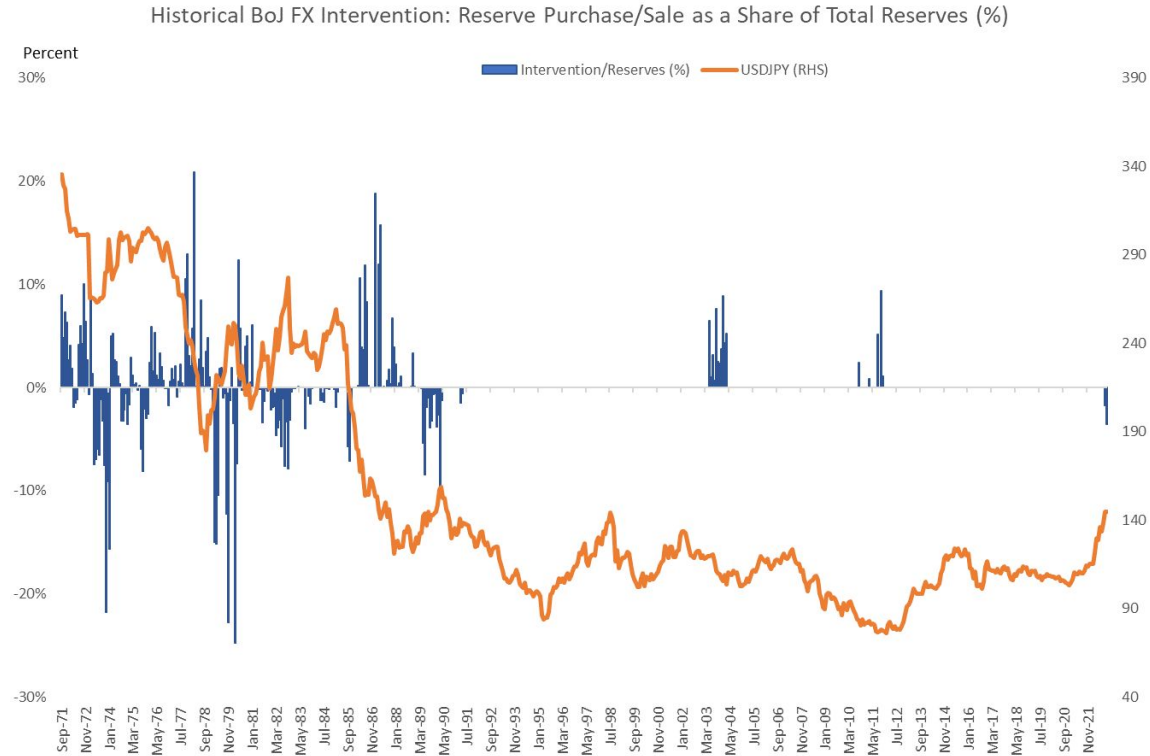
# Intervention by EM ex-China & OPEC Remains Elevated



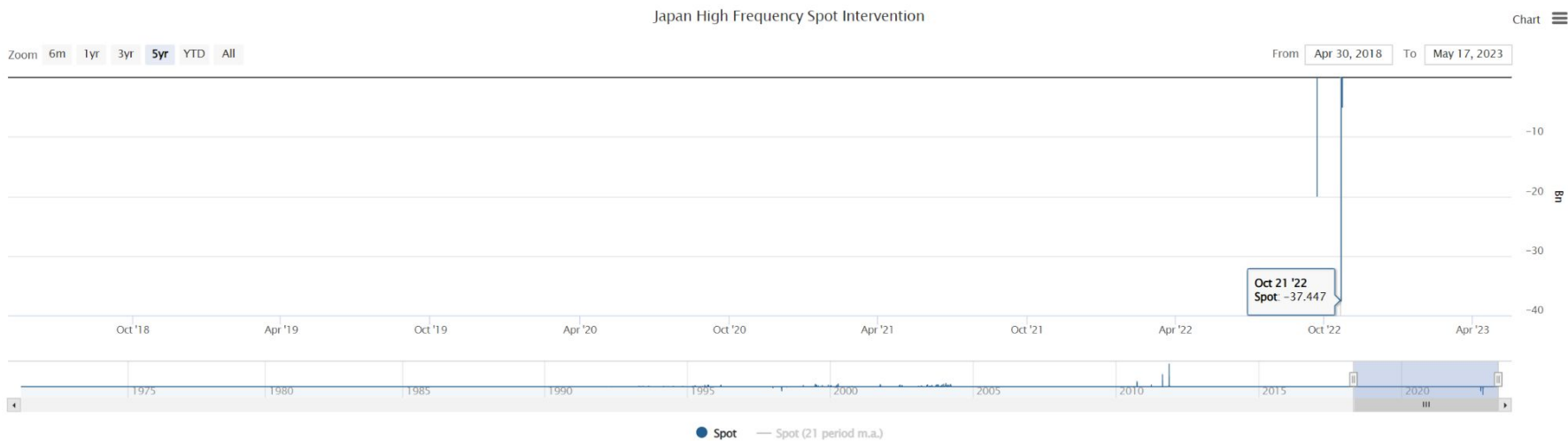
# Spot + Forward Intervention: EM ex-China & OPEC+



