Managing A Safe-Haven Currency in a Low-Interest-Rate Environment

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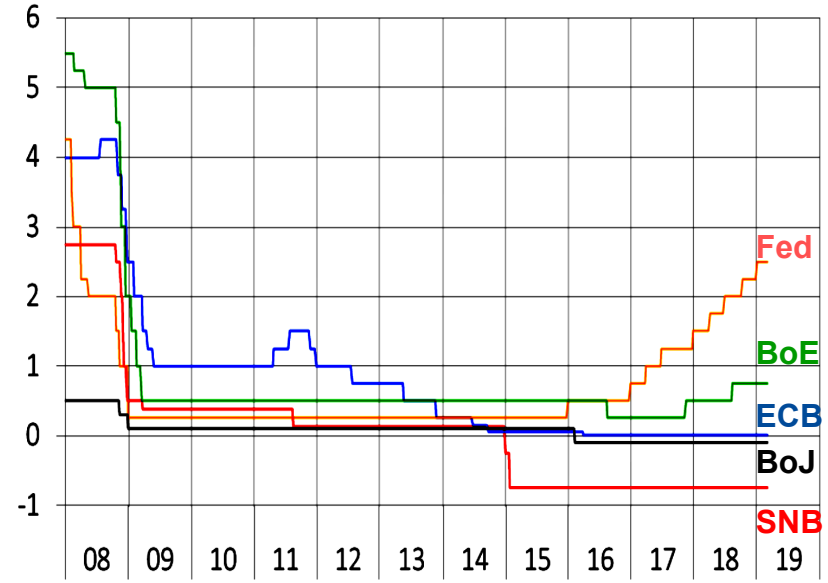
Outline

1. The Global Financial Crisis as a Turning Point for Central Banks
2. Exchange Market Pressure and Exchange-Rate Management
3. Monetary Policy in an Open Economy: A Toy Model
4. Small Open Economy, Safe-Haven Currency, Low-Interest-Rate Environment

1. The Crisis as a Turning Point for Central Banks

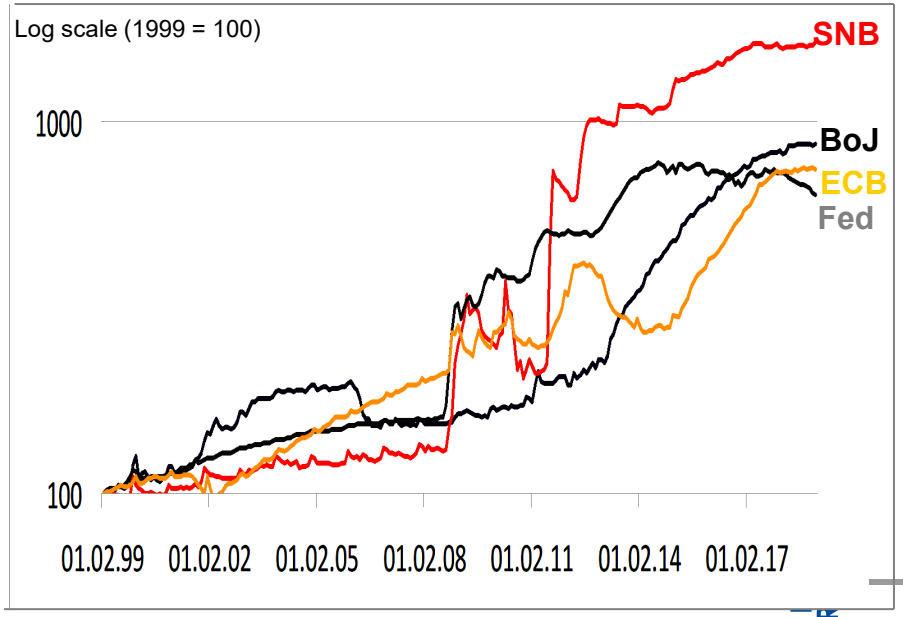
In 2009, policy rates drop to near zero (Japan was already there before)
→ Central Banks responding by
- Quantitative Easing;
- Forward Guidance.

Central Bank Policy Rates



Source: Seco

Central Bank Balance Sheets



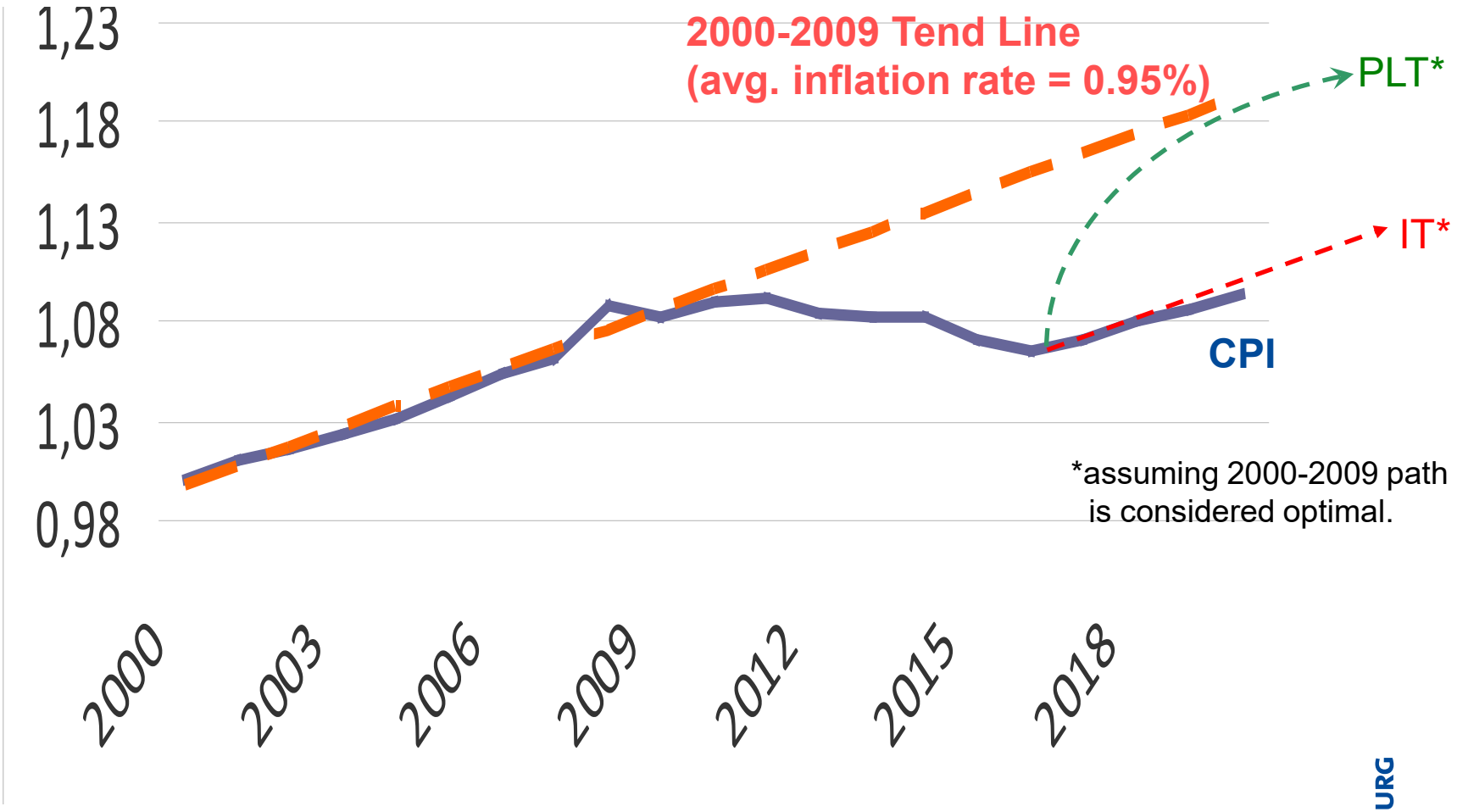
Beyond the Crisis Response: "Rethinking the Framework"

