

# Natural and Neutral Real Interest Rates: Past and Future

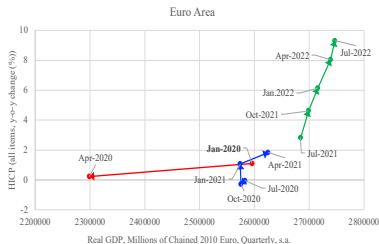
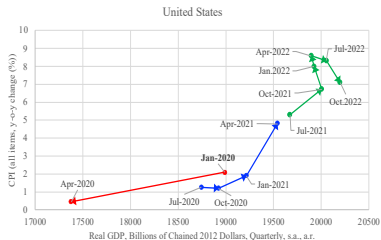
by  
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Discussion by  
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Asian Monetary Policy Forum  
Singapore, May 25-26 2023

# The question

After the post-covid “inflation crisis”...



graphs from Barcelona Report 2023, forthcoming

Will the global economy falls back on the pre-pandemic “equilibrium” with low/negative real rates in the coming years?

## The paper by Maurice Obstfeld

Answering the question requires a rich and thoughtful re-examination of

- ① empirical evidence (time series on short and long return, cross-sectional evidence on advanced countries vs. eme emde, etc.)
- ② issues in theory and measures
- ③ implications for policy making and policy modelling

The paper does all this (a lot), adding intellectual value and depth to the honest answer:

we don't know.

# Outline

My focus is mostly on point 3 (implications for policy making and modelling), and raise two questions.

- 1 Natural Rate
- 2 Policy trade-offs at the neutral rate
- 3 Global monetary transmission
- 4 Low average, higher dispersion?
- 5 Conclusions

# Natural vs. neutral rates

## Fundamental distinction

- Natural  $\bar{r}$ : long-run equilibrium with no nominal rigidities
  - No "shocks" vs
  - unconditional average of stochastic economies (under flexible prices)
- Neutral  $r^*$ : at which upward/downward pressures on inflation balance out.
  - Moves with disturbances
  - Slightly different from MO definition  $\Rightarrow$  Notion of short-run (strict) **price stability**  
In MO definition: path of policy rates bringing inflation back to target in the medium run

Note: both are (unobservable) long-term rates.

Also: definition sometimes inverted!

## Natural vs. neutral rates

Neither rate offers “mechanical” guidance to policy.

- Theoretically: the flex-price market allocation is not efficient if financial and real market imperfections. In principle, monetary policy can “do better” (at least in the short run).
- In theory and practice: pursuing strict price stability may exacerbates relevant trade-offs—activity, external deficits/capital flows, misalignment, risk sharing and financial stability.

Thus both need to be treated “smartly” (provided we can get accurate measures).

## A low Natural Rate $\bar{r}$ : why do we care?

One answer, monetary policy effectiveness

- ZLB or ELB problem likely if  $\bar{r}$  low: neutral rates (relevant for inflation stabilization) may often become negative.
- Credibility of inflation target
- Policy rate anchor in the current disinflation effort.

But also: indicator of inefficient global allocation.

MO paper offers a great discussion of many factors/drivers, mostly global, potentially relevant for policy.

## E.g., Relative scarcity of safe assets

...calls for some rethinking interactions of fiscal monetary and regulation policy at international and domestic level

- ① International Reserves management (demand) and initiative to “strengthen” the International Financial Architecture.
- ② Monetary backstop of government debt

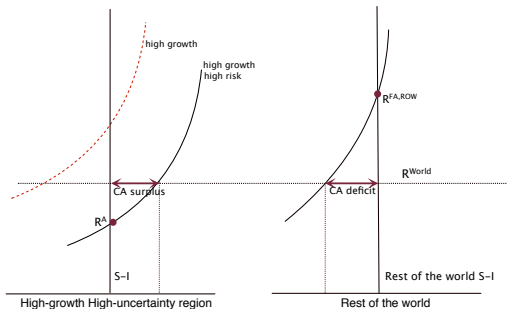
Spotlight on the euro area

- Supply of safe bonds in the euro area
  - Fiscal “rules” ensuring debt sustainability conditional on backstop
  - ECB Outright Monetary Transactions OMTs, QE, Transmission Protection Instrument

but also UK, US...

# Filling the dots in the “Saving Glut” Hypothesis

## Metler diagram (intentionally missing Investment)



Paper has a rich discussion of time evolution and cross-regional differences in drivers: Uncertainty+asymmetric financial development; private vs, public (international reserves); ageing; “Stone guests”: Gross flows; Investment. Healthy warning against the temptation to jump to conclusions/predictions.