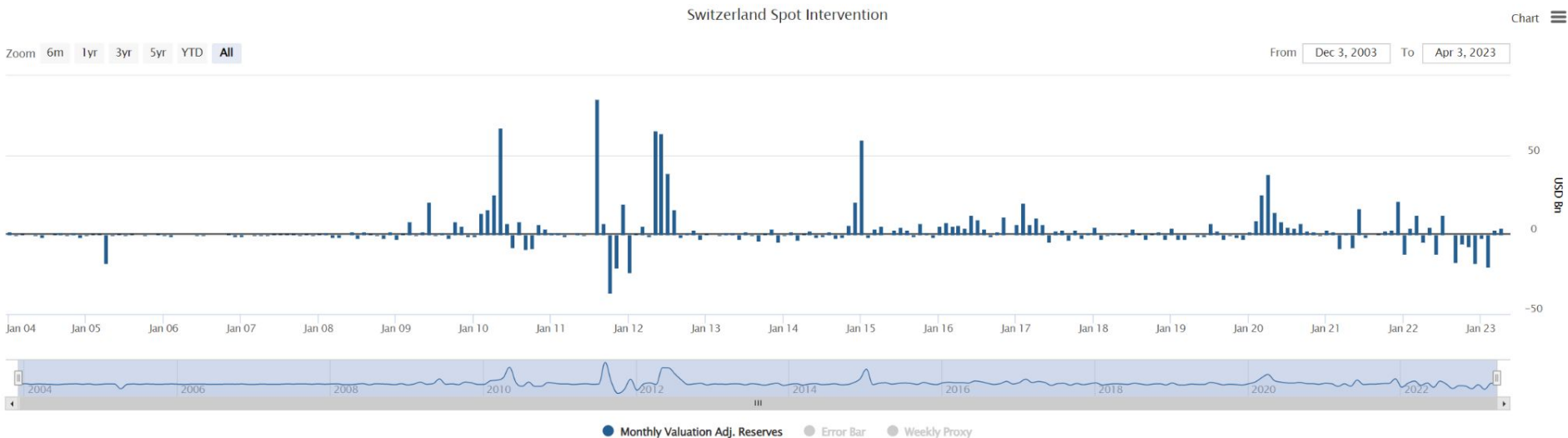
# Japan has gotten active again (first selling since 1998)



