Two Challenges from Globalization

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March 2020

It is a pleasure to be speaking for the third time at the San Francisco Fed's invariably excellent Asia Economic Policy conference. I had the honor of speaking at the very first meeting in 2009, where I presented my paper with Ken Rogoff on the origins of the global financial crisis. In 2015, I returned as Economic Counsellor at the International Monetary Fund, surveying the world economy at a time of turbulence driven by growth worries and exchange rate policies in China. I'll be happy to keep it up if you are happy enough to keep inviting me. In my bid to make that more likely, and having left the IMF nearly a year ago, I will use my renewed freedom of speech to address two major (but quite different) problems of monetary policy formulation in a globalized world. These are the types of problems that are in some sense the IMF's *raison d'êtr*e, and they were very much on the policy agenda during my time in Washington.

If anything ties my two topics together, it's the idea that policymaking in a global economic setting is more constrained in various ways, raising the benefits from enhanced multilateral cooperation. Of course, exactly that spirit gave birth to the IMF.

My first topic is one that has been in front of us from the very first moments of this conference, which is r^*, Wicksell's natural real rate of interest. Of course, this is the real interest rate that would prevail in a hypothetical flexible-price world with full employment. Life is immediately complicated in the open economy by the fact that we can no longer define r^* as the rate that would bring saving and investment into equality under price flexibility. The

reason is that even under flexible prices, saving need not equal investment when a country can borrow and lend abroad. So there is an immediately obvious channel for global forces to impinge on domestically-oriented monetary policy, one that operates through the balance of payments current account or equivalently, through net capital flows.

I want to talk about some the implications for monetary policy in a specific context: What influence should global factors have on the Fed's monetary policy? My answer will be that the Fed needs to take note of growth developments abroad – which, if all central banks do the same, as they should, will naturally induce a more powerful global policy response to shared global macroeconomic shocks. I explore this theme in more detail in Obstfeld (2020).

Seemingly unrelated, but in actuality very closely related to the question of global influences on monetary policy, is that of privately-issued digital currencies. These face central banks with financial stability as well as monetary policy challenges, which will be hard to address in all respects without a globally coordinated approach. I will focus my remarks on perhaps the best-known (and local) entrant to this area, Facebook's proposed Libra, though other potential platforms for digital international payments pose related concerns for national policy sovereignty and effectiveness.

U.S. Monetary Policy in an Interconnected World

Let me turn first to U.S. monetary policy. Appreciation of global factors at the Fed is not new. In the fall of 1998, I was lucky to attend Chairman Alan Greenspan's lecture at Berkeley's Haas School of Business. Amid the Asian crises, he proclaimed: "[I]t is just not credible that the United States can remain an oasis of prosperity unaffected by a world that is experiencing greatly increased stress." Even though the United States economy remained relatively strong, the Fed cut rates shortly thereafter.

Perhaps that cut is best thought of as precautionary or pre-emptive. In retrospect, it does not seem to have been a mistake. I raise the issue of pre-emptive policy because this year too, the Fed has been cutting in the face of a relatively strong domestic economy, reversing what had been a succession of upward rate moves since December 2015. Of course, one motivation has been a slowdown in the rest of the world, likely driven at least in part by the U.S. turn, under the Trump Administration, to a more belligerent use of trade tariffs and threats. I want to argue that such a response has a strong theoretical rationale.

While every central bank faces its own domestic conditions, they all face common global conditions, so we would not expect them to make the same monetary policy choices, and they don't. One can wonder, however, if they seem to be incorporating domestic and foreign factors into their decisions in similar ways – and in particular, whether the Fed's monetary reversal over the

course of 2019 made it an international outlier.

Figure 1 offers one rough way of judging this. It covers data from 11 advanced economy central banks, plotting the expected real policy interest rate as of end-2019 (vertical axis) as a function of 2019 projected real GDP growth, as reported in the IMF's October 2019 *World Economic Outlook* (WEO).[1] CPI inflation expectations are also October 2019 WEO projections. My point is that most central banks, including the Fed, are not too far from an upward-sloping line, such that the real policy interest rate is higher when expected growth is higher. Korea is an outlier with and overly tight monetary stance – which may help explain why its WEO projection of 2019 growth was more than 0.5 percentage points below potential and its inflation projection below 0.5 percent.