- As the low-interest rate environment persists: Reappraisal of the prevailing monetary policy framework
- Changes are under consideration along three dimensions (Clarida 2019):
  1. **Strategy** (move beyond inflation targeting?);
  2. **Toolkit** (tools other than policy rate, balance sheet?);
  3. **Communication** (improve expectations management).
- Clearly, communication must be subordinated to and aligned with strategy and toolkit.

The Strategy Level

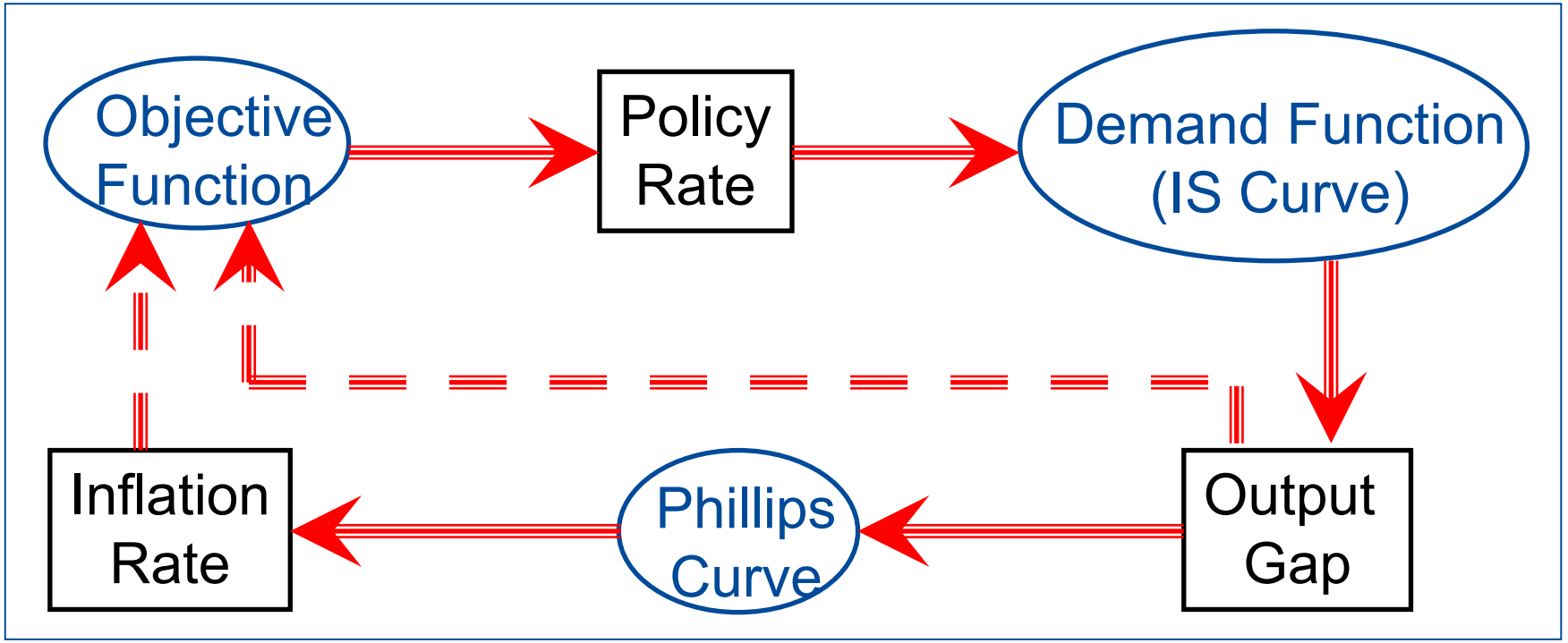
- Alternatives to standard flexible inflation targeting mainly motivated by the need to escape the trap of a binding ELB:
  - Average Inflation Targeting;
  - Price Level Targeting
  - Temporary Price Level Targeting
- Recent contributions: Mertens/Williams (2019), Bernanke/Kiley/Roberts (2019), Svensson (2020)
- Under inflation targeting, the price level is a random walk (with drift) whereas under PLT, it becomes more predictable.
- If established in a credible manner, PLT delivers the L4L feature on which any escape from an ELB trap by forward guidance depends.

The Swiss CPI, 2000-2018 (2000 = 100)



The Instrumental Level

The textbook view of the monetary transmission mechanism:

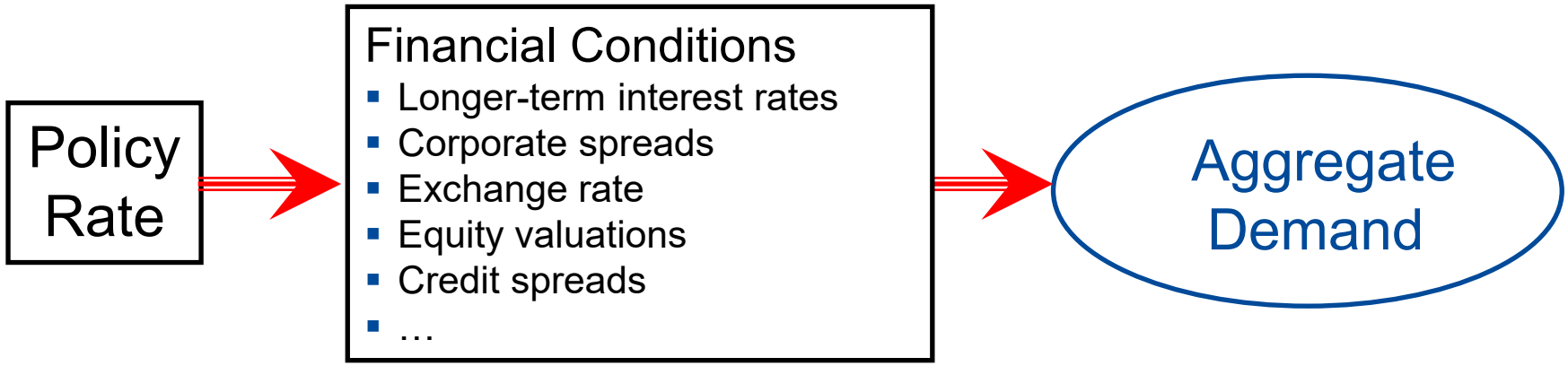


Problems: 1. Policy rate hits the ELB;