# G10 intervention is 'expensive': \$37bn in a day...



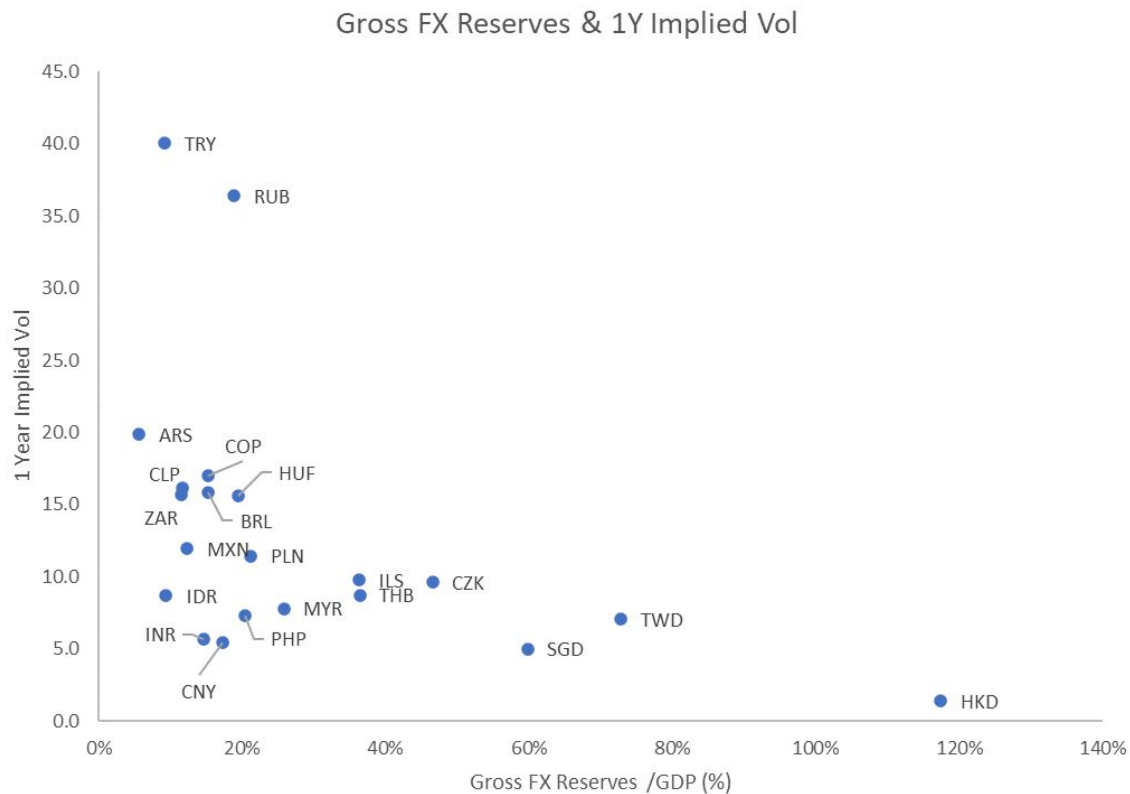
# SNB Intervention (peak : \$20bn / month)