A notable feature of Figure 1 is that real policy rates are negative everywhere, except in Korea, where they *should* be negative. This is really quite remarkable given history, and it tells us something about where the global natural interest rate is – the weighted average of nation-specific *r**s. Global real rates are low, having fallen steadily since the 1980s and having failed to bounce back in over a decade since the first Asia Economic Policy conference. The reasons behind the long-term decline in real interest rates are covered in a large literature (e.g., Council of Economic Advisers 2015, Rachel and Smith 2017 and Jordà and Taylor 2019). They encompass demographics, lower productivity growth, growing inequality, low public infrastructure investment,

[1] These data come from before the round of interest-rate cuts starting in March 2020 in response to the

and shortage of safe assets, among other factors. I would now add climate uncertainty to this list.

Wicksell's principle of price stability instructs the central bank to set the real policy interest rate above the domestic real natural rate when it wants to slow the economy and below it when it wants to provide stimulus. A prime determinant of domestic r^* in all of our models is the domestic rate of economic growth. U.S. growth has been well above the long-run potential rate of about 1.8 percent, while inflation is not grossly below the Fed's target of 2 percent PCE inflation. Aggregate unemployment is *very* low. Nonetheless, conditional on U.S. growth performance, the Fed's stance looks very similar to that of other central banks. Its 2019 inteest rate cuts left it exactly on the regression line.

One way to understand the Fed's position is to think about the country-specific level of r^* that the Fed targets as being determined in part by conditions in global capital markets. In this case, economic weakness abroad could well translate into a fall in the Fed's estimate of U.S. r^*, and hence in the policy interest rate. Right now the U.S. is about a quarter of the world economy at market exchange rate, so there is a lot of "rest of the world" out there to consider. The U.S., in fact, is highly integrated into global finance, even if it trades less goods and services than some other economies. Thus, the U.S. real interest rate will depend on foreign developments and be driven by international arbitrage in the bond markets. Abstracting from risk and liquidity

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COVID-19 pandemic.

premiums, a rough guide to the relationship between, U.S. and global real interest rates is real interest rate parity. Roughly speaking, real interest parity states that if the U.S. real bond return rises above the foreign, the relative real value of dollar investments must be expected to fall through a real dollar depreciation (a nominal dollar depreciation in excess of the U.S. – foreign inflation difference).

Figure 2 illustrates the coherence of some major economies' real interest rates. (The chart shows 10-year bond yields less inflation in the observation year.) Despite some divergences, global real rates have moved more or less in the same direction and, strikingly, this has been inexorably downward. This decline has left us in a situation where the real policy rates consistent with economic stabilization seem to be zero or negative. This is obviously a major problem for monetary policy, particularly as we contemplate the next recession.

I noted above some of the various factors, for the most part globally shared factors, that have driven real interest rates down. Presumably, these have also driven down the national values of r^*, which are not directly observed, and therefore must be estimated. Several estimation methodologies are available. However, nearly all of them (for example, the well-known method of Holston, Laubach, and Williams 2017) estimate r^* on an economy-by-economy basis, treating each case as a separate closed economy. The resulting estimates tend to trend downward together, like the ex post real bond rates in Figure 2, not because they come from a model of interconnected financial

markets, but simply because of the rather high cross-country correlations of the underlying macroeconomic aggregates, such as GDP growth rates. These correlations, in turn, are driven partly by the unmodeled, but in reality quite interconnected, financial markets. Such a framework seems unsatisfactory for policy analysis.

A methodological exception is Rachel and Summers (2019). They observe that, taken as a whole, the group of more prosperous OECD countries has close to a zero current account balance, and therefore might plausibly be taken jointly to constitute an effectively closed system for estimating r^* by methods akin to those of Holston, Laubach, and Williams. However, this country group has not uniformly had a zero current account over the entire estimation period. Moreover, one cannot then use the resulting model to analyze effects of counterfactual policies on r^*, because in reality, those policies might well result in borrowing or lending abroad, which would mute their effects on the equilibrium real interest rate.

The textbook model of Metzler (1968) is a useful vehicle for illustrating the global determination of r^* in a world of integrated capital markets. This same model underlay Bernanke's (2005) famous global saving glut speech, but a diagrammatic exposition clarifies the analysis, in my opinion, and also allows an extension to the case where variable real exchange rates can drive a wedge between national levels of r^*. (These can diverge even without sticky prices.)