## Neutral (price stability) $r^*$ rate

One key point emphasized by Obstfeld

- The domestic neutral/natural rates depend on factors with a clear international/global dimension: exchange rate misalignment, external imbalances, capital flows (net and gross)...
- preference for risk may move natural and neutral rate opposite
- real and monetary cross-border connection:  $r^*$  and the natural output in small open economies fall with a foreign monetary contraction
- an unresolved debate: are large deficits an indicator of excess demand, hence associated to higher neutral rates?

However, note that these factors may also motivate policy to deviate from  $r^*$  and trade-off inflation with other goals.

## Policy trade-offs

Should monetary policy set  $r = r^*$ ?

Best case: so-called **divine coincidence**

- Theory: flex-price allocation is efficient, one instrument (policy rate) can close all “gaps” by setting inflation  $\pi = 0$ .
  - Only one layer of sticky prices (no sectoral, no vertical interactions), flex wages (or only sticky wages); business cycle disturbances affect either marginal costs or aggregate demand (no markup shocks); exchange rate pass through is complete; financial markets efficient (no destabilizing capital flows)

Away from this extreme construct, monetary authorities face trade-offs

- e.g., global financial cycles are typically inflationary and contractionary and undermine fiscal and financial stability

To break some ground, let's focus on “Targeting rules”.

## Targeting rules

Bridge between theory and practice (or “art”) of inflation targeting.

- Set a path for the economy, defining dynamic joint targets for inflation, output gaps and other welfare-relevant goals: relative prices (sectoral, real exchange rate, terms of trade) and risk sharing/demand imbalances.
- Explicitly optimize over policy trade-offs
  - Quantification and analytics specific to “the model” (defining goals and transmission mechanism)—Obstfeld text is a good summary of challenges to theory and practice.
- Can be supported by different combinations of instruments/intermediate targets
  - Policy rates, MAS style strategy, forward guidance, QE etc.

## Net capital flows and exchange rates matter

Example derived from “workhorse model” of open economy macro, with two large countries, complete exchange rate pass through:

$$0 = \boxed{\theta \pi_{PPI,t} + \left( \tilde{Y}_t - \tilde{Y}_{t-1} \right)}$$

with Complete Markets, rule prescribes  $r = r^*$  thus  $\pi = 0$

$$\boxed{+ \Gamma (\text{openness, elasticities}) \left[ \left( \tilde{\mathcal{W}}_t - \tilde{\mathcal{W}}_{t-1} \right) \right]}$$

incomplete markets: trade-off with misalignment and capital inflows

where  $\tilde{\mathcal{W}}_t$  is weighted sum of relative demand growth and real depreciation, capturing (complementary interpretations):

- effects of shocks on relative wealth due to non-traded risk (finance in general equilibrium)
- demand and costs response to inefficient deficits and appreciation

A (non-trivial) step towards addressing the challenges to theory discussed by Obstfeld—still short of “desiderata”

## Net capital flows and exchange rates matter

Suppose capital inflows appreciate the currency and open a deficit ( $\tilde{\mathcal{W}}_t > 0$ ).

$$0 = \theta \pi_{PPI,t} + \left( \tilde{Y}_t - \tilde{Y}_{t-1} \right)$$

With complete Markets, rule prescribes  $r = r^*$ , thus  $\pi = 0$

$$+ \Gamma(.) \left[ \left( \tilde{\mathcal{W}}_t - \tilde{\mathcal{W}}_{t-1} \right) \right]$$

incomplete markets: trade-off with misalignment and capital flows

- Optimal policy is expansionary—trades off short-run positive (PPI) inflation with higher output gap. Central bank leans against over-appreciation.
- Trade-off significant in models accounting for income inequality (HANK-TANK model).

## Pass through matters

If all export prices sticky in the currency of the destination market, relative demand  $\tilde{D}$  replaces relative output gap in the rule

$$0 = \boxed{\theta (\pi_t - \pi_t^*) + (\tilde{D}_t - \tilde{D}_{t-1})}$$

CM target rule (as in, e.g., Engel 2011)

$$+ \Gamma_{LCP}(\cdot) \left[ \left( \tilde{\Delta}_t - \tilde{\Delta}_{t-1} \right) + \left( \tilde{\mathcal{W}}_t - \tilde{\mathcal{W}}_{t-1} \right) \right]$$

where  $\tilde{\Delta}$  are deviations from the law of one price.