Last Updated at Mar 17th, 2023 1:53pm

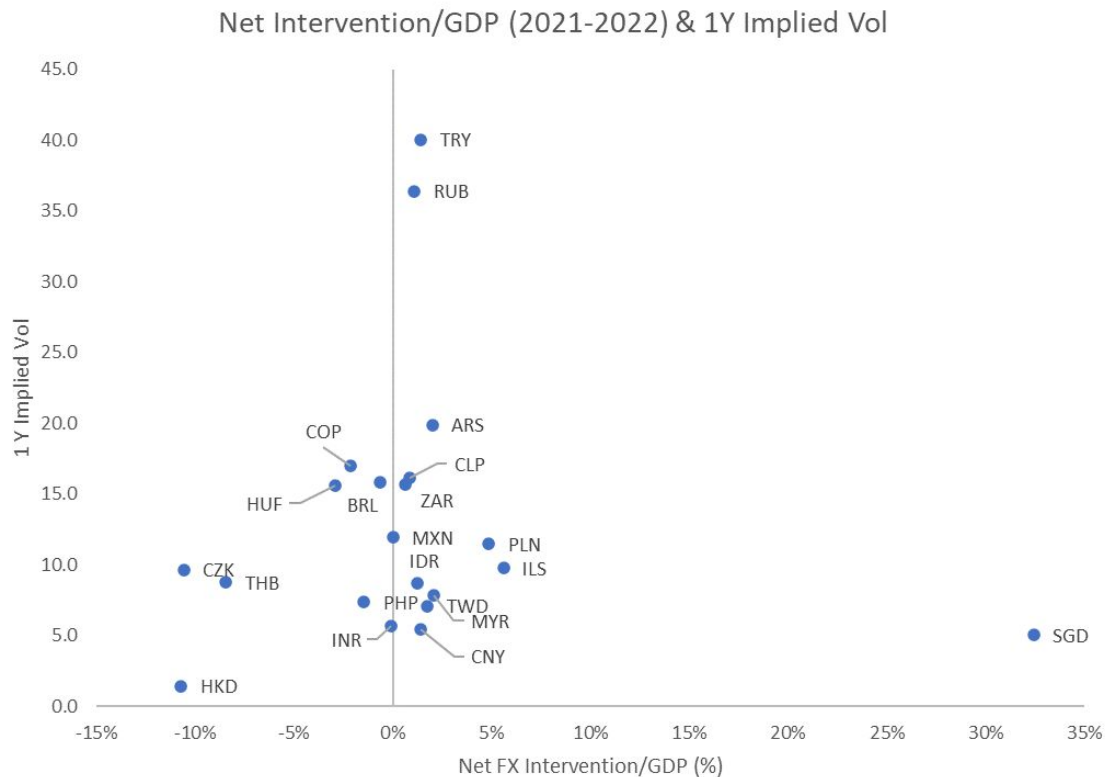
Exante Data, Macrobond, IMF

# High Reserves Can Stabilize the FX (EM Sample)



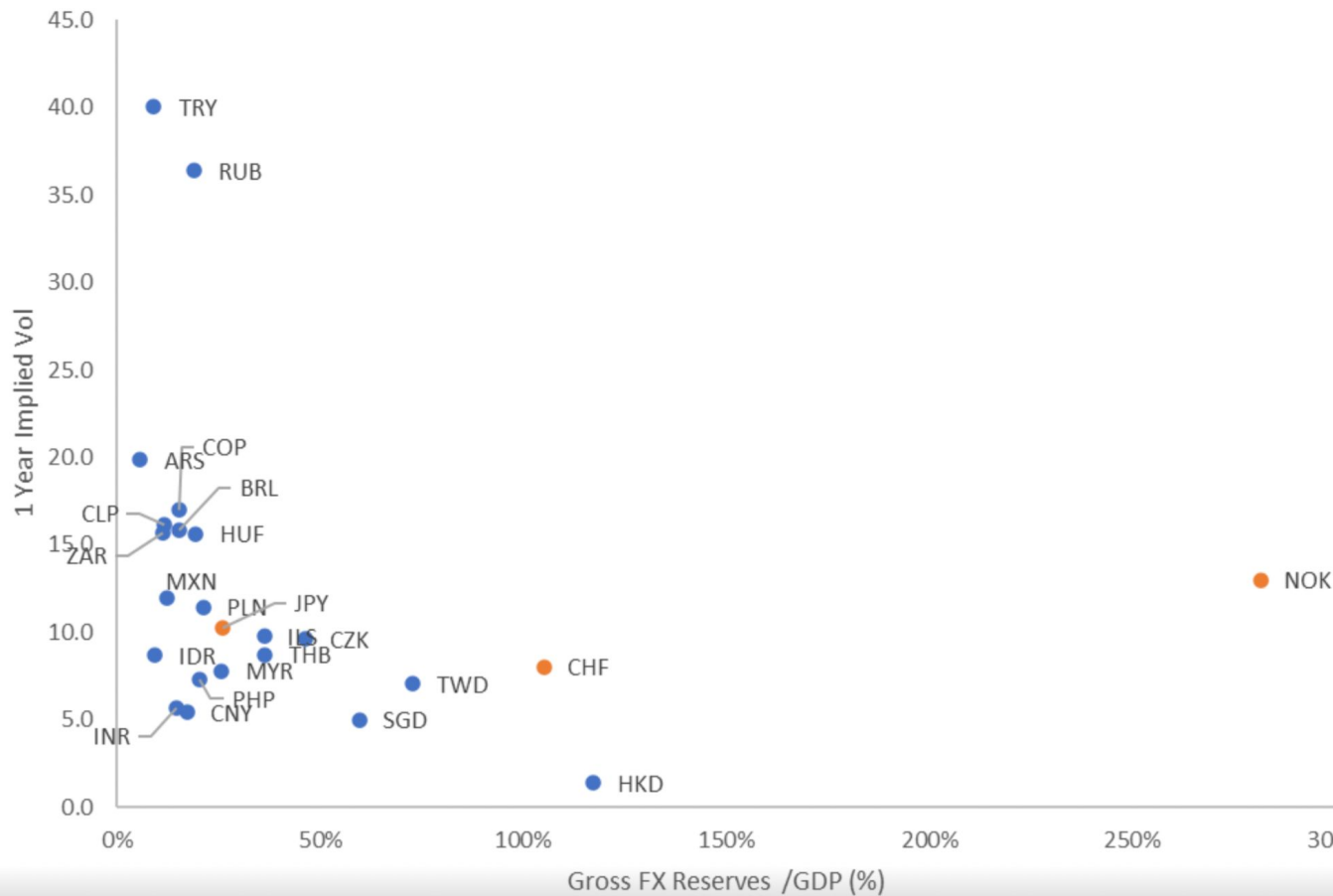


# Net FX Intervention and Implied Vol

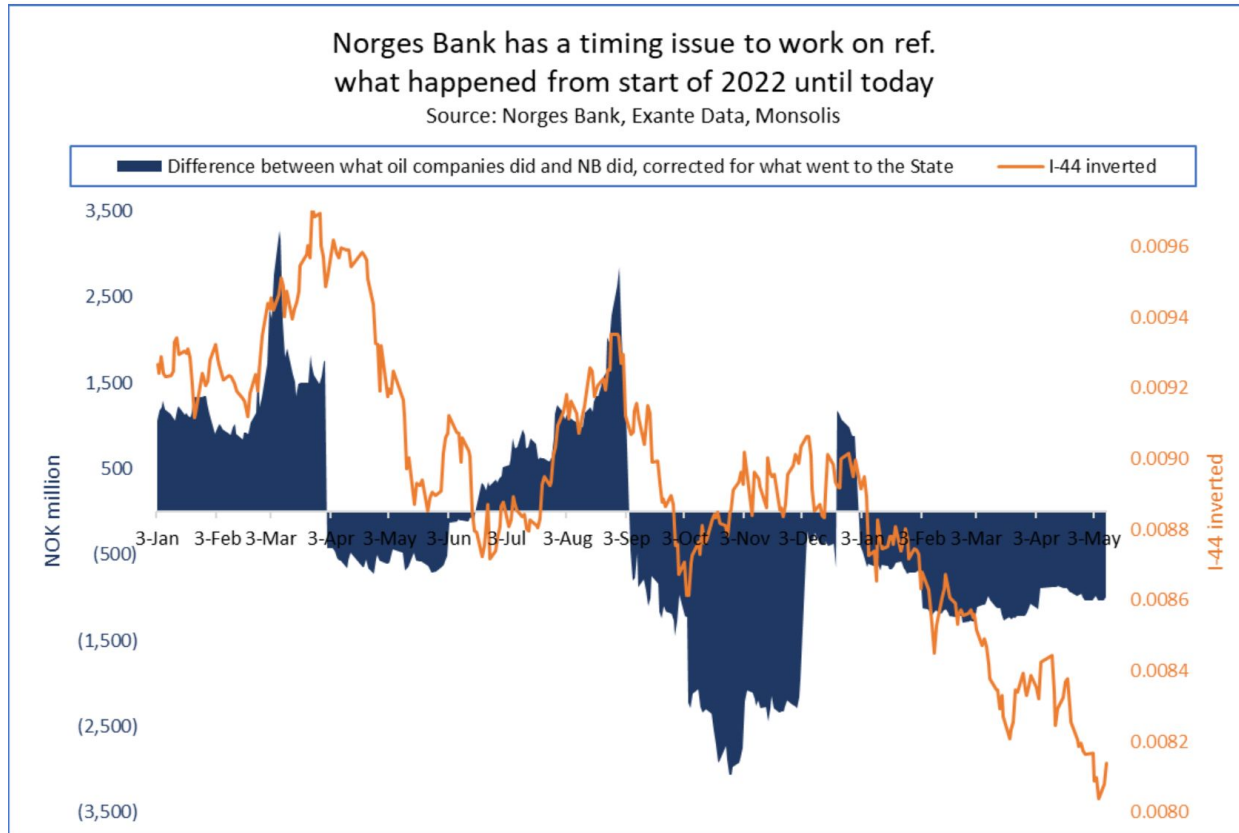


# No Simple formula for FX Stability (EM+G10)

Gross FX Reserves & 1Y Implied Vol



# NOK: 30% FX Depreciation Despite Huge Reserves...





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# Foreign Exchange Intervention: Evolving Views of Role/Effectiveness