2. How reliable is transmission via IS and Phillips Curve?

The IS Curve Is a Short Cut

The transmission chain from the policy rate to aggregate demand runs via broader financial conditions:



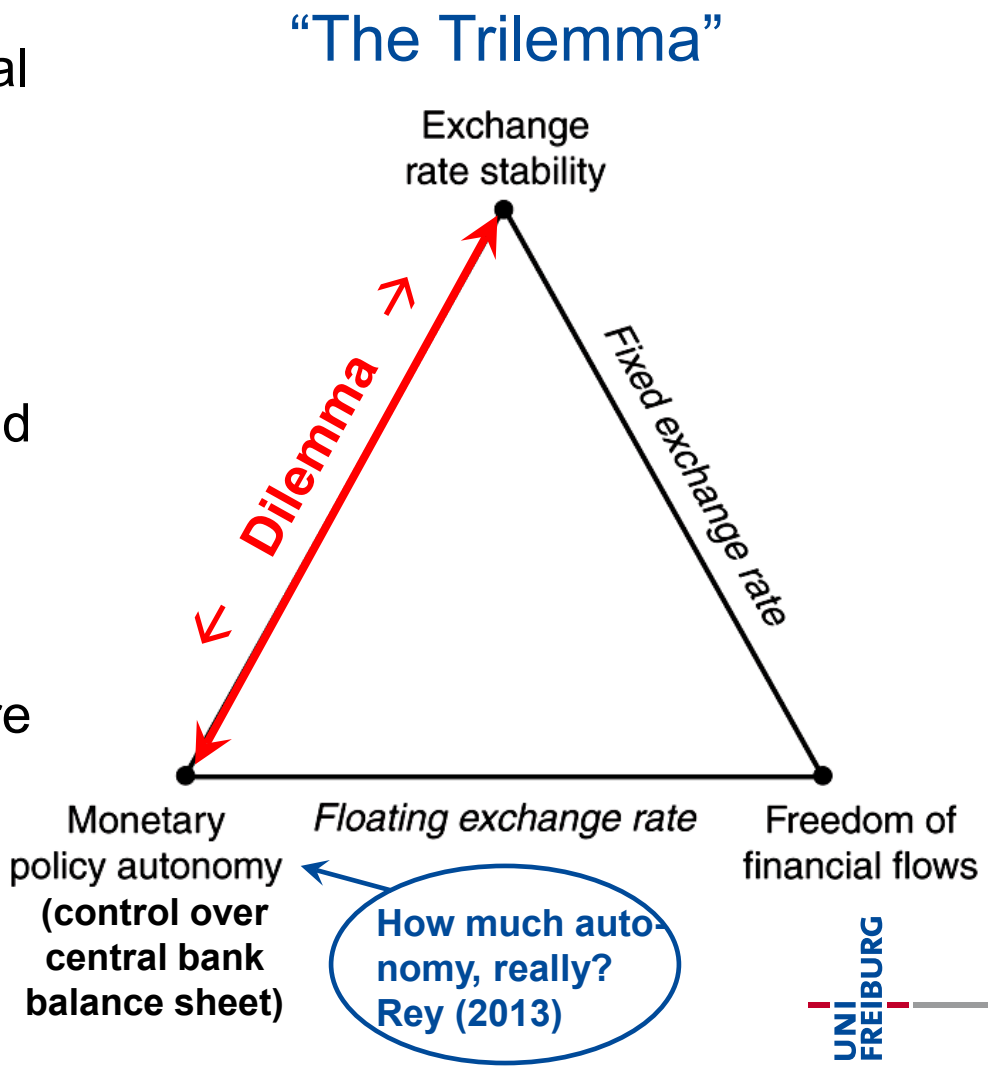
Hatzius et al. (2017,2018)

- construct a Financial Conditions Indicator (FCI);
- find that the performance of the economy is more closely related to financial conditions than to the federal funds rate alone;
- conclude that the central bank should focus on the FCI when easing or tightening its policy.

→ Is there a case for targeting a broader range of asset prices (long-term rate, exchange rate, FCI)?

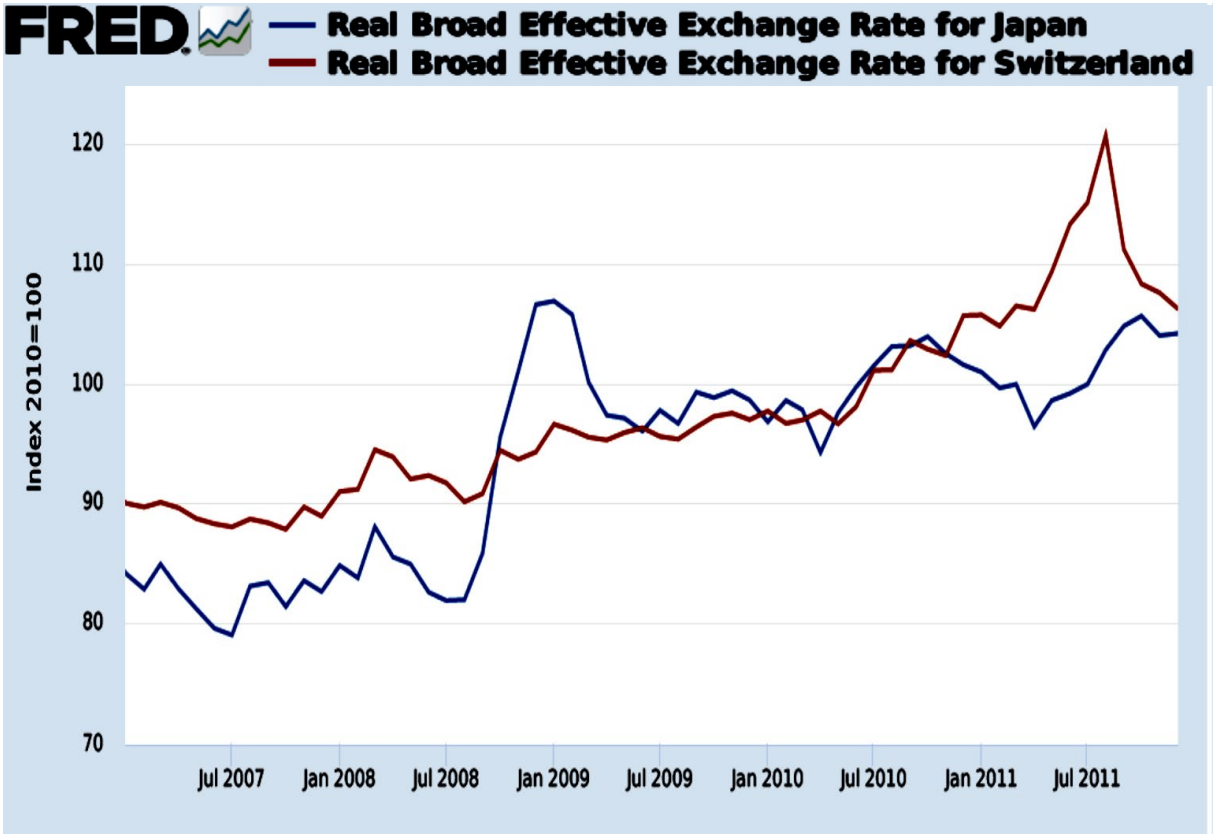
2. Exchange Market Pressure and Exchange Rate Management

