STOPPING INFLATION IN A FRAGILE GLOBAL CONTEXT

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Jornadas Monetarias y Bancarias. Banco Central de la República Argentina, septiembre 19 y 20 de 2016.

INTRODUCTION

- Trying to stop inflation is a familiar issue in these parts of the world.

- We have a lot to learn from past experience.

- However, **nowadays the international macroeconomic arena has become extremely shaky and much harder to understand**.

- Therefore, it is important that EM policymakers take this into account, which I will proceed to do.

GLOBAL LIQUIDITY

CENTRAL LIQUIDITY PUZZLE:

- **The Lehman crisis was associated with <u>huge</u> "haircuts": Liquidity <u>Crunch</u>**

Figure 4: The Repo-Haircut Index
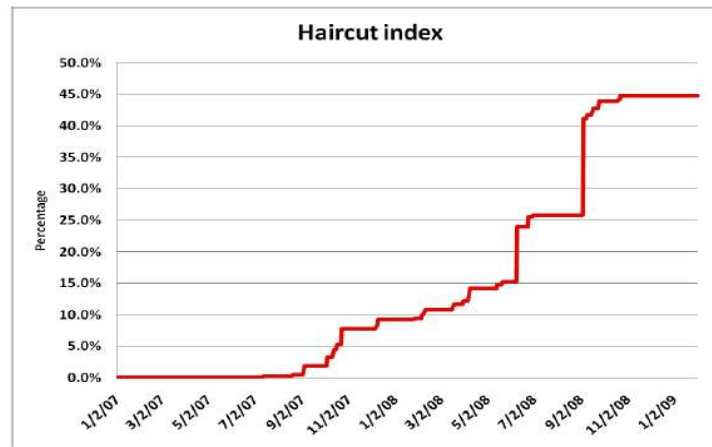
Source: G.Gorton and A. Metrick "Securitized Banking and the Run on Repo," 2012

- **However, Developed Market economies (DMs) exhibited Liquidity <u>Trap</u>**

Price Theory of Money (PTM)

"[…] *the fact that* __the fact that contracts are fixed, and wages are usually somewhat stable in terms of money,__

UNQUESTIONABLY

plays a large part in attracting to money so high a liquidity-premium"
Keynes (*General Theory*, Chapter 17, p. 236, emphases are mine)

- Money dominates other instruments, because **there is a large array of goods that money can fetch on the spur of the moment, due to price stickiness**.

- **Especially if it is a non-inflationary global unit of account**, e.g., <u>USD and euro</u>, i.e., **reserve monies.**

- **This helps to explain <u>Liquidity Trap in reserve currencies</u>, while there is a massive <u>Liquidity Crunch in other financial assets</u>.**

LIQUIDITY DEFLATION:
# The Limits of PTM

- However, the **output backup of reserve monies may not increase in proportion with their *real* value** (i.e., stock/price level).

- Hence, it is possible that the **Liquidity Quality** of reserve monies **decline** as their *real* stock increases beyond a certain point: Liquidity Deflation.

- In that case, pumping in more reserve money may not increase significantly the effective value of reserve money as credit collateral.

- **Liquidity Deflation weakens the credit stimulus of reserve-money QE.**

Unconventional Monetary Policy with a Trembling Hand

- UMP was an Advanced Markets' response to the **ineffectiveness of central banks' interest rates to offset Liquidity Trap and prevent price deflation**.

- **However, money may not be a good substitute for financial assets that are impaired by Liquidity Crunch, and**

- **Furthermore, money may be subject to Liquidity Deflation.**

- **This helps to explain why the crisis symptoms are taken so long to subside.**

CREDIT SUDDEN STOP

HERE IS WHERE CENTRAL PROBLEM LIES !!

SAVING FLOW

PRIVATE SECTOR INVESTMENT

SAFE LIQUID ASSETS

= , etc., LIQUIDITY TRAP
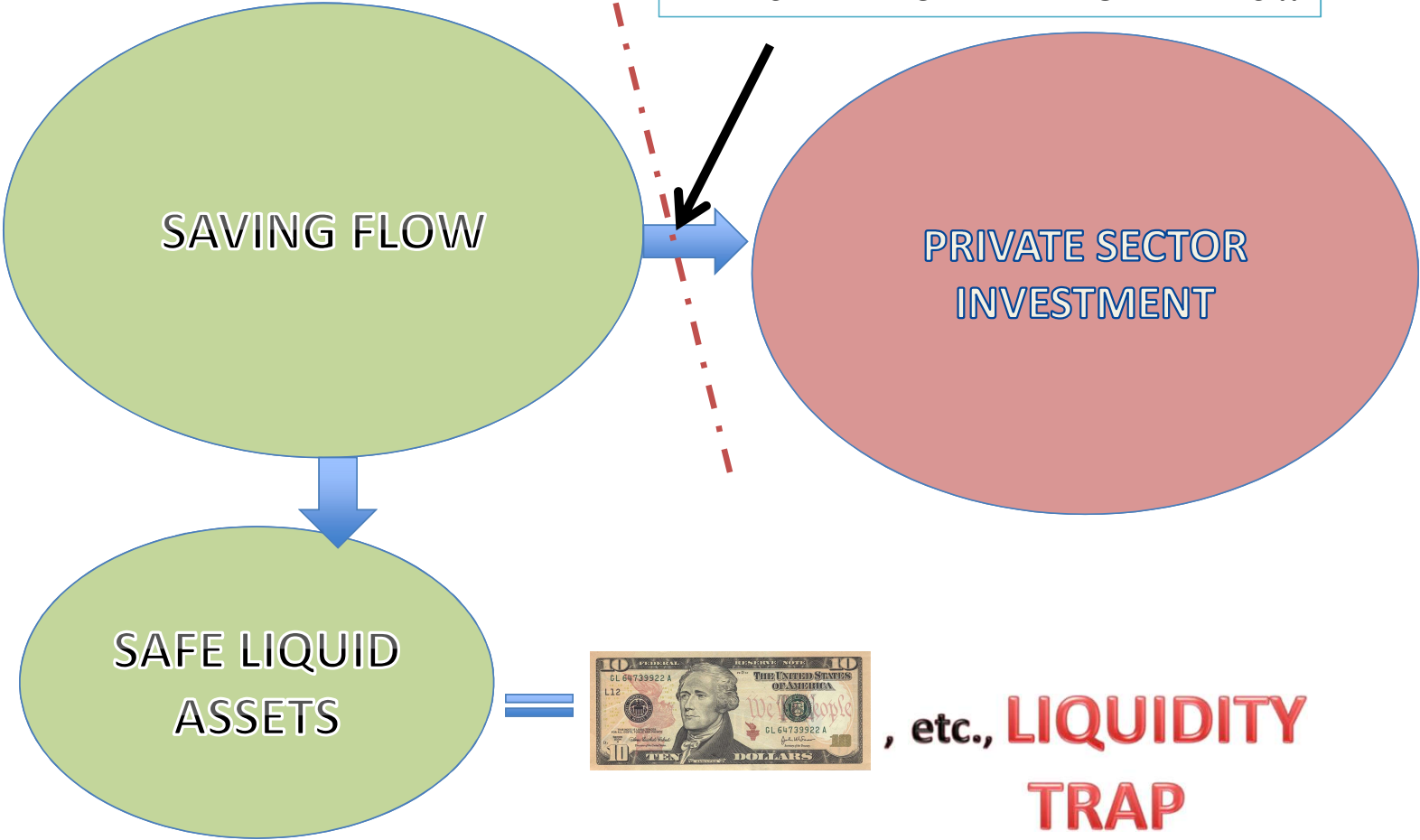
Where We are Now