- In response to capital inflows that appreciate the currency and open a deficit ( $\tilde{\mathcal{W}}_t > 0$ ), the optimal policy is contractionary:
- Relative demand stabilization at the cost of some short-run fall in CPI inflation and (over-)appreciation.
- A low pass through mutes the effects of overappreciation on output gap!

# Dollar pricing of exported goods matters

If all export prices are in a dominant currency (DC) and sticky, benchmark result is

$$\pi_{PPI} = 0 \quad (1)$$

but this does not support the natural allocation! Central banks do not stabilize the “dollar-inflation” of exports.

- Intuitively: domestic monetary authorities do not control the demand for exports priced in the dominant currency.

see Egorov Mukhin 2023, Corsetti Dedola Leduc 2023

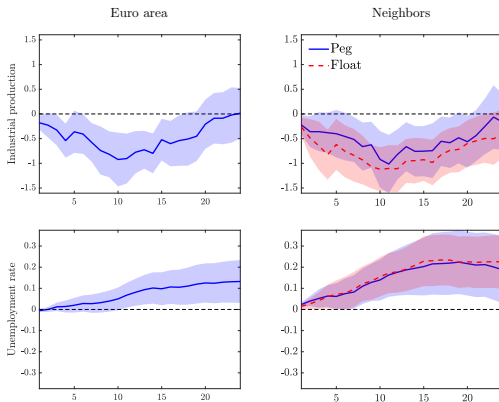
# The global transmission of monetary policy

## The “insulation puzzle”

- None of the targeting rule above prescribes monetary policy to keep exchange rates anywhere close to fixed—export prices sticky in local or dominant currency are not an argument for currency pegs.
- Indeed, unconditionally, exchange rates are more volatile among floaters (Baxter Stockman JME 89 alive and well)
- Yet there is ample evidence that in reaction to monetary shocks in countries issuing dominant currencies (US or EA), central banks around the world are reluctant to use their instruments to insulate their economy. Rather they move rates in tandem and lean against currency movements, regardless of their exchange rate regime.
- I focus on euro area, for which Rey (2013) “dilemma” is arguably weaker—financial transmission is muted.  
see Corsetti Kuester Mueller and Schmidt 2023

# Insulation puzzle

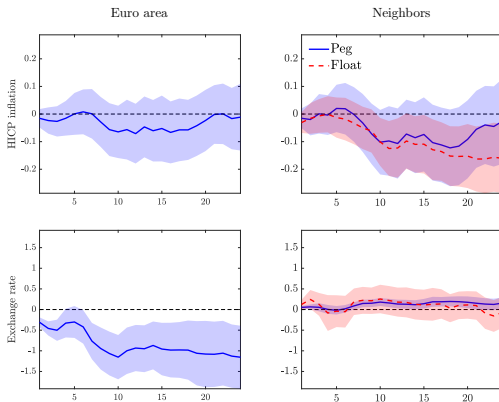
## Response of 20 EA neighbouring countries to EA monetary shocks



From Corsetti et al. 2023: one-standard deviation shock identified by Jarocinski and Karadi (2020); lines and shaded areas represent point estimate and 90 percent confidence bounds based on Driscoll and Kraay (1998) robust standard errors, respectively. Horizontal axis is time in months, vertical axis measures deviation in percent/percentage points. Right column: solid (blue) line is estimate for peg, dashed (red) line is estimate for float. Bottom panel shows response of interest rates (annualized pp.); left: one-year bund rate; right: difference between neighbor's rate and EA short rate.

# Insulation puzzle

## Response of 20 EA neighbouring countries to EA monetary shocks



Notes: same as Figure 2.A. Bottom panel shows response of effective euro exchange rate (left) and Neighbors' bilateral euro exchange rate (right): price of foreign currency expressed in domestic currency.

## Take away

- Strong common component in monetary conditions.  
Stronger for the US.
  - Related to Obstfeld and Zhou 2022, on the global spillovers from current disinflation policy.
- Need to understand better the potential role of monetary policy as “driver” of low natural/neutral rates at global level