In this two-country (Home and Foreign) model, each country's saving

rises and its investment falls as the real interest rate rises.[2] The simplest (and original) Metzlerian model assumes purchasing power parity (PPP), meaning that the real exchange rate between Home and Foreign is constant. Let q denote the real exchange rate, defined as the relative price of Foreign in terms of Home consumption, where we recognize the considerable Home bias in consumption. In this notation, a rise in q is a real currency depreciation for Home, and the real interest rate parity condition is

$$r_H = r_F + \mathrm{E}\Delta q,$$

so that if PPP holds, a global equilibrium requires that real interest rates be the same in the two countries,

$$r_H = r_F.$$

Figure 3 shows how this equilibrium, which delivers a unique global level of r^*, is established. In the figure, Home is the relatively low saving or high investment trade partner, in the sense that its *autarky* interest rate r_H^{aut}, the rate that would prevail in a hypothetical closed-economy equilibrium where saving must equal investment country by country, exceed the Foreign autarky rate, r_F^{aut}. The unique global equilibrium natural real interest rate, $r_H^* = r_F^*$, equates the Home current account deficit to the Foreign current account suplus, so that Foreign's desired excess of lending abroad is willingly borrowed

[2] Of course, the saving schedule could eventually bend backward due to income effects. I will ignore that possibility here. But it is one reason why some have argued that in very high saving countries, cuts in

by Home. In Bernanke's (2005) telling, Home was the United States and a rise in saving by emerging economies, including Asian crisis countries and oil exporters, shifted S_F to the right, depressing global interest rates and causing the U.S. external deficit to swell. Such a fall in global *r** would also justify a more accommodative U.S. monetary stance,

Essentially the same argument applies when the real exchange rate q is variable. In that case, however, the effects of global saving and investment shifts are somewhat muted in comparison with the PPP case.

Figure 4 shows why, based on the supposition the saving schedule has shifted to the right from an initial curve S_F to S'_F. The assumptions that underlies Figure 4 are that a rise in Foreign saving causes q to fall – a real appreciation for Home but a real depreciation for Foreign – but also, to fall so far that a subsequent *rise* in q is expected, $E\Delta q > 0$. There are several possible reasons for such "overshooting" or expected mean reversion in q, which has empirical support, even in a flexible-price context. One reason would be the lags in production-side adjustment to a the rise in Foreign saving, as the tradable sector expands in Foreign and shrinks in Home.

In the short run, though, the expected real depreciation of Home's currency, according to the real interest parity relation, drives a wedge between the countries' levels of *r**, driving the Home rate above the Foreign rate. Nonetheless, the Home rate does fall compared with its initial, pre-shock

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interest rates could raise saving, and thus be deflationary.

position; it just fall by less on impact. The Home central bank should still respond, in a sticky price world, by cutting the policy interest rate. Otherwise, capital inflows would cause an excessively strong exchange rate and a domestic slowdown.

The implication for the Fed is that the global slowdown in 2019 did justify looser U.S. monetary policy, even with the U.S. doing relatively well. Relatively high U.S. growth did nonetheless justify a higher natural rate and real policy rate than in slower growing economies, the configuration we see in Figure 1.

One worrying implication, however, is that global recession could push the United States even closer to the zero lower bound on the nominal policy rate, making it harder to respond to further negative shocks, whether generated at home or abroad. Clearly, there may be an enhanced opportunity for a fiscal response, as low government borrowing rates expand fiscal space. Surely automatic stabilizers need strengthening, in order to avoid political delays in fiscal response and thereby to support stabilizing market expectations. But if I can be somewhat heretical, I do think we need to think outside the box in terms of the policy tools we are willing to contemplate. At this conference, Governor Adrian Orr of the Reserve Bank of New Zealand made the telling remark that at this point, and with global real interest rates so persistently low, we should stop calling unconventional policy unconventional. But there are even more unconventional policies that we might think about.

Back in 2016 at the IMF, I joined my colleagues Vitor Gaspar and Ratna Sahay (and a team of Fund economists) to propose an integrated monetary-fiscal-structural framework for a low interest rate world. This approach had some similarities with the more recent BlackRock proposal that is for fiscal-monetary coordination (Bartsch, Boivin, Fischer, and Hildebrand 2019). I view the motivation to break some old taboos as resting in part in political economy: if we have a big recession and policymakers cannot address, it the political fallout is going to sweep away all of our fine concerns niceties like central bank independence and separating monetary and fiscal policy. Central bank independence is a means and not an end.