Kathryn M.E. Dominguez  
University of Michigan and NBER

# Defining FXI: Sterilization

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- ▶ **Unsterilized intervention:**
  - ▶ involve domestic monetary base changes
  - ▶ not a distinct monetary tool
- ▶ **Sterilization:**
  - ▶ offsets impact on domestic monetary base
  - ▶ results in change in the composition of the central bank's assets
  - ▶ could be independent of monetary policy
  - ▶ Channels for impact:
    - ▶ portfolio balance (requires market segmentation)
    - ▶ information signal (requires information segmentation)
- ▶ **Connection with Foreign Reserves:**
  - ▶ purchases/sales of foreign assets lead to reserve accumulation/decumulation regardless of sterilization

# FXI in DSGE Models

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- ▶ Sterilized interventions have no impacts in standard open-economy DSGE models where UIP (uncovered interest parity) and LOP (Law of One Price) hold.
- ▶ Models that incorporate various financial and goods market frictions that allow deviations from UIP (and LOP) provide a role for interventions; examples:
  - ▶ limited risk bearing capacity of financiers and financial imbalances can drive a wedge in UIP
  - ▶ capital controls can limit UIP
  - ▶ sticky goods prices, limits to goods market arbitrage, trade restrictions all impede LOP



# FXI *can* improve risk sharing

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- ▶ Models with flexible nominal exchange rates fully insulate economies from external financial factors unless risk sharing is disrupted by limited intermediation or any of a wide array of distortions/costs/rigidities:
  - ▶ collateral constraints on households, banks, other intermediaries
  - ▶ distortionary taxes
  - ▶ portfolio adjustment costs
  - ▶ nominal rigidities in goods and labor markets
  - ▶ dominant currency pricing
  - ▶ externalities related to income or wealth inequality
  - ▶ moral hazard that leads to excessive risk taking

# FXI *can* improve welfare

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- ▶ **Optimal use of FXI depends on the country's:**
  - ▶ use of other policies (monetary policy, inflation-targeting, capital controls, macroprudential policies...)
  - ▶ trade invoicing practice
  - ▶ liquidity/depth of forex market (availability of hedging instruments)
  - ▶ levels of domestic and foreign debt
  - ▶ foreign reserve accumulation
  - ▶ potential retaliation by other countries
  - ▶ ability to sterilize (lack of well developed domestic bond market, valuation risks, negative carry trade, conflict with other policies)

# Empirical Estimation

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- ▶ **Critical issues: simultaneity bias and endogeneity**
  - ▶ FXI is most likely to be used during periods of exchange rate turmoil
- ▶ **Econometric approaches**
  - ▶ instrumental variables (news reports)
  - ▶ two-stage approaches using reaction function predictions
  - ▶ event studies of FXI regime changes
  - ▶ propensity score matching and synthetic controls
  - ▶ intra-day microstructure
  - ▶ initial (surprise operations) vs subsequent operations
  - ▶ calibrations using structural models with frictions

# Evidence: when is FXI useful/effective?

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- ▶ **Older results with advanced economy operations:**
  - ▶ during periods when exchange rate movements are at odds with fundamentals (e.g. Plaza Agreement)
  - ▶ when multiple countries believe that a change in a particular currency value is appropriate (leading to FXI coordination)
- ▶ **Newer results with broader group of countries:**
  - ▶ part of central bank policy tool kits, often used along with capital controls and monetary policy to stabilize exchange rate
  - ▶ considered useful in times of crisis to calm disorderly markets by reintroducing two-sided risk

# Role of Foreign Exchange Reserves

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- ▶ byproduct of FXI
- ▶ required to counter market pressure in fixed/managed exchange rate regimes
- ▶ larger reserve portfolios:
  - ▶ found to serve a buffering role during GFC and pandemic
  - ▶ serve as precautionary savings
  - ▶ can be used to pay external debts and finance imports
  - ▶ can lead to allegations of currency manipulation
  - ▶ can expose country to currency risk and carry trade