- Deflation has not been defeated in EU and Japan.
- Total Factor Productivity is flat across Advanced Markets.
- New **unconventional monetary policy**
  - **will fail to spur growth unless credit flows are restored** (unlikely in the Eurozone).
  - and, moreover, **may provoke bubbles and volatility in EMs**.
- Under those conditions, one cannot discount:
  - **Protectionism**
  - **Currency Wars**

EUROZONE

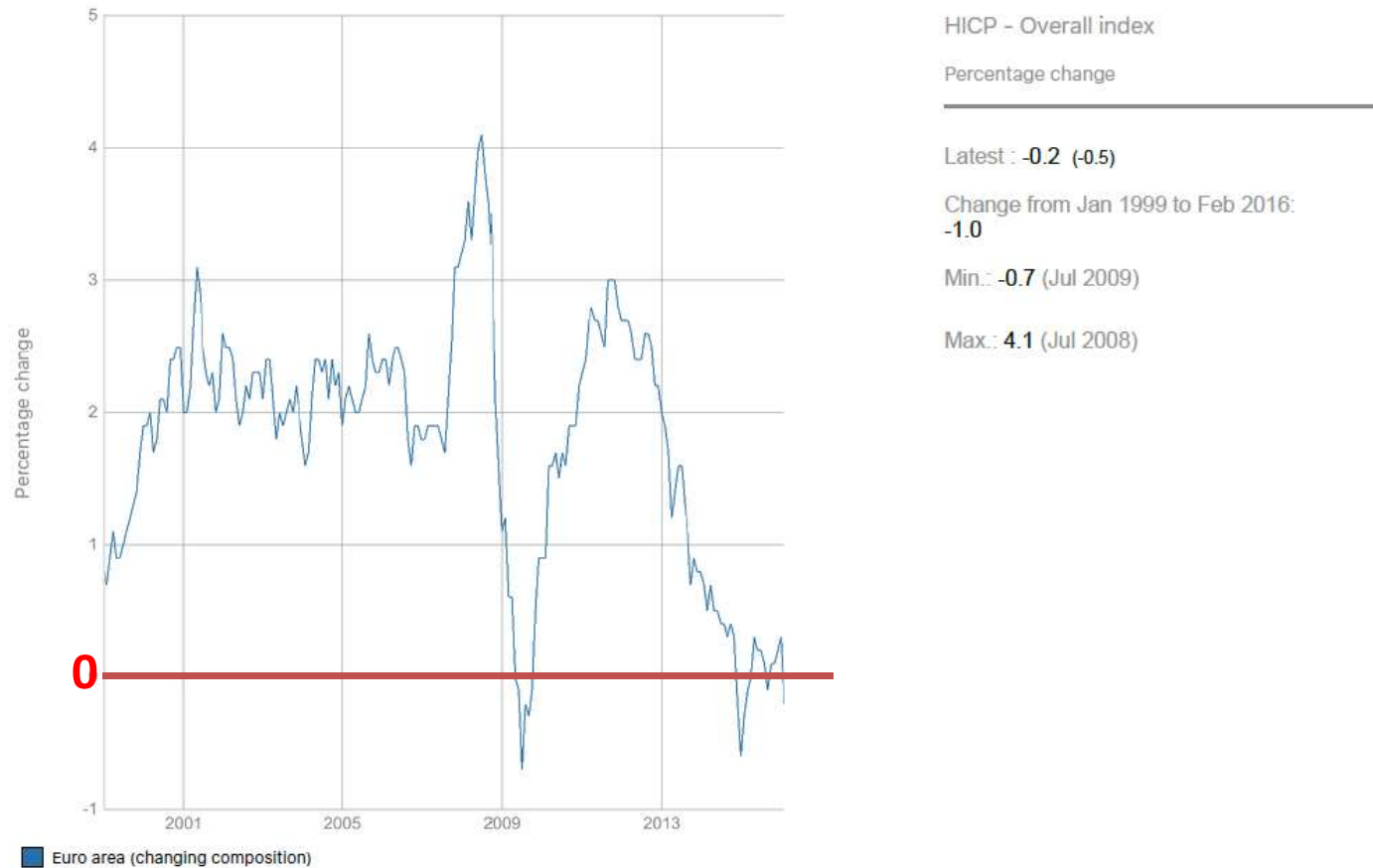# Eurozone. Broad Money/GDP
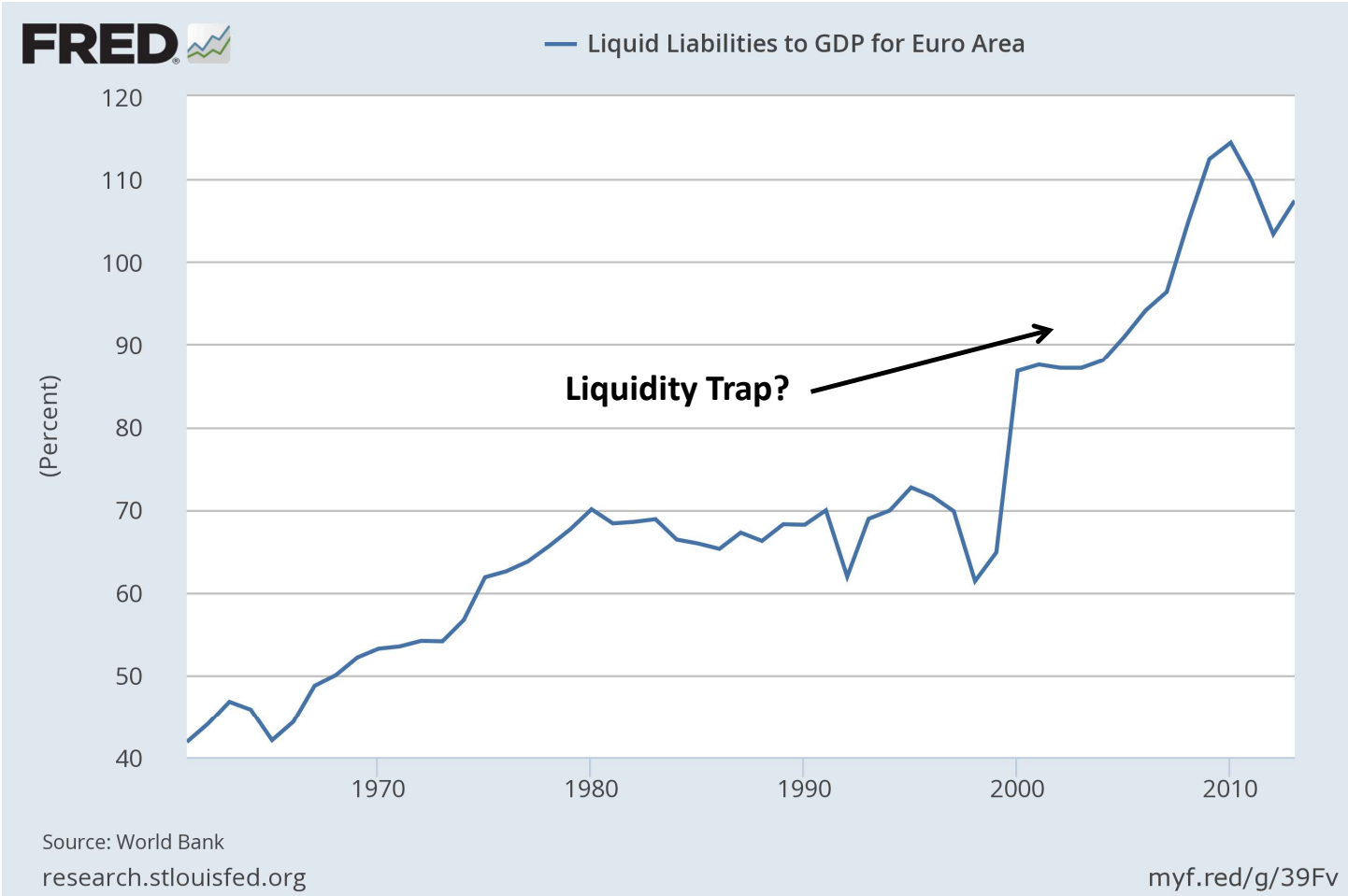
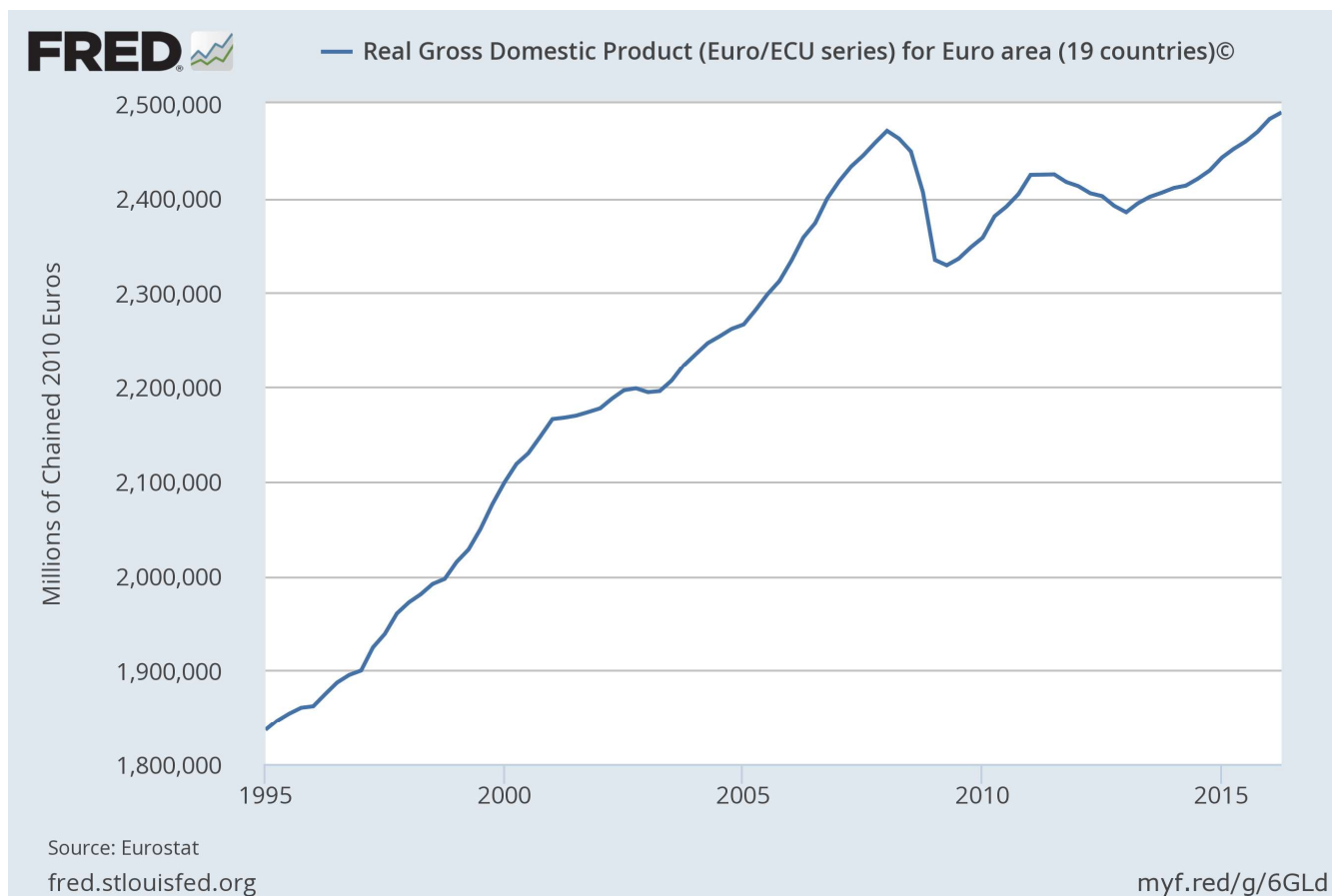# Eurozone: Credit Flow Sudden Stop