One change that might move advanced economies away from the from the zero lower bound would be improved mobility of investment from rich to poor countries, which could raise the real interest rate globally. Market frictions are part of the problem, but weak institutions and investor protections in potential recipient countries are also to blame. Ten years ago, the McKinsey Global Institute issued a paper entitled "Farewell to Cheap Capital?" arguing that the pull of rich investment opportunities in poorer countries, including opportunities for infrastructure investment, would be likely to push world interest rates up from their low levels in 2010. Think of a big rightward shift of the Foreign investment schedule in Figure 3. But real interest rates in advanced economies have remained low.

Figure 5, taken from Forbes (2019), compares the paths of real interest

rates in advanced and emerging markets.[3] It shows that real interest rate in emerging markets (on average) did recover a few years after the global financial crisis, whereas this was not the case in advanced economies.

Figure 6 shows an even more striking indication of capital market some form of capital-market segmentation. As the figure shows, around the turn of the millennium, saving and investment behavior diverged dramatically as between the advanced and emerging/developing groups of economies, with both saving and investment rising markedly in the latter, while they fell somewhat in the former. Between the early 2000s and the global financial crisis, there was a bulge of surplus saving in the EMDE group, related to Bernanke's "saving glut" and in part financing the big U.S. external deficit. This was the famous "uphill flow of capital." More recently, however, each country group is roughly in current account balance – there is little net borrowing or lending between them, and this has been so for several years.[4] The Metzler model suggests that in this case, real interest rates should be close in the two groups of countries, but Figure 5 contradicts this prediction. This looks to me to be evidence of some segmentation. Essentially, the two groups of countries behave as if decoupled in terms of net borrowing and lending.

Promoting the flow of capital to emerging/developing economies is easier said than done, but there remain big opportunities for infrastructure

[3] I thank Kristin Forbes for sharing these data.

[4] A few years ago, Boz, Cubbedu, and I (2017) noticed that the uphill flow had disappeared. We hypothesized that, given the impending fiscal expansion in the United States, the uphill flow would reappear. But this has not happened. One contributing factor is weak investment across advanced

investment, including green investment, which would have global benefits and prevent the locking-in of fossil-fuel intensive technologies (Stern 2015). Addressing these issues is something that the international community has to think about quite seriously, as coordination problems in both monetary policy and climate policy are in play.

The Challenge of Global Digital Currencies

Let me turn now to a topic that may seems entirely different but that is in reality very much related to the challenges that international financial markets pose for central banks' pursuit of economic stability. I refer to the question of digital global currencies and monetary sovereignty.

It is an unfortunate fact that international payments remain less efficient than they could be, given available technologies. We see real-time payment mechanisms of various kinds in the domestic economy, but in a globalized world, inefficiency of cross-border payments systems remains an important and technologically unnecessary friction. Part of the reason this friction persists is national monetary and supervisory sovereignty, which limits the interoperability of different national payment systems.

In principle, supra-national digital platforms could fill the gap. At this year's Jackson Hole conference, Governor Mark Carney of the Bank of England

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economies, including the United States.

discussed the utility of a "synthetic hegemonic currency," not necessarily a private currency, but one that might mitigate the U.S. dollar's dominance. His intervention was sparked by Facebook's June 2019 nannouncement that it planned to launch Libra, a medium backed by hard currencies for making instantaneous cross-border payments. Staff at the IMF had been working for some time on issues raised by digital currencies, and in particular, the question of central bank issuance of digital currencies (or CBDC; see Mancini-Griffoli and others 2018). But the cross-border payments aspect raised the discussion to a more complex and urgent level, one in which national central bank oversight of payments systems is at center stage.

There is a growing literature on a possible global digital currency, its financial stability implications and its macroeconomic effects (for example, Benigno, Schilling, and Uhlig 2019). I would like to focus, however, on the specific ostensible Libra architecture as a concrete test case for identifying problems that any such platform is likely to raise for monetary control, financial stability, and consumer protection.

First of all, there are obviously many real benefits from such a currency. Facebook's promotion of Libra (for example, Facebook 2019) claims the following virtues:

- "a simple global currency and financial infrastructure that empowers billions of people"
- "designed and governed as a public good"

- “its value will remain relatively stable over time”
- “fully backed by a reserve of real assets”
- “new opportunity for responsible financial services innovation”
- “freedom to easily transmit funds across borders”

The last of these is especially important for developing countries in view of the high costs and low speeds of remittances, especially as correspondent banking has retreated. Whether the reality can live up to all of these admirable goals remains to be proven.