- The general turmoil on financial markets that was stirred up by the GFC and the Euro Crisis spilled over to the foreign exchange markets.
- Several currencies experienced significant exchange market pressure due to large international portfolio shifts.
- This exchange market pressure confronted policymakers with hard choices, as predicted by the famous “Trilemma”:



A Tale of Two Safe-Haven Currencies

The Japanese Yen and the Swiss Franc, 2007-2011



The quest for “safe havens” led to a marked appreciation of the Japanese Yen and the Swiss Franc.

Need for action?
(given that the room for interest-rate cuts was soon exhausted)

Testing for Safe-Haven Status

Menzie Chinn and Jeffrey Frankel (2019), surveying the evidence on the joint hypothesis of uncovered interest parity and market efficiency, have reestimated the Fama (1984) regression of the rate of change of the exchange rate on the lagged forward premium for a number of currencies against the US Dollar over three decades:

$$\Delta s_{t,t+k} = \beta_0 + \beta_1 \left(f_{t,t+k} - s_t \right) + \varepsilon_{t+k}$$

Familiar results, and among their conclusions:

"Reassuringly, the evidence suggests negative risk premia for the Japanese yen and Swiss franc (relative to the US dollar), both of which are widely considered "safe haven" currencies."

Chinn/Frankel (2019, p. 3)

Koichi Hamada (2019) on the Case of Japan

Consider the challenge faced by Japan since 2008. When the US and the UK introduced QE after the crisis, the increase in the relative amount of dollars and pounds in the international market drove up the yen's value. The Bank of Japan could have taken action to counter this effect, but then-Governor Masaaki Shirakawa was apparently not fully aware of the implications of the Soros chart for the exchange rate.*

Eventually, with the introduction of Abenomics, the BOJ under Haruhiko Kuroda introduced the needed monetary policy. But it was too late to change the fact that Japan experienced a sharper growth slowdown than the US and the UK, the epicenters of the global economic crisis.

Source: Project Syndicate, February 27, 2019

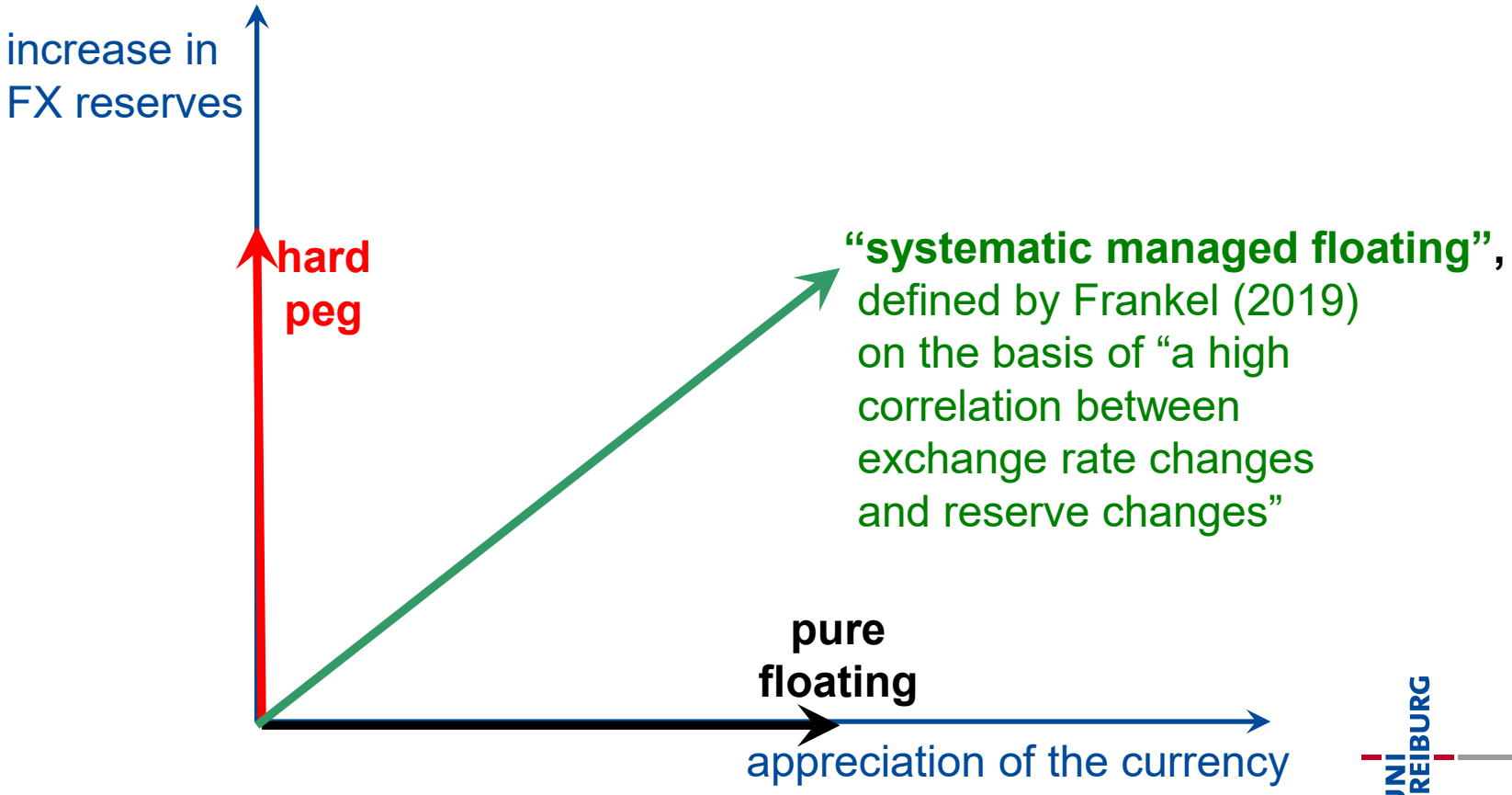
Message: Benign neglect of the exchange rate was a serious mistake