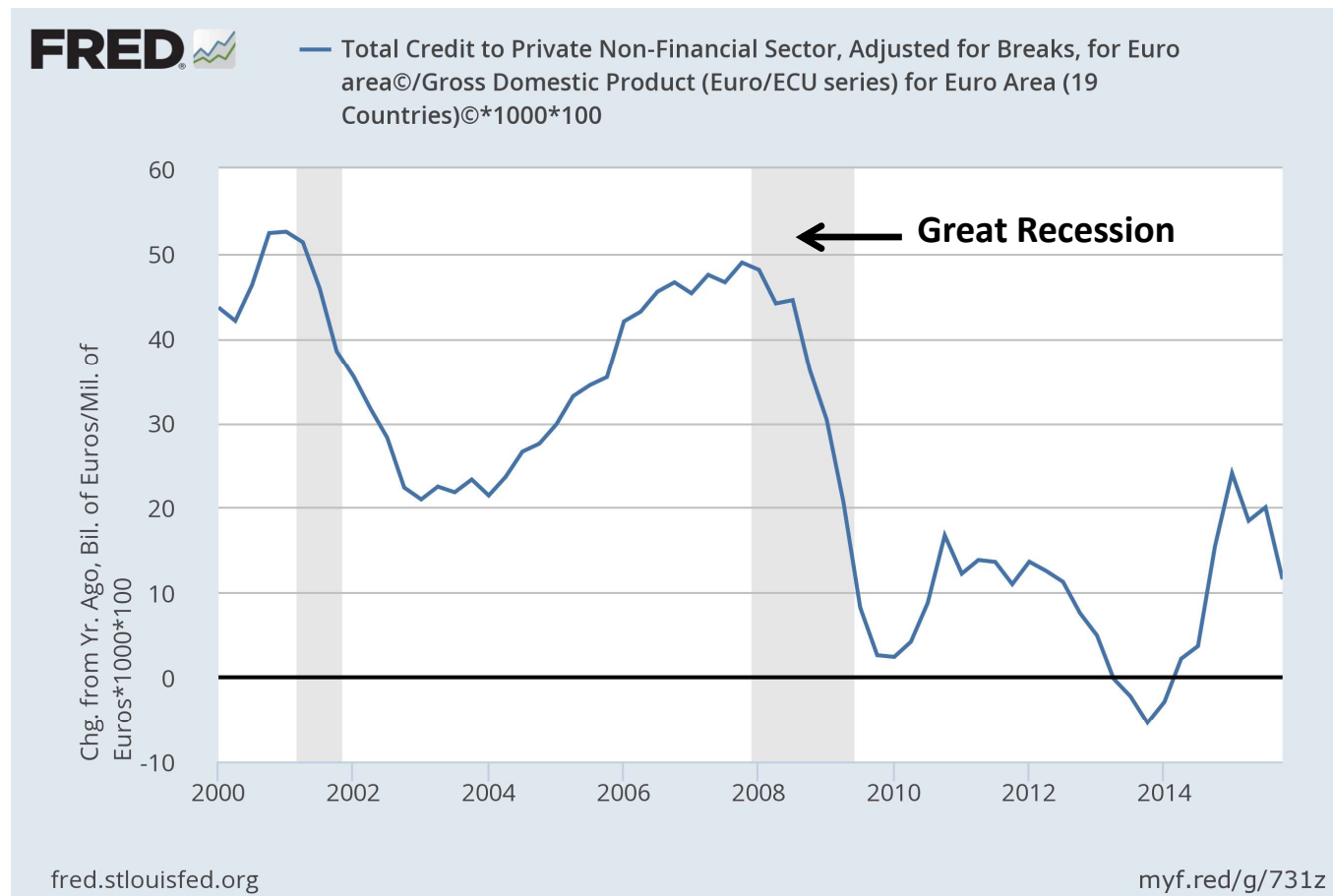
Note: Credit Flow to Private Non-Financial Sector as share of GDP, %.
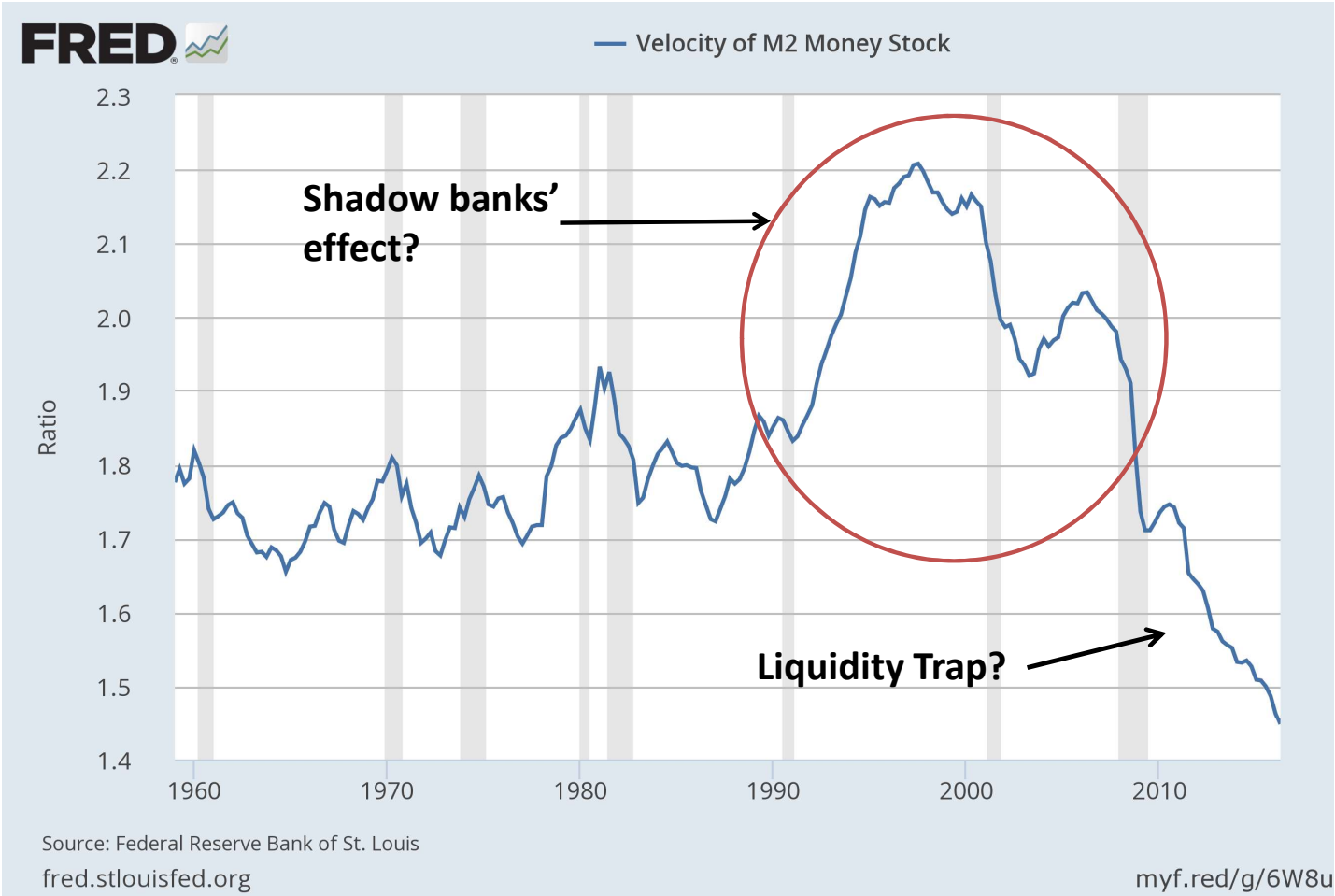
Eurozone: Harmonized Inflation
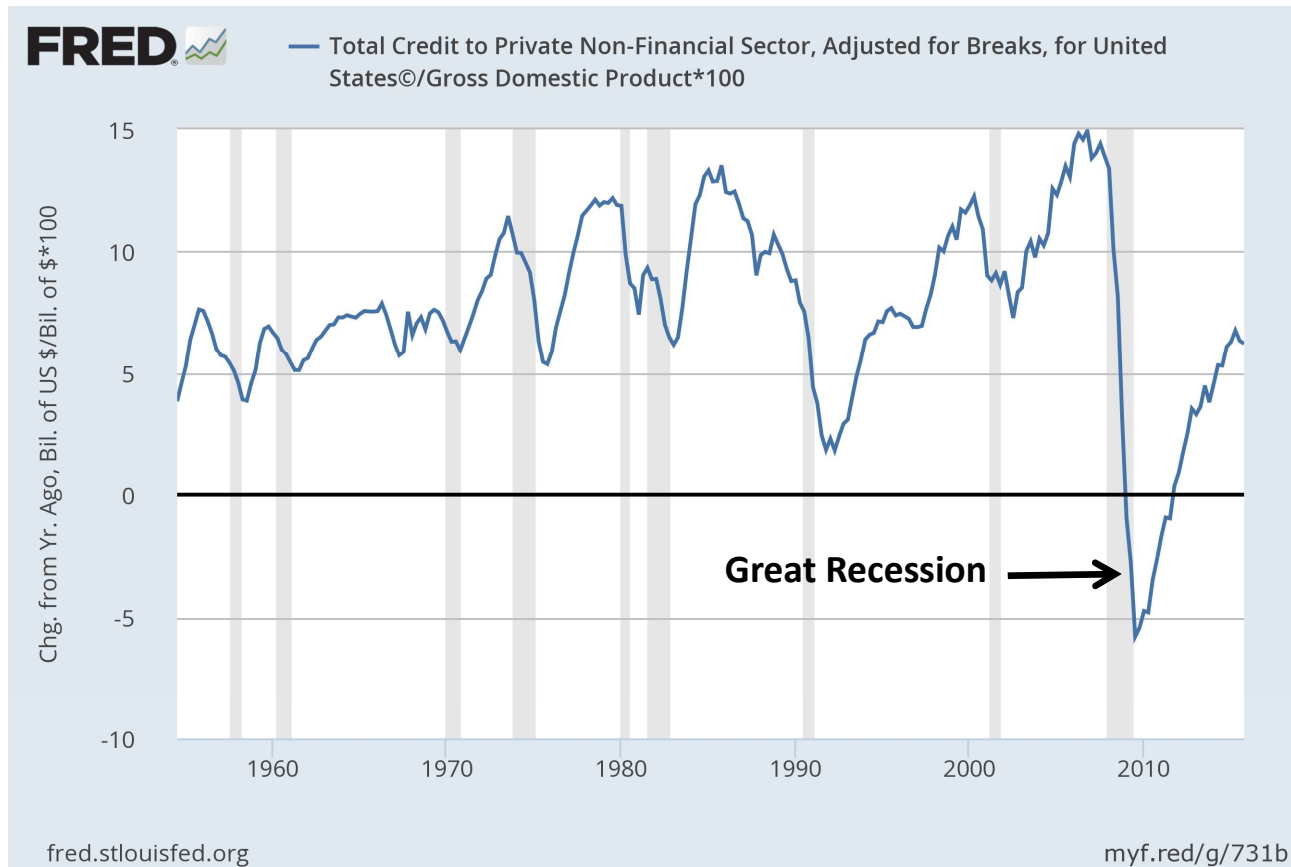
EUROZONE: Real GDP (in logs)