But what is Libra, exactly? Personally, I don’t really know. Figure 7 represents my understanding of the Libra architecture, however, based on reading Facebook’s white papers. I stress that this is only a conjectured architecture, which is why I use the word “ostensible” in the figure title.

One highly touted aspect of Libra has been its use of blockchain or distributed ledger (DL) technology. But this is only part of the system and perhaps not the most important part. End users of Libra will be able to trade the coins with each other within the DL environment, subject to agreement of the external validators. Life gets messier, however, once you need to get out of the DL environment into real, government-issued fiat money. To do so, you must go through exchanges, which interact with “authorized resellers” who trade the Libra for fiat currency with the Libra Reserve. Presumably one would also buy Libra, with fiat money, from the exchanges. The ability to redeem Libra with the Reserve, at a relatively stable value, is the key property that

makes Libra a stablecoin, tethered to some value in the real world, unlike Bitcoin. In turn, the Reserve is advertised be a portfolio of high-quality zero nominal risk assets, denominated in fiat currencies, that will fully back the stablecoins that are issued. Custodians carry out security purchases and sales for the Reserve. The underlying conception of the Reserve is somewhat similar to narrow banking, but as I will argue, not similar enough to eliminate risks.

A critical point to consider is that there are so many steps (potentially costly) to get from the Libra DL environment into actual currencies; only within the Libra loop at the far right are payments frictionless. To me, this feature makes it unlikely that Libra could displace fiat currencies in major countries, especially as those countries develop more effective real-time systems for domestic payments, for example, TARGET Instant Payment Settlement in Europe. Libra has indeed worried central banks enough to spur more interest in CBDC – in the form either of actual individual accounts at central banks or what Adrian and Mancini-Griffoli (2019) call synthetic digital currencies.

Cross-border payments remain problematic, however, but for the larger advanced economies, this issue would not be important enough to displace national currencies, provided domestic payments are frictionless. For most people, international transactions are just not that important. Could governments coordinate cross-border digital payments of central bank digital currencies to reduce existing frictions? A joint approach would probably have to work somewhat like the TARGET system does in the euro area, with

extension of credits among central banks as cross-border payments are processed. The barriers to designing a CBDC cross-border payments network are not insuperable – I am reminded of the European Payments Union of the 1950s – but it would requires a high level of trust and coordination among governments (Adrian and Mancini-Griffoli 2019). Even in the euro area, the temperature of the debate over TARGET balances indicates a trust deficit lurking in some quarters. Furthermore, the current political environment is not conducive to grand multilateral projects, no matter how potentially beneficial.

I have argued that for larger countries, Libra is likely to reduce payments costs only if it can essentially displace the domestic money – otherwise the costs of moving between Libra and fiat money are likely to discourage widespread Libra use. Where Libra *could* make inroads in displacing domestic currency is in smaller, developing countries, especially those with the weakest instructions. This Libraization is form of imperialism by Libra's issuer, which has a large user base in poorer countries that it has a hard time monetizing. The cost to the "colonies" is lost seigniorage revenue, an inability to conduct sovereign monetary policy, and an enhanced likelihood of currency runs driven by multiple equilibria in currency markets. I don't believe that these costs are outweighed by any benefits Libra might confer in disciplining government policies, except, perhaps, for the worst-governed countries.

The idea of Libra as a platform for financial innovation also concerns me. Facebook has announced that holdings of Libra will not pay a return. The Libra

Reserve will earn a return, but that return will be used to invest in the infrastructure of the Libra system. Private money market mutual funds will wish to build on the Libra platform to allow people to invest their "idle" Libra balances, earning a few basis points in return for taking risks that they may not understand. Thus, questions about financial stability and consumer protection are inevitable.

At a macro level, if global Libra demand actually were high, the Reserve's demand for safe assets could exacerbate the safe asset shortage and drive down global interest rates as well as global levels of r^*. We already have a large fraction of highly rated bonds trading at negative interest rates globally, making it harder for the Libra Reserve to maintain Libra's value. And while Facebook promises the Reserve will be "auditable and transparent," I worry about potential rebalancing by this of its large portfolio, rumors about possible moves and how they could destabilize markets, and the risk of front running market developments.

Because the Reserve will have a tough time earning returns if it holds only the safest assets, there will be a big temptation to leave the narrow banking model. The advertised Libra structure implies that Reserve gains are not passed on to Libra holders, whereas losses would be passed on. A system based on "heads I win, tails you lose" can create adverse incentives.