***"Soros Chart":**
exchange rate against relative amounts of currencies in the market

Responding to Exchange Market Pressure (EMP)

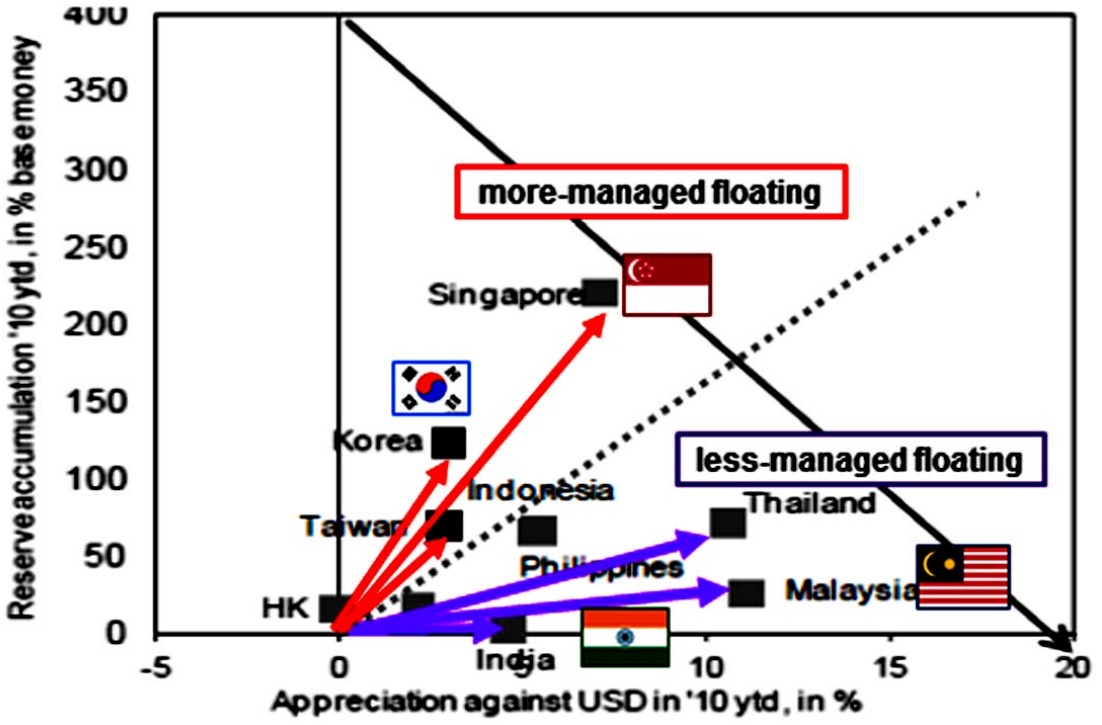
Many countries experienced EMP in the course of the GFC.

Responses differed; they are categorized in the diagram below:



Absorption of EMP by Asian Emerging Economies in 2010

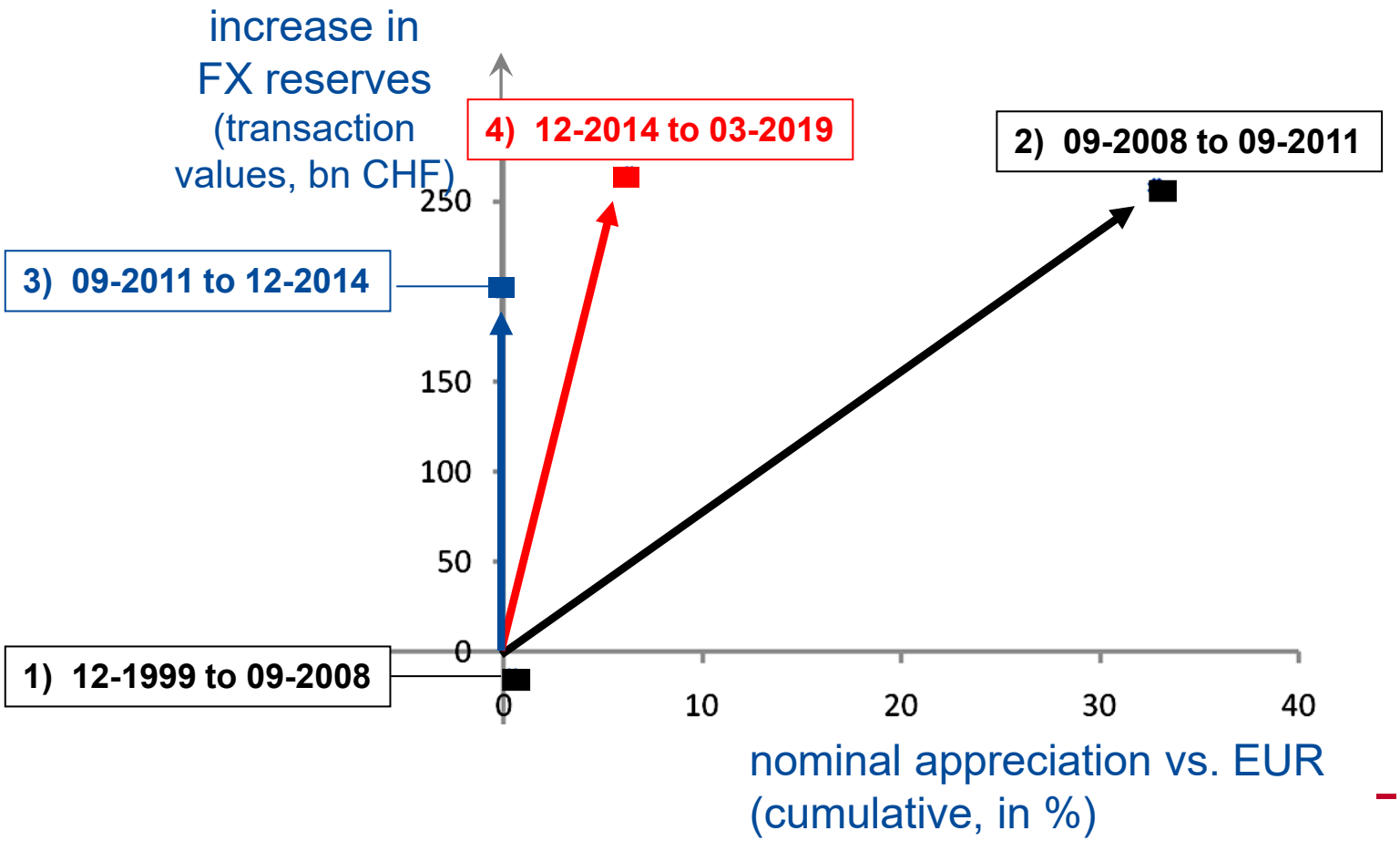
Asian Emerging Economies differed in their response to heightened exchange market pressure