UNITED STATES

US. Velocity of M2

Source: Federal Reserve Bank of St. Louis
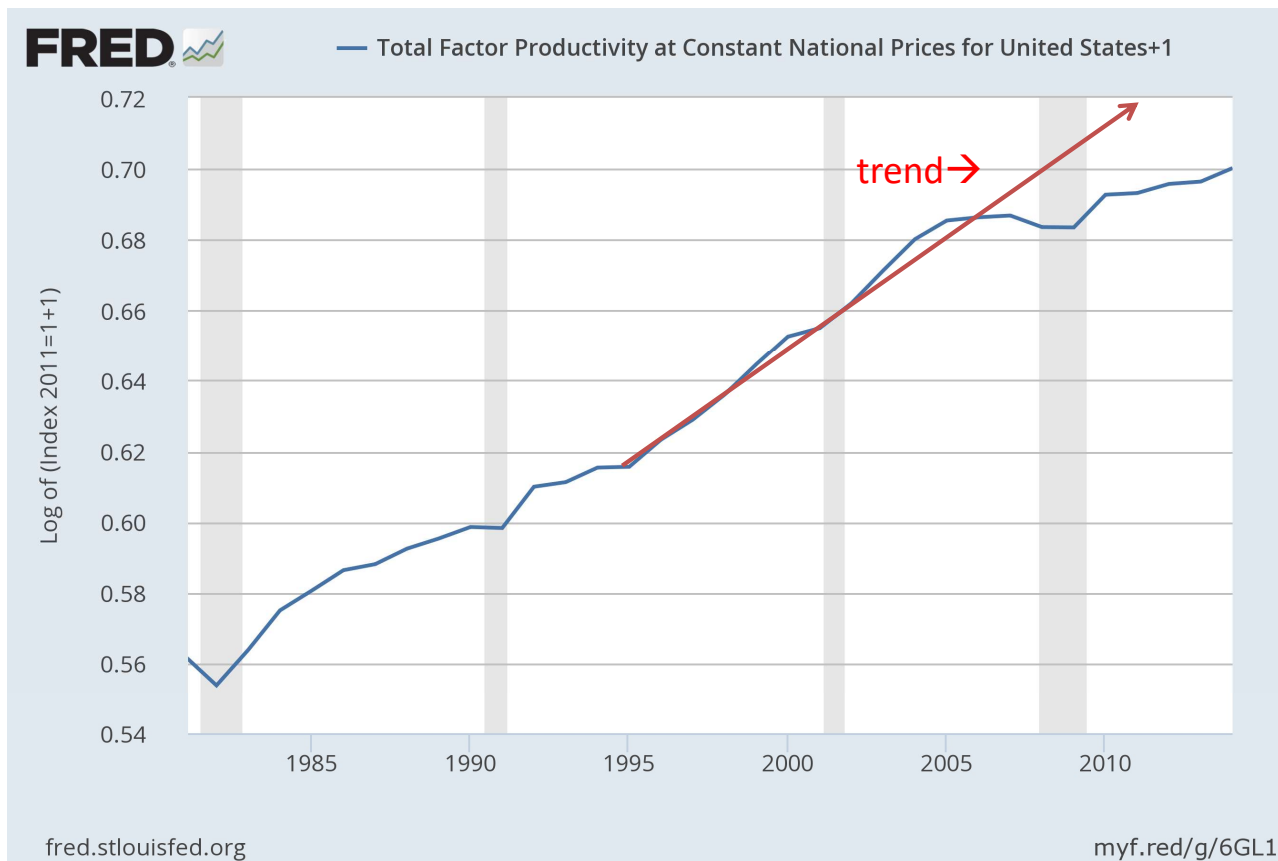fred.stlouisfed.org

myf.red/g/6W8u

USA: Credit Flow Sudden Stop

Note: Credit Flow to Private Non-Financial Sector as share of GDP, %.

USA : Total Factor Productivity
(in logs)

EMERGING MARKETS

Macroprudential Policy in EMs

- Financial conditions are highly unstable because of financial fragility and volatility in Advanced Markets.

- **Therefore, macroprudential policy is of the utmost importance.**

- **Banks' wholesale funding** have played a major role in magnifying Sudden Stops. Hence, such funding **should be strictly regulated**.

- A serious problem is that bank regulation may cause **disintermediation**. Thus, **macropru may have to be extended to other credit granting institutions** (e.g., **auto retailers**).

INFLATION

- In contrast to reserve currencies, **EM monies are only locally liquid** and, therefore, are **akin to Junk Bonds and prone to Currency Substitution**.
- Thus, monetary aggregates alone may furnish a weak nominal anchor. Hence, to reinforce the nominal anchor it is advisable to consider,
  - **Pegging to reserve currencies** (Fear of Floating)
  - **Pegging to a subset of goods** (Inflation Targeting)
  - **Addressing Credit Flow Sudden Stop issues.**
- Moreover, for stopping inflation it is essential to ensure:
  - **Credibility**
  - **Preventing the existence of widely different multiple-equilibrium solutions**

Expectations Dominance:
An Example of Multiple Equilibrium Inflation Rates

- Suppose high inflation expectations.
- Thus, nominal interest would be high.
- If government succeeds in lowering inflation, real interest rate will be high.
- This may seriously disrupt fiscal and private-sector balances.
- And may lead to abandoning stabilization program. See Brazil 1980s. Calvo (1988).
- But, **if inflation expectations are low, a low inflation equilibrium may be achieved, and the same stabilization plan would succeed!!**

Exchange-Rate Based Stabilization

- ERBS have been widely studied and applied in the Southern Cone; e.g., Kiguel and Liviatan (1994).
- Lack of credibility is costly but in the short run it is associated with:
  - **overheating**
  - **accumulation of reserve currencies** (International Reserves)
- Hence,
  - **ERBS doesn't necessarily call for an initial large stock of International Reserves**,
  - and **overheating helps to enhance ERBS popular support**, even though the program may not be sustainable in the medium run.