In this distorted environment, Figure 8 shows a way to think about the equilibrium Libra supply. The upward-sloping Libra "supply" curve derives

from the possibility that the Reserve must demand ever-riskier assets as it expands its Libra liabilities. The downward-sloping "demand" curve indicates that people will wish to hold fewer Libra the riskier is their value in terms of currencies. The intersection of the curve determines the equilibrium amount of Libra supplied and demanded.

An important feature of this equilibrium is that an individual investor who buys Libra will not internalize the effect of his or her action in raising the Reserve's incentive to invest in riskier assets. As a result, the equilibrium stock of Libra will be inefficiently high. This concern adds to the other reasons policymakers have advanced for close and internationally coordinated regulation of Libra, if it ever comes into use – ranging from financial stability concerns to concerns over AML/CFT issues.

Operating in an interconnected global capital market has forced central banks carefully to take developments abroad into account when setting monetary policy. Private-sector cross-border payment schemes like Libra, however, raise a different but possibly more even disruptive challenge for central banks' monetary and financial control. To meet that challenge requires not only domestically oriented efforts, but also, a higher level than ever of international cooperation. We cannot afford to move backward in that effort.

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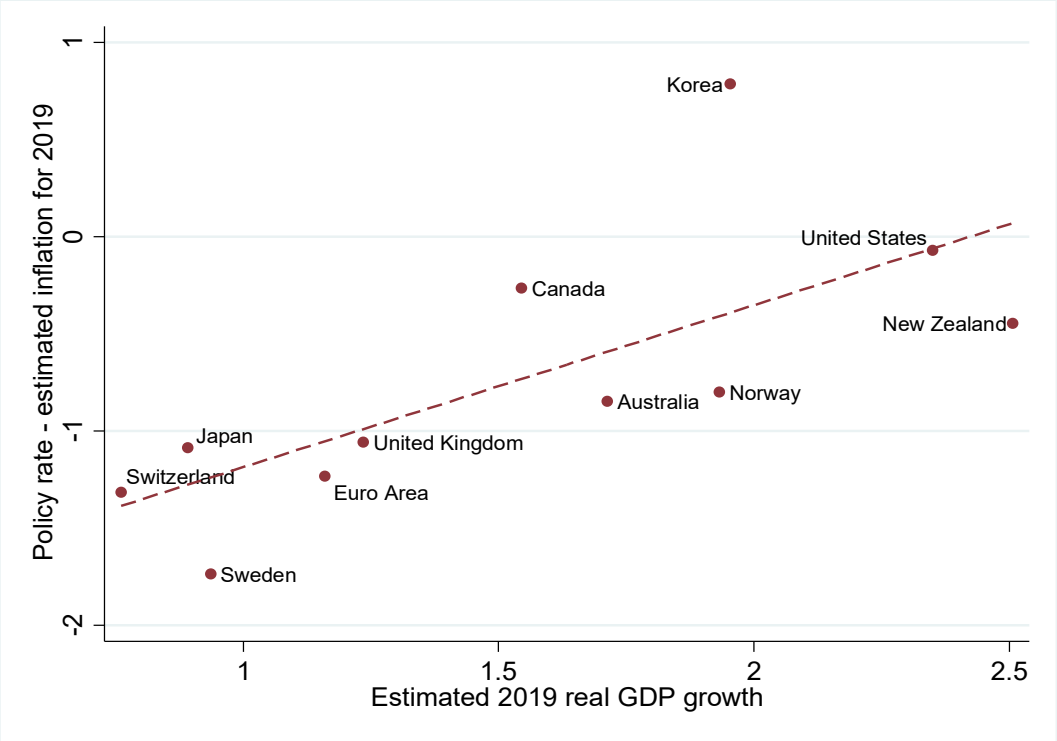
Figure 1: Real Policy Interest Rates and Projected Real Growth, Late 2019