Source: Frankel (2019), adapted from Goldman-Sachs

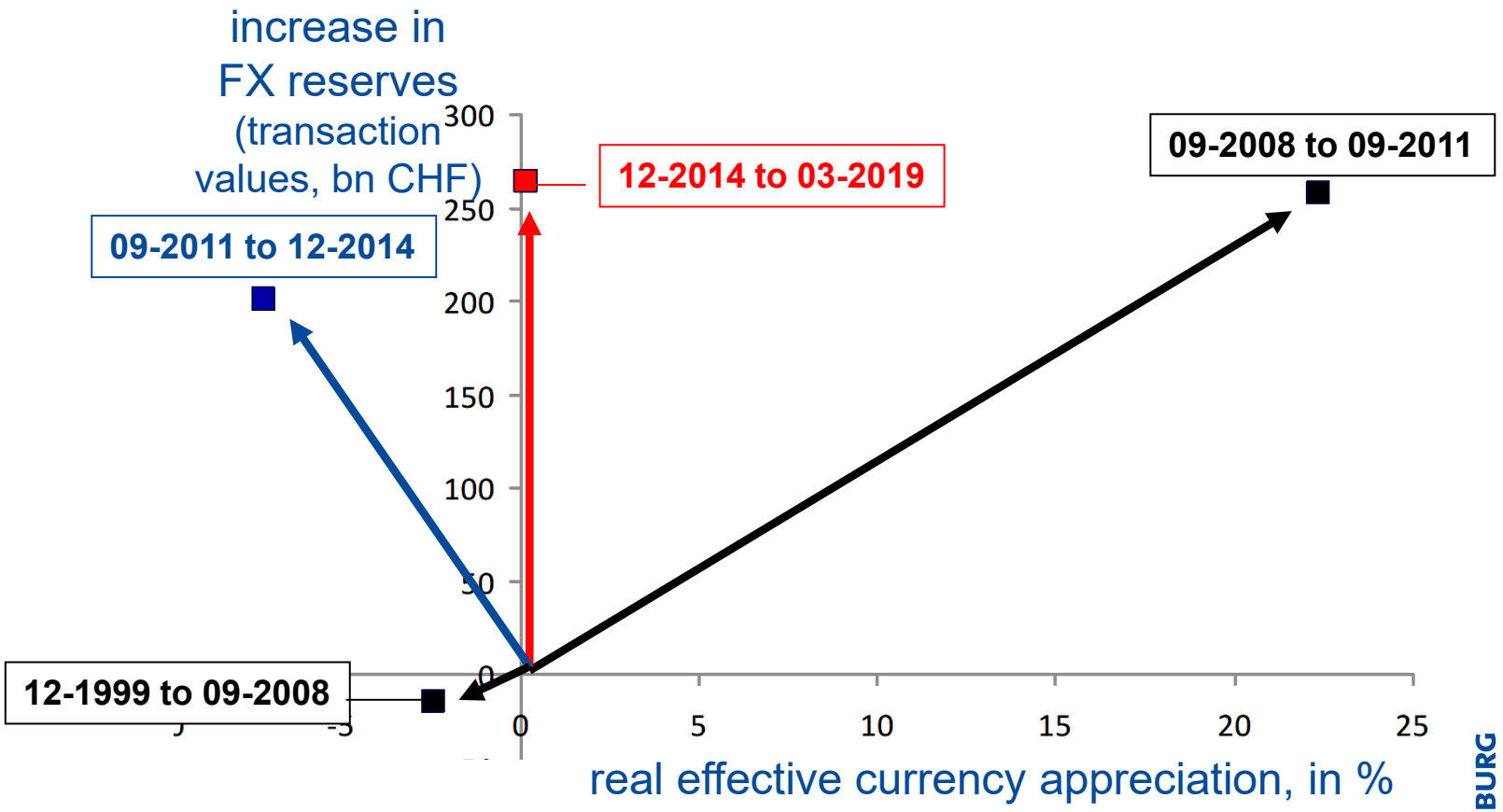
Absorption of EMP by Switzerland since 1999

4 periods, distinguished by size of EMP and by policy response:



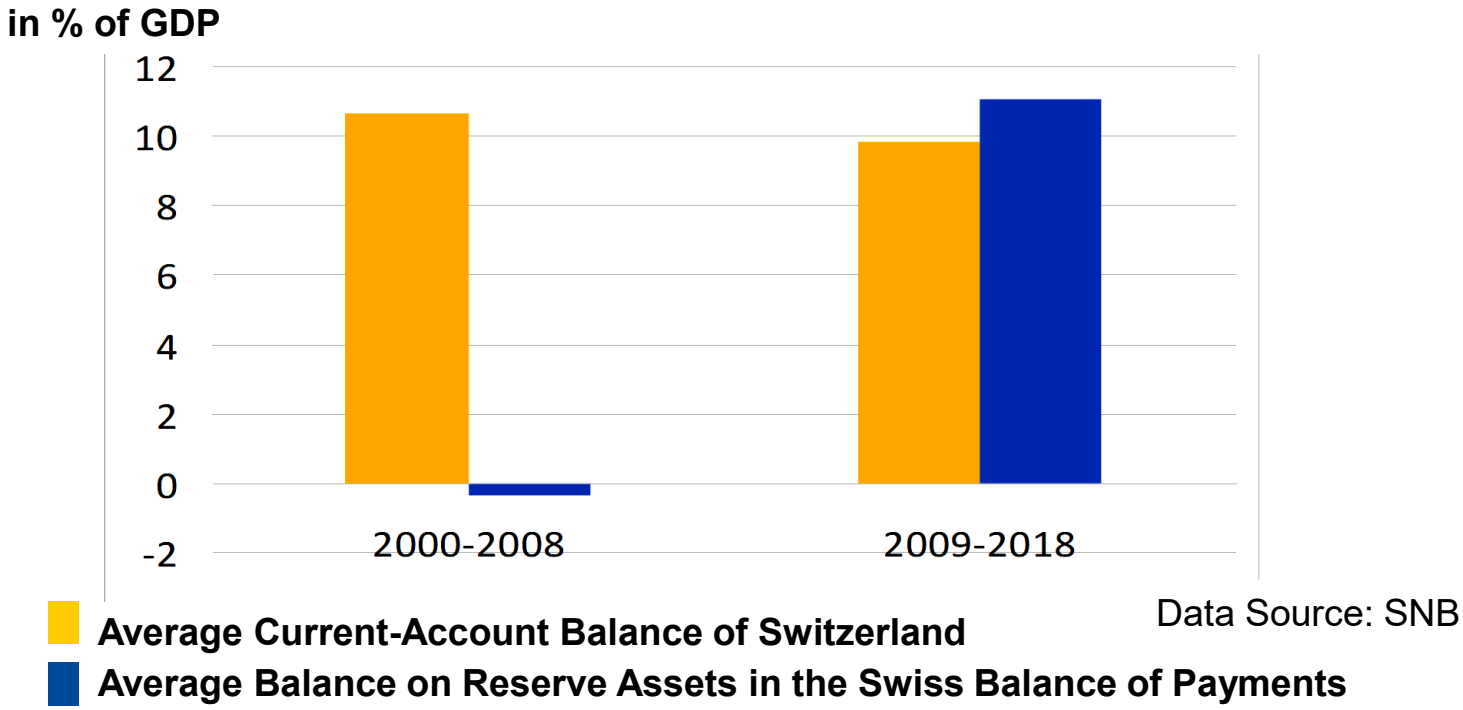
Absorption of EMP by Switzerland since 1999 (in terms of the real effective exchange rate)