Floating XRates in EMs

Stabilization without full credibility is associated with

- **unemployment**,

- **currency real appreciation**.

Moreover, **using interest rate as an anchor may make things very confusing under imperfect credibility** – even though costless stabilization would be achieved with full credibility!

- **Confusion may stimulate Time Inconsistency.**

Infl Target with *i* – Low Credibility

Variables

i = policy nominal interest rate

ρ = international interest rate

E = nominal exchange rate

$\varepsilon = \dot{E}/E$ = rate of devaluation

e = real exchange rate

π = inflation home goods

$\Pi^{L/H}$ = Low/High inflation target

$\bar{h}$ = inelastic supply of home goods

$c = C(e, i - \pi)$, home-goods demand

$i = \varepsilon + \rho$, interest rate parity

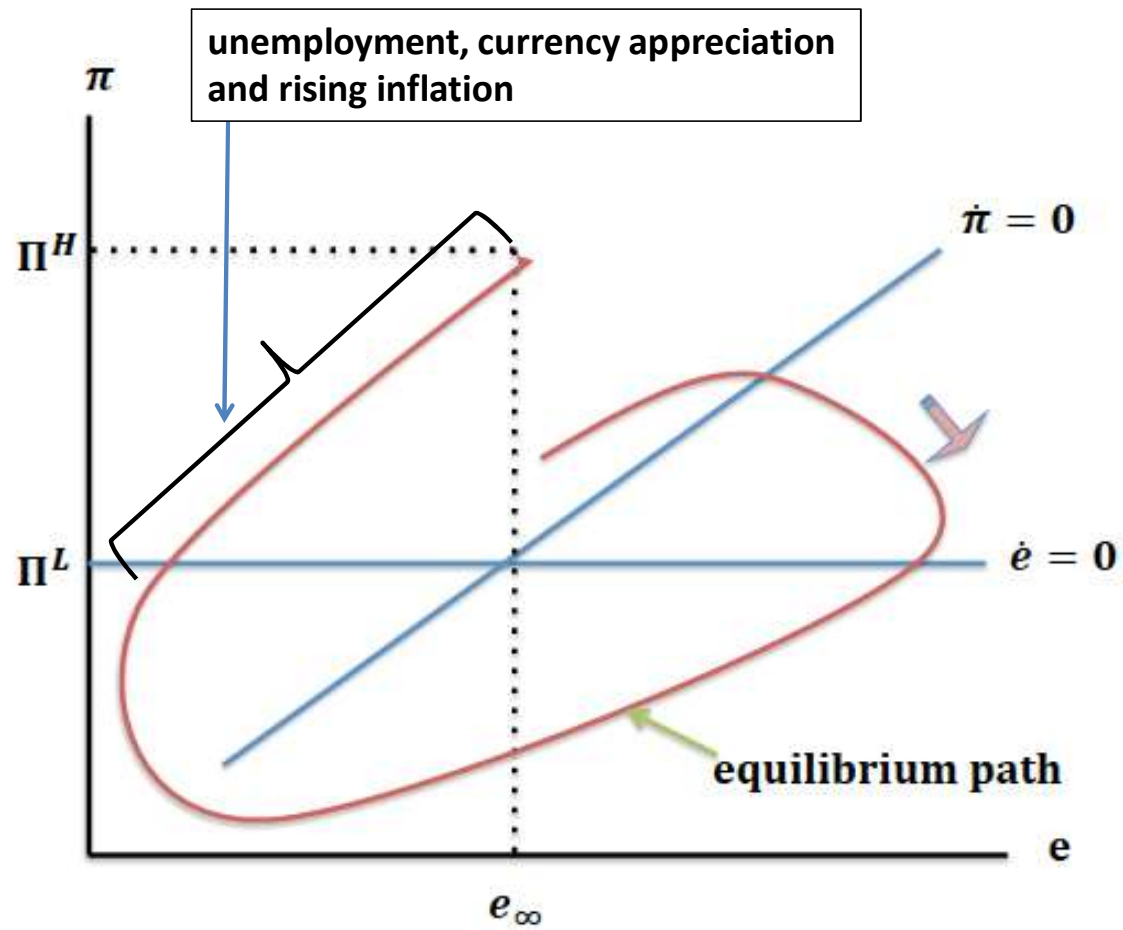$\dot{\pi} = \bar{h} - c$, Calvo staggered prices

$i = \Pi + \theta(\pi - \Pi) + \rho$, $\theta > 1$, Taylor rule

Reduced Form (initially)

$$\dot{e}/e = \varepsilon - \pi = (\theta - 1)(\pi - \Pi^L)$$

$$\dot{\pi} = \bar{h} - C(e, (\theta - 1)(\pi - \Pi^L))$$

Source: Calvo, NBER WP 13177, June 2007.

CONCLUSIONS

- **The actual global context leave few degrees of freedom for EM monetary policy.**

- **There is no well-defined global monetary system, and "beggar-thy-neighbor" policies in Advanced Markets cannot be discounted.**

- **Credibility is central but it also depends on external factors that can be unruly.**

- **Floating XRates may give exacerbate the problem of Time Inconsistency.**

- **Financial regulation must take center stage.**

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BONUS MATERIAL

Conventional Macro Models

- Conventional macro models **were designed mostly of deal with price stickiness**, not with financial disorder like Credit Sudden Stop.

- This explains the central attention paid to Money and Interest Rate,

- **It is only now that macroprudential regulation has been brought to the fore.**

Bare-Bones New Keynesian Model

policy interest rate

$$r = i - \pi$$ Fisher equation

$$i = \theta\pi + \gamma c, \theta > 1, \gamma > 0$$ Taylor Rule

$$\frac{\dot{c}}{c} = r - \rho = (\theta - 1)\pi + \gamma c - \rho$$ Euler equation

$$\dot{\pi} = \bar{y} - c$$ Calvo staggered prices

(where is money?)