# Historical dispersion around the downward $\bar{r}$ trend

From Maurice Obstfeld paper

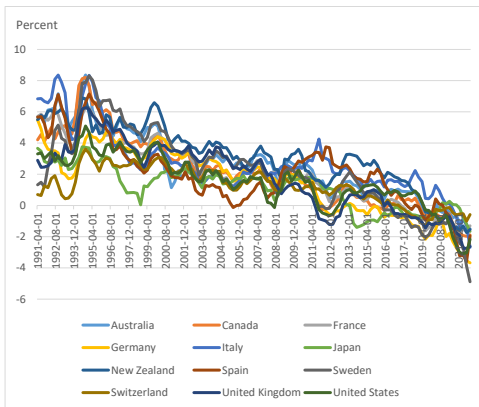


Figure 5: Long-term real interest rates in twelve advanced economies, 1991-2022

Source: FRED

# Low safe rates/higher dispersion of borrowing costs

## A scenario for the future?

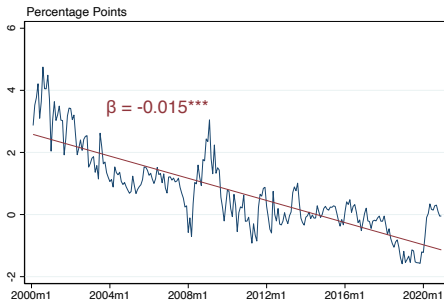
- Inflation and risk premia reflecting divergent policies and debt positions polarize risk pricing
  - Low safe rates not the same as borrowing rates for government, firms and households
- High debt and uncertainty may simultaneously raise demand for, and reduce supply of safe asset.

Re-pricing of “safety” is already occurring.

I will draw on ongoing work on “Return to safety”, joint with Lloyd, Marin and Ostry

# US and the dollar

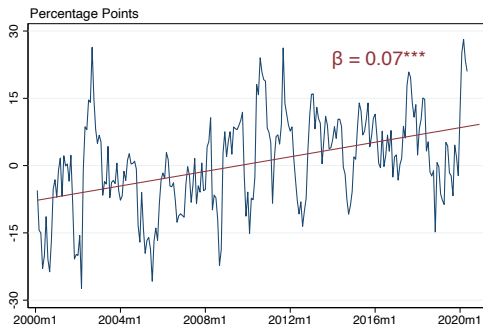
## Convenience yield of long treasuries



Note: Time series of U.S. 10-year convenience yields (avg. vs. G.7 currencies), constructed using the method of Jiang, Krishnamurthy and Lustig (2021) with data on 10-year CIP deviations from Du, Im and Schreger (2018).

# US and the dollar

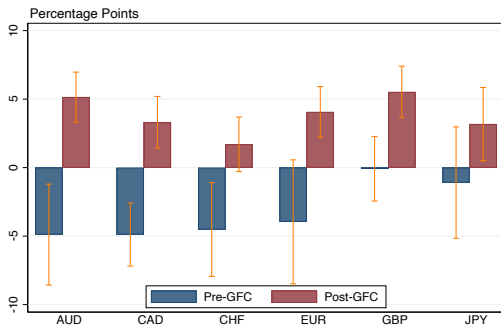
Long run risk (proxied by relative US-G7 (ex-post) equity premia corrected for term structure, see Alvarez-Jerman decomposition)



Note: Time series of U.S. permanent relative risk lower bound (avg. vs. G.7 economies). Countries' permanent risk is measured as equity risk premium minus term premium (Alvarez and Jermann, 2005).

# US and the dollar

Long run risk (proxied by relative US-G7 (ex-post) equity premia corrected for term structure, see Alvarez-Jerman decomposition)



*Note:* Average U.S. permanent relative risk vis-à-vis each G.7 currency for pre- and post-GFC periods (1997M1-2006M12 and 2007M1-2020M12, respectively). Countries' permanent risk is measured as equity risk premium minus term premium (Alvarez and Jermann, 2005).

## Conclusions

- Addressing the question in the paper requires a careful reconsideration of the many drivers of the global “safe interest rate” (real financial monetary demographic environmental, public and private, accounting for regional differences and dynamics). MO delivers a masterful piece doing exactly this.
- In his conclusion, MO has already listed key reflections on policy implications of plausible scenarios.
- A few appear to be robust (in their economic, if not in their political economy dimension).
  - A stronger policy compact fostering the supply of safe asset cannot be bad.
  - In Europe it could create more fiscal space to finance common public goods and raise (public and private) investment.

## Conclusions

- A future with “ $r - g < 0$ ” may be quite different from the past.
- Complex scenario of risk polarization may greatly complicate the macroeconomic and financial outlook, and the policy problem of how to redress imbalances.
- In light of the ZLB period and the current inflation crisis, it is apparent that the models we rely on to conduct stabilization policies are missing key elements, especially concerning the global common drivers of business cycles and trends.

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