4 periods, distinguished by size of EMP and by policy response:



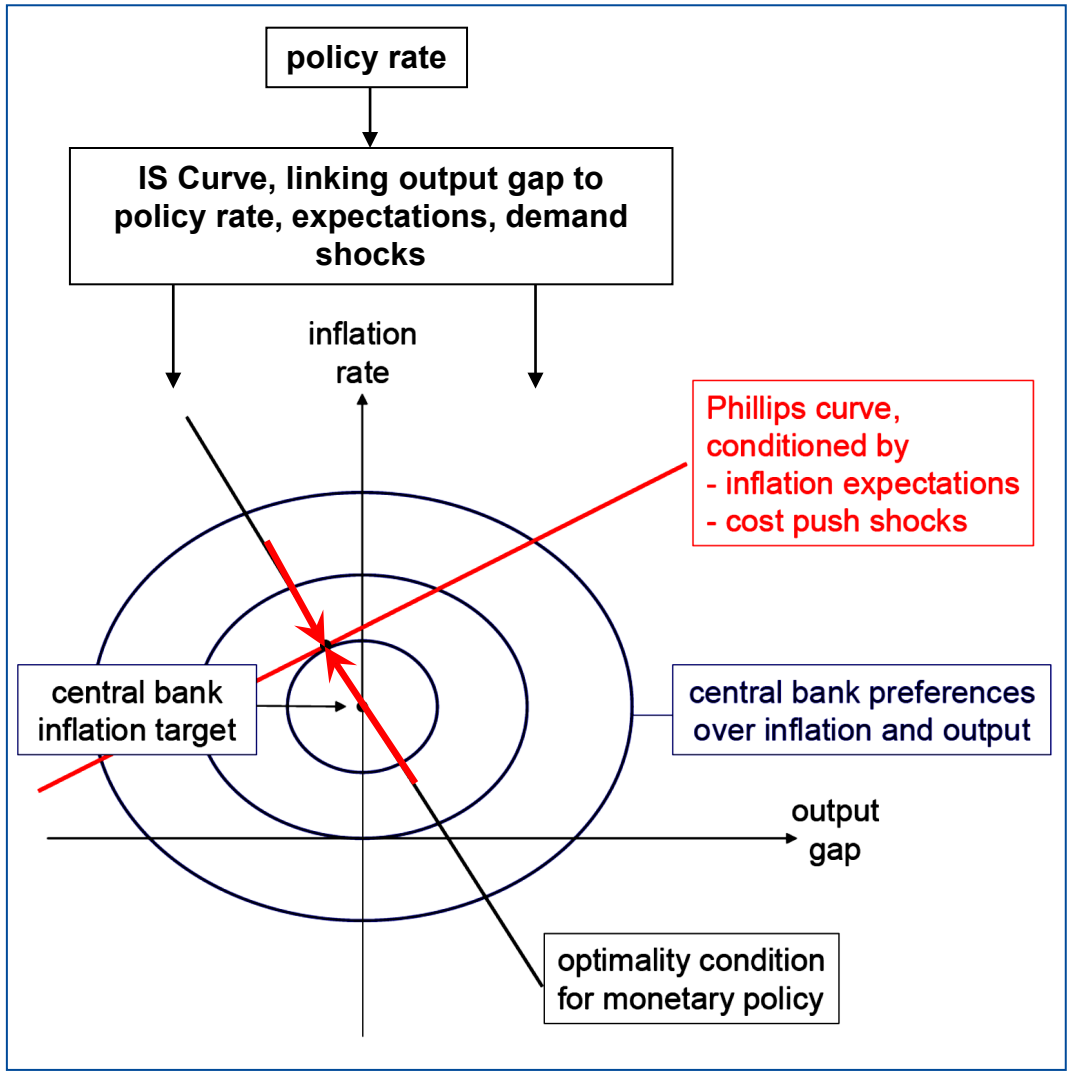
The SNB as Swiss Capital Exporter of Last Resort?

- The Swiss current-account surplus of roughly 10% of GDP represents a national savings surplus in need of being invested on the global capital markets.
- Who takes care of channeling those excess savings abroad?
- Until 2008, it was the private sector.
- Since 2009, it is the Swiss National Bank.



Data Source: SNB

3. Monetary Policy in an Open Economy



Adaptation to **Open Economy**:

1. Exchange rate effect on aggregate demand and the price level;
2. Domestic interest rate linked to international capital market conditions.

Does the standard policy framework carry over to the open economy?

A Stylized Toy Model of a Small Open Economy (Carlin/Soskice 2010, augmented)

International financial integration	$r_t = r^* + q^e_{t+1} - q_t + \rho_t$	(1)
Equilibium real interest rate	$\bar{r} = r^* + \rho$	(2)
Demand-determined output (IS)	$y_{t+1} = A_{t+1} - ar_t + bq_t$	(3)
Equilibium real exchange rate	$\bar{q} = b^{-1} \cdot [\bar{y} - A + a(r^* + \rho)]$	(4)
Phillips Curve	$\pi_t = (\pi^e)_t + \alpha(y_t - \bar{y}) + \varepsilon_t$	(5)
f.o.c. of optimizing central bank	$(y_t - \bar{y}) = -\alpha\beta(\pi_t - \pi^T)$.	(6)

r:	real interest rate	q:	real exchange rate		
ρ:	risk premium	A:	exogenous demand variable		
y:	output	$y - \bar{y}$:	output gap		
π :	inflation rate	π^T:	target inflation rate;	ε_t:	cost-push shock
x^e:	Expected variable	x^*:	foreign variable;	$\bar{x}$:	equilibrium value of x

Short-Run and Long-Run Properties of the Model

- **Equilibrium real interest rate** $\bar{r} = r^* + \rho$;
  not controlled by monetary policy, but entirely determined by *inernational* financial conditions.
- **Equilibrium real exchange rate** is not controlled by monetary policy, but - give the equilibrium real interest rate - by the equilibrium condition for the goods market.
- **Monetary policy** controls the interest rate in the short run and the inflation rate in long-run equilibrium.
- **Consistency Condition** for the long-run equilibrium: $\bar{r} + \pi^T > ELB$
- Adjustment towards long-run equilibrium driven by the **dynamics** of the Phillips Curve:
  - Inflation inertia in case of backward-looking expectations;
  - AR-structure of cost-push shock in case of New Keynesian Phillips Curve.