Dynamic System: c and π can jump at $t = 0$. All characteristic roots are positive. One can show that, if unstable paths are ruled out, equilibrium is unique.
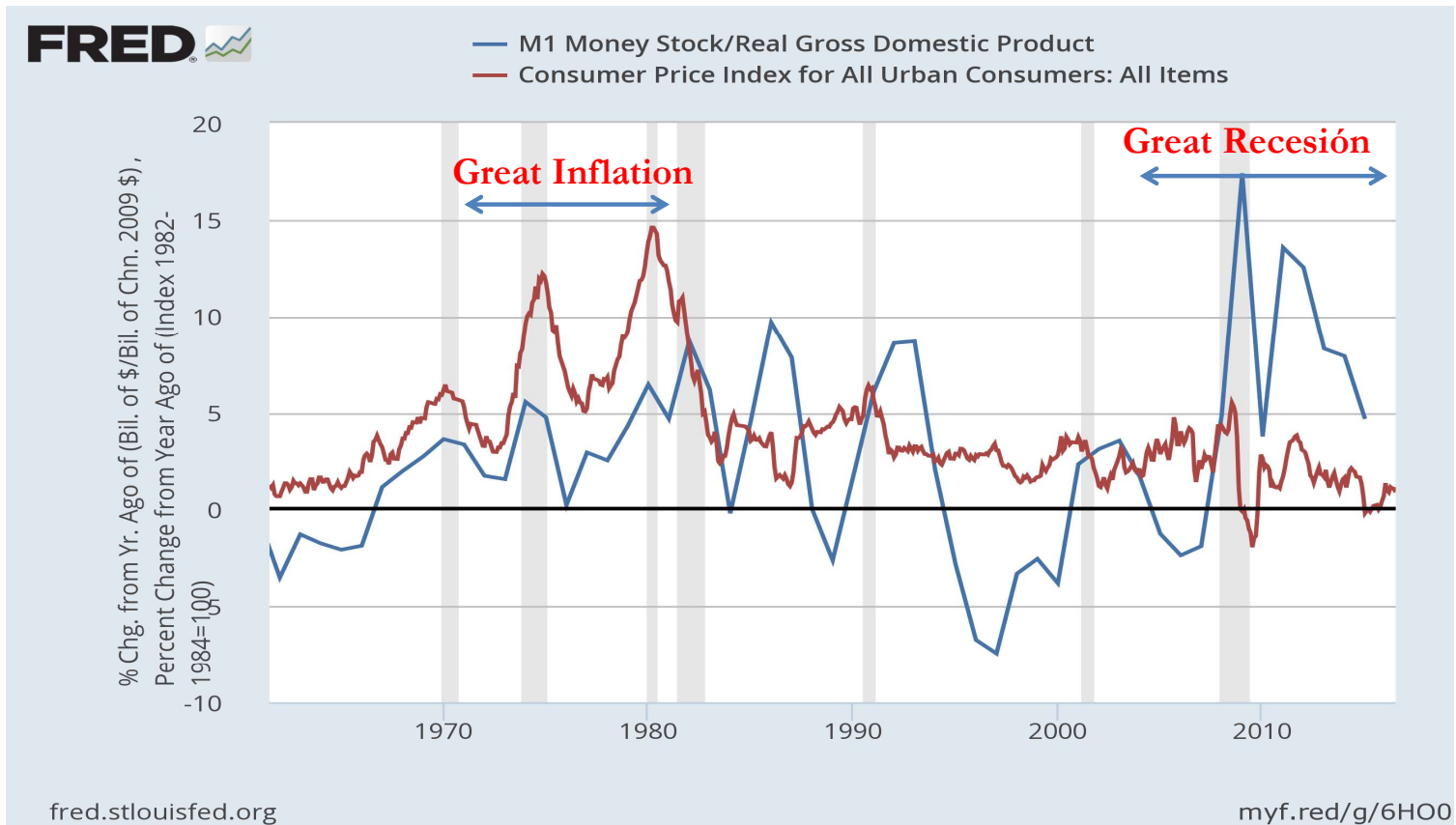
MILTON FRIEDMAN DICTUM

THE USUAL QUOTE:
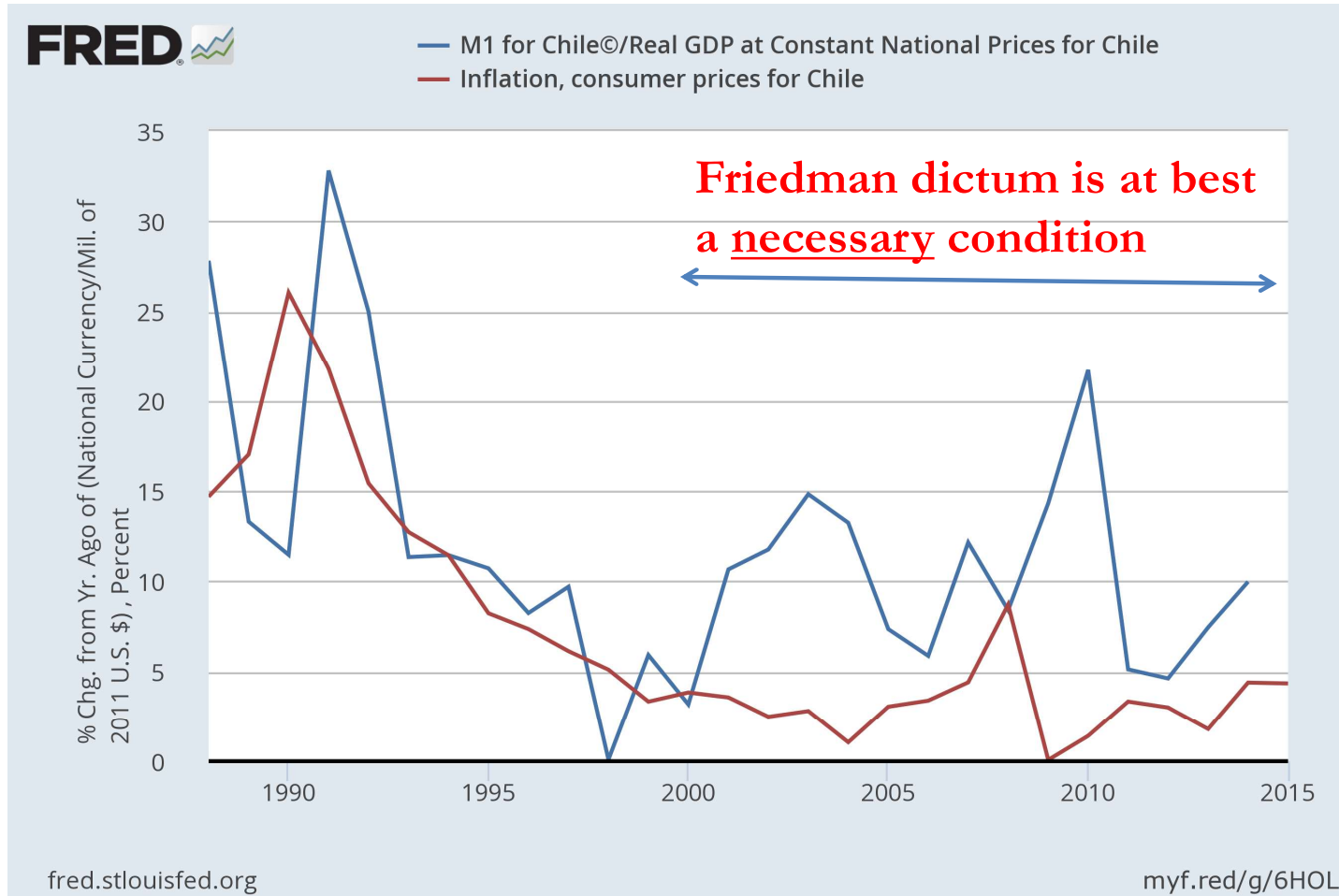
INFLATION IS ALWAYS AND EVERWHERE
A MONETARY PHENOMENON

THE COMPLETE STATEMENT ADDS:

IN THE SENSE THAT IT IS AND CAN BE PRODUCED
ONLY BY A MORE RAPID INCREASE IN
THE QUANTITY OF MONEY THAN IN OUTPUT

EEUU: Inflación y Crecimiento de M1/PIB real

Chile: Inflación y Crecimiento de M1/PIB real
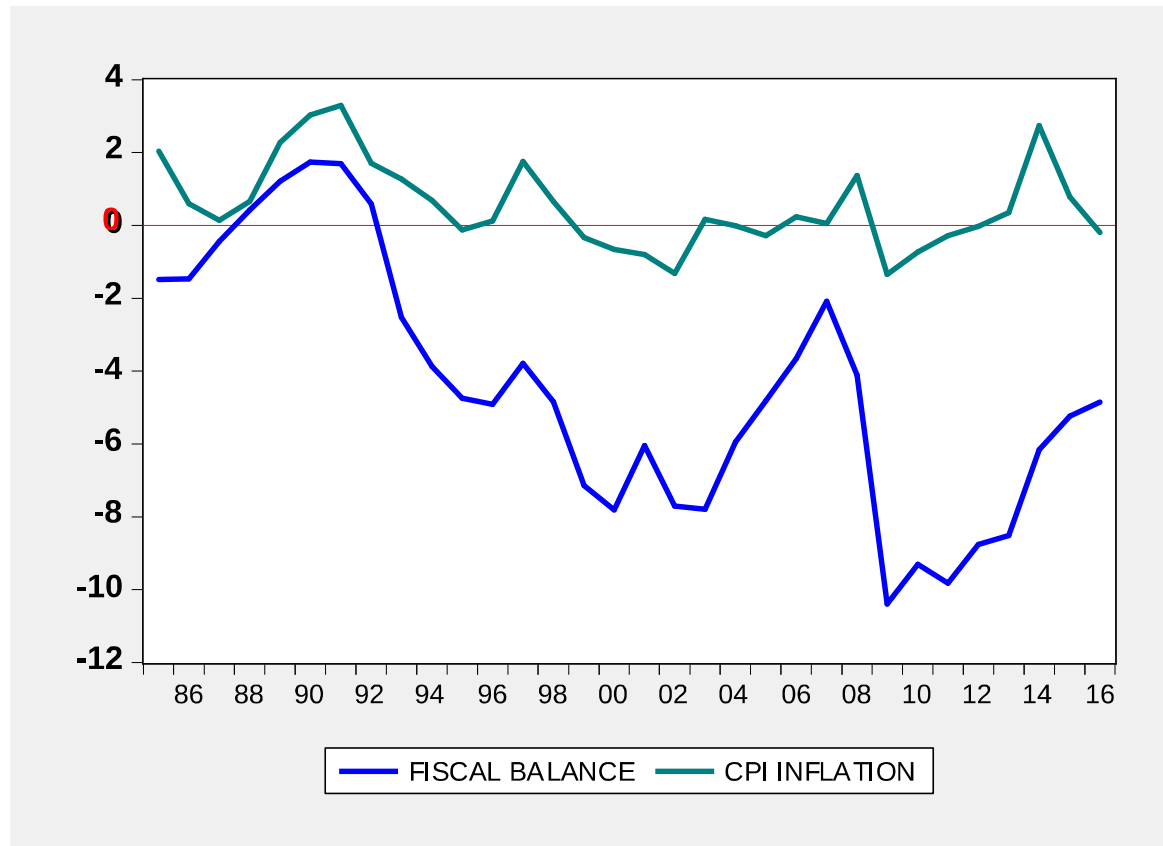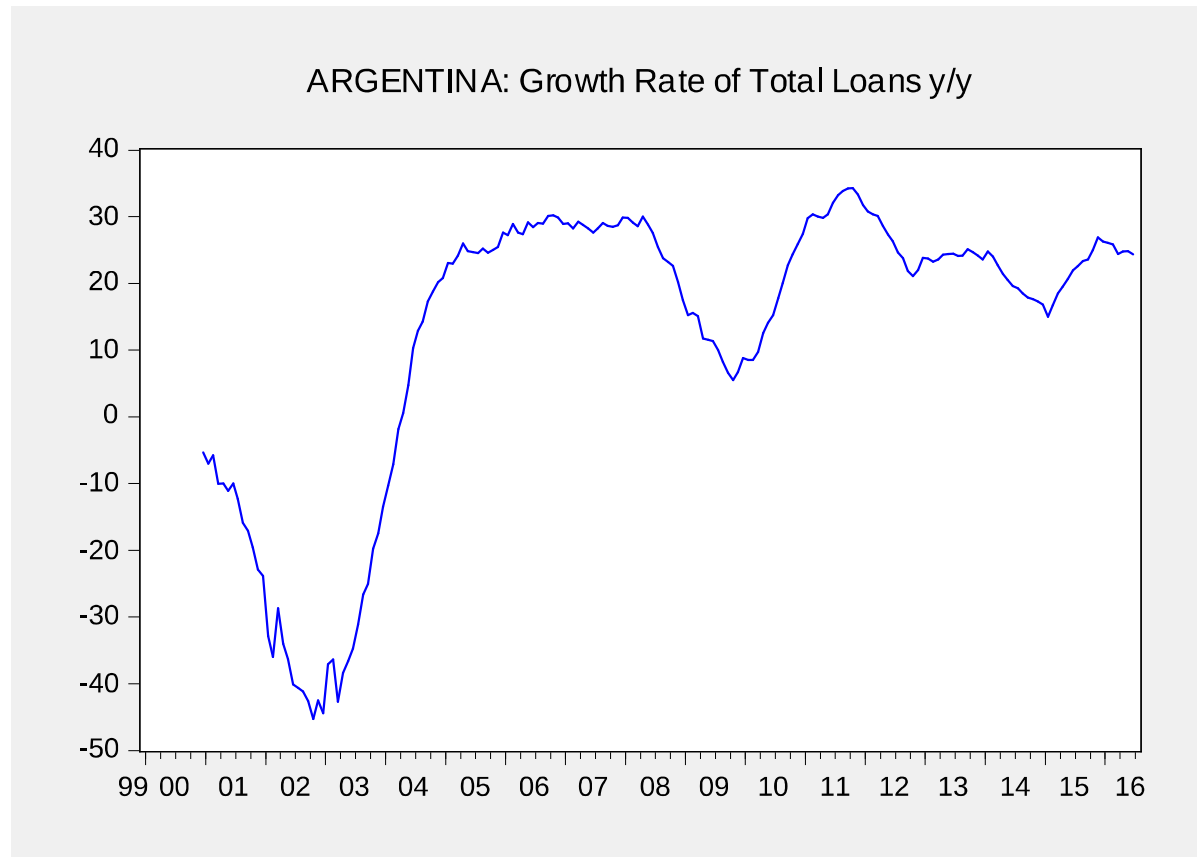
FRIEDMAN REPHRASED

FOR HIGH INFLATION IT IS <u>NECESSARY</u> THAT MONEY GROWS FASTER THAN REAL OUTPUT

THIS IS <u>NOT</u> INCONSISTENT WITH CASES IN WHICH <u>HIGH</u> MONEY GROWTH RESULTS IN <u>LOW</u> INFLATION.

JAPAN: The Pluses of Being Credible

Argentina: Credit Flow Sudden Stop

ARGENTINA: Growth Rate of Total Loans y/y

Source: BCRA

A Few References

- Calvo, G., 2016, *Macroeconomics in Times of Liquidity Crises: Searching for Economic Essentials*, Cambridge, MA: MIT Press, forthcoming

- Corsetti, G., and L. Dedola, 2016. "The 'Mystery of the Printing Press' Monetary Policy and Self-fulfilling Debt Crises", CEPR DP11089.

- Kiguel, M., and N. Liviatan, 1994, "Exchange-Rate Based Stabilization in Argentina and Chile: Fresh Look."