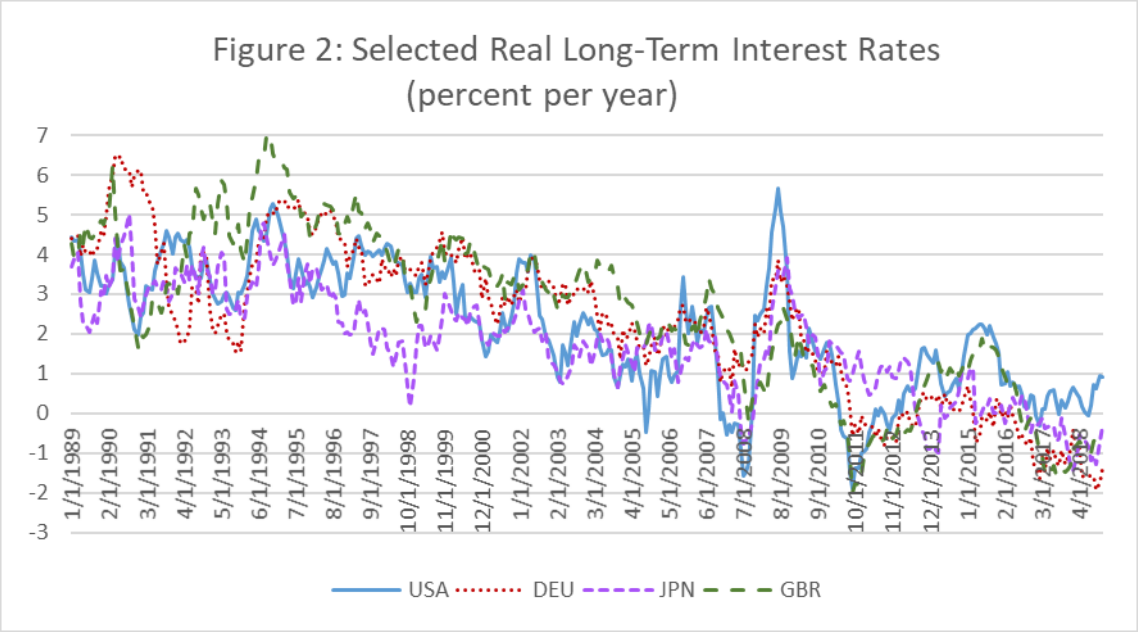


Figure 2: Selected Real Long-Term Interest Rates
(percent per year)
7
6
5
4
3
2
1
0
-1
-2
-3
1/1/1989
2/1/1990
3/1/1991
4/1/1992
5/1/1993
6/1/1994
7/1/1995
8/1/1996
9/1/1997
10/1/1998
11/1/1999
12/1/2000
1/1/2002
2/1/2003
3/1/2004
4/1/2005
5/1/2006
6/1/2007
8/1/2009
9/1/2010
1/1/2015
2/1/2016
USA
DEU
JPN
GBR