The Standard Case: ELB Non-Binding

- Whenever $\pi \neq \pi^T$, the central bank sets **the interest rate** so as to place the economy onto its f.o.c. schedule as soon as possible (taking into account the time lags in the IS equation).
- If inflation needs to be brought down, the real interest rate *r* is set above $\bar{r}$ so as to bring about a negative output gap and a fall in inflation. Subsequently, *r* is gradually reduced towards $\bar{r}$ as **inflation moves towards its target rate** and output gradually recovers.
- As long as $r > \bar{r}$, risk-adjusted UIP implies that *q* must be expected to rise. The **foreign exchange market** undervalues *q* (i.e. *over*values the domestic currency) relative to its equilibrium level, therefore. As *r* falls back toward r*, the rate of change of *q* will slow until $r = \bar{r}$ and $q = \bar{q}$.

How the Interest Rate and the Exchange Rate Are Linked

Suppose, in the course of adjustment towards equilibrium, the evolution of *q* can be described by

$$q_{t+1} - \bar{q} = \varphi \cdot (q_t - \bar{q}), \qquad \text{where } \phi < 1. \tag{7}$$

Combining this with risk-adjusted UIP, we get

$$r_t - \bar{r} = q_{t+1} - q_t = (q_{t+1} - \bar{q}) - (q_t - \bar{q}) = -(1-\varphi) \cdot (q_t - \bar{q}), \tag{8}$$

an inverse relation between *r* and *q*, conditioned by their respective equilibrium levels

If eq. (8) is plugged into the IS equation (3) to express the output gap as (9)

$$y_{t+1} - \bar{y} = -(a + \frac{b}{1-\varphi}) \cdot (r_t - r^* - \rho)$$

An Interest-Rate Rule

Combining the output gap equation

$$y_{t+1} - \bar{y} = -(a + \frac{b}{1-\varphi}) \cdot (r_t - r^* - \rho) \qquad (9)$$

with the f.o.c. of optimizing central bank for the desired joint path of output and inflation, we can derive an interest-rate rule for targeting the inflation rate in an open economy: (8)

$$r_t = r^* + \rho + \frac{\alpha \beta \lambda (1-\lambda)}{a(1-\lambda)+b} \left(\pi_t - \pi^T \right)$$

Interpretation:

1. Interest-rate policy responds to inflation (more generally: the inflation outlook).
2. In doing so, it accommodates changes in r* and ρ as well as other disturbances to the interest-rate-exchange-rate link.
3. Induced endogenous exchange-rate adjustments reinforce the interest-rate signal (cf. case study for Sweden in Svensson 2018).

4. Small Open Economy, Safe-Haven Currency, Low-Interest-Rate Environment

- Interest-rate based inflation targeting breaks down if the interest rate hits the ELB.
- Strategy Level: Forward Guidance, Expectations Management;
- Instrument Level: Work your way to the real economy and inflation through variables other than a short-term interest rate;
- How an open economy can escape an ELB trap by backing a strategic turn towards Temporary Price-Level Targeting with an (equally temporary) explicit management of the exchange-rate:

  Lars Svensson's (2003) "Foolproof way" for Japan
  - a price level target path;
  - a currency depreciation;
  - a crawling peg;
  - an exit strategy

At the time, global interest rates were not as low as they are today!

Challenges to Exchange-Rate Management

- An exchange-rate peg can easily get in the way of **domestic stability** (monetary and macroeconomic);
- What about the **balance sheet** of the central bank?
- Monetary policy or foreign exchange market interventions cannot control the long-term path of the **real exchange rate**;
  - correct (an implication of our model above);
  - correct, but nor can monetary policy control the long-term path of the real interest rate.
- The explicit use of an exchange-rate tool for macroeconomic purposes can meet with resistance from abroad on **beggar-thy-neighbour** grounds;
  - a serious political problem for Japan since many years;
  - however, an interest-rate based policy may face the same problem (remember the “Currency War” debate!)

The Case for a More Prominent Role of a Monetary Conditions Index

An earlier proposal in 2016:

Neue Zürcher Zeitung

Die Schweizerische Nationalbank sollte der Wechselkursentwicklung mehr Bedeutung zumessen. ***Von Oliver Landmann***

My starting point: the Strategy Statement of the SNB:

"The monetary policy concept in force since the beginning of 2000 consists of three elements: a definition of price stability, a medium-term inflation forecast and – on an operational level – a target range for a reference interest rate, the three-month LIBOR [or soon the Saron, OL] for Swiss francs."

What if the short-term interest rate is, for all practical purposes, frozen at the ELB?

Why an MCI-based Concept?

Referring back to the model above:

International financial integration $r_t = r_t^* + q_{t+1}^e - q_t + \rho_t$ (1)

Demand-determined output (IS) $y_{t+1} = A_{t+1} \underbrace{- a r_t + b q_t}_{\textbf{MCI}}$ (3)

Potential sources of deflationary shocks:

Goods market: $A_t \downarrow$

Financial markets: $r_t^* \downarrow$, $q_{t+1}^e \downarrow$, $\rho_t \downarrow$

With r_t frozen at the ELB, any of these financial market shocks, by eq. (1), puts pressure on the exchange rate ($q_t \downarrow$), thereby potentially destabilizing the economy.

→In order to shield the goods market from financial-market turbulence, the operational focus should be on MCI.

Objections

- Doesn't any central bank, when it is deciding on policy, look at a broad range of indicators anyway?
- With the short-term interest rate immobilized by the ELB, isn't an MCI-based policy in fact an exchange-rate policy?
- Wouldn't the size of the balance sheet grow out of control?
- Exchange-rate management, if it is to work, must attain credibility. Credibility won with regard to internal price stability is not easily transferred to the foreign exchange market.

Perhaps. But:

The point is not to fix the exchange rate at any given level, but to condition expectations by means of a commitment to **keep an appropriate MCI in a target range (subject to review in regular intervals) that is consistent with the inflation target**.
→ Credibility derived from consistency with the inflation target

MCI-Based Policy vs. Managed Floating

- An MCI-based policy may entail co-movements of the exchange rate and of foreign exchange reserves much like “systematic managed floating” – **depending on the type of shocks** hitting the economy.
- To the markets, however, Systematic Managed Floating appears to be driven by a central-bank objective function that punishes major increases in the foreign exchange reserves - which can **shape market expectations** in an undesirable way (one-way bets).
- In the case of financial market shocks (international portfolio shifts), **a publicly and credibly stated MCI-based strategyy** is conducive to containing exchange market pressure (expectations of imminent appreciation).
- An MCI-based strategy naturally nests the traditional interest-rate based strategy should **the old “normal”** of elevated equilibrium interest rates return at any point in the future.

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