Figure 3: Global Capital-Market Equilibrium in a PPP World

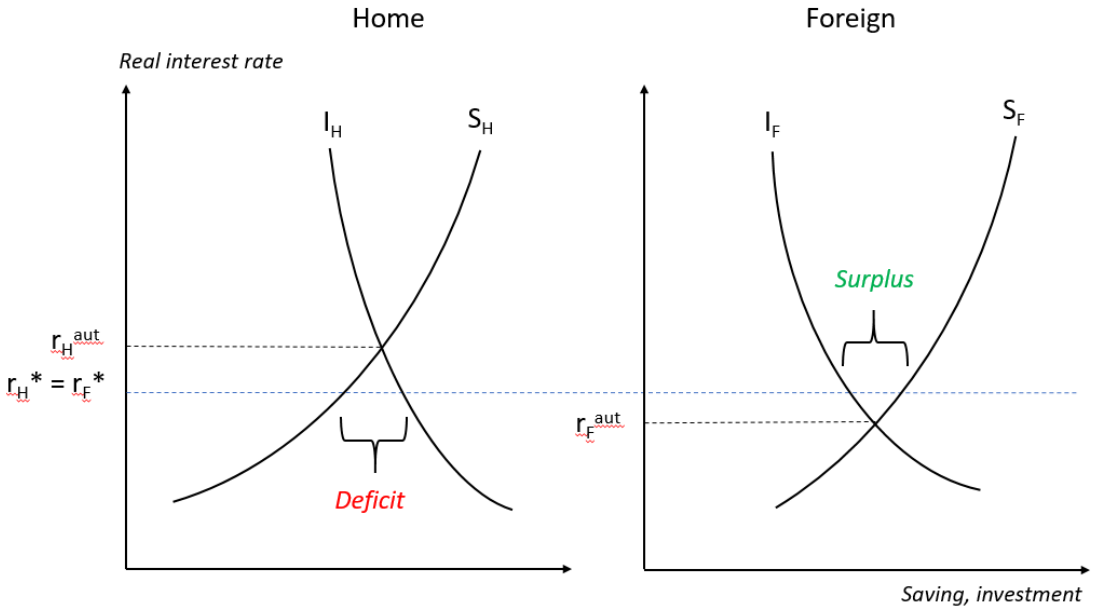


Figure 4: Increase in Saving Abroad without the PPP Assumption

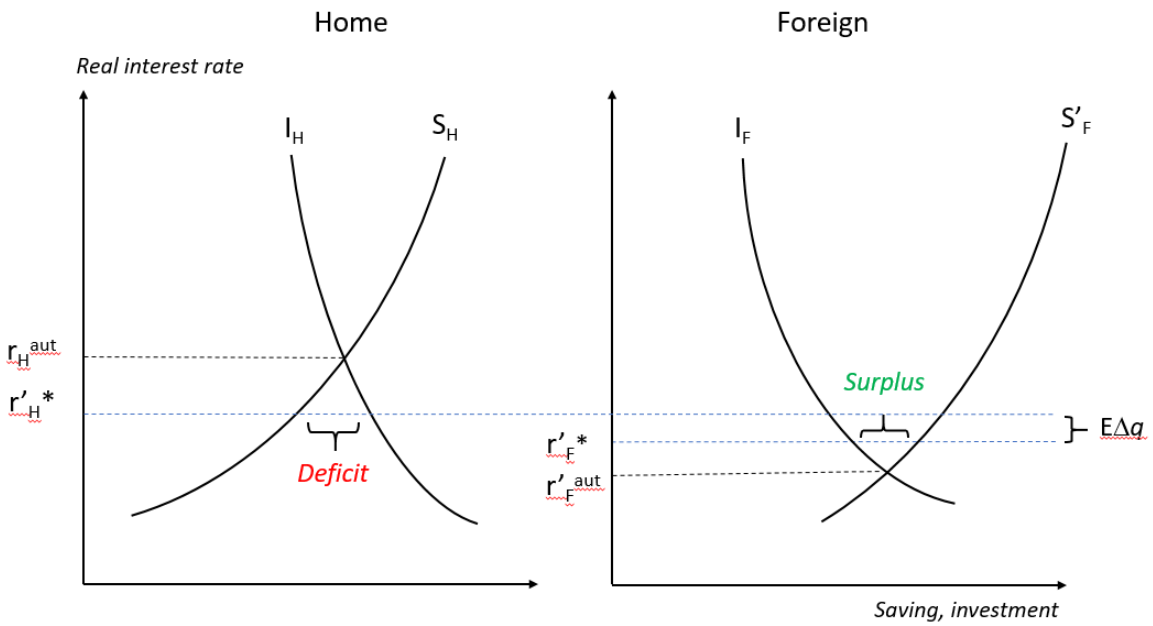
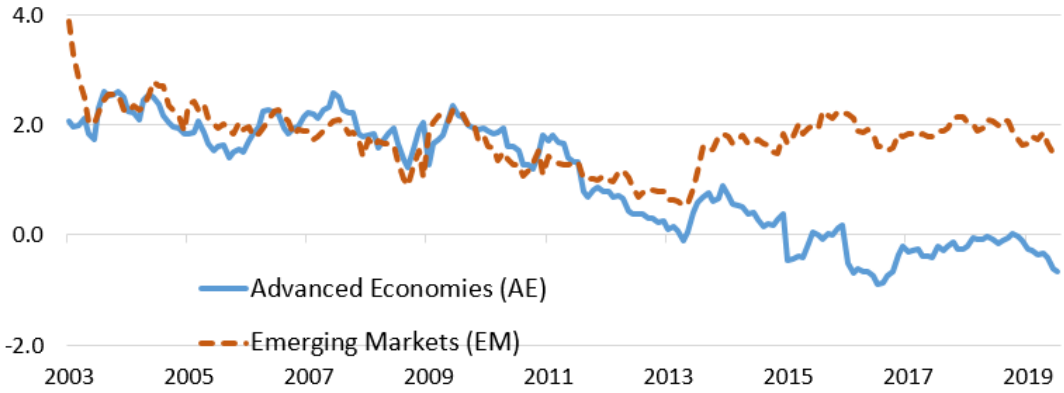


Figure 5: Real Interest Rates in Advanced and Emerging Market Economies



GDP-weighted averages, by country group. From Forbes (2019), updated from Rachel and Smith (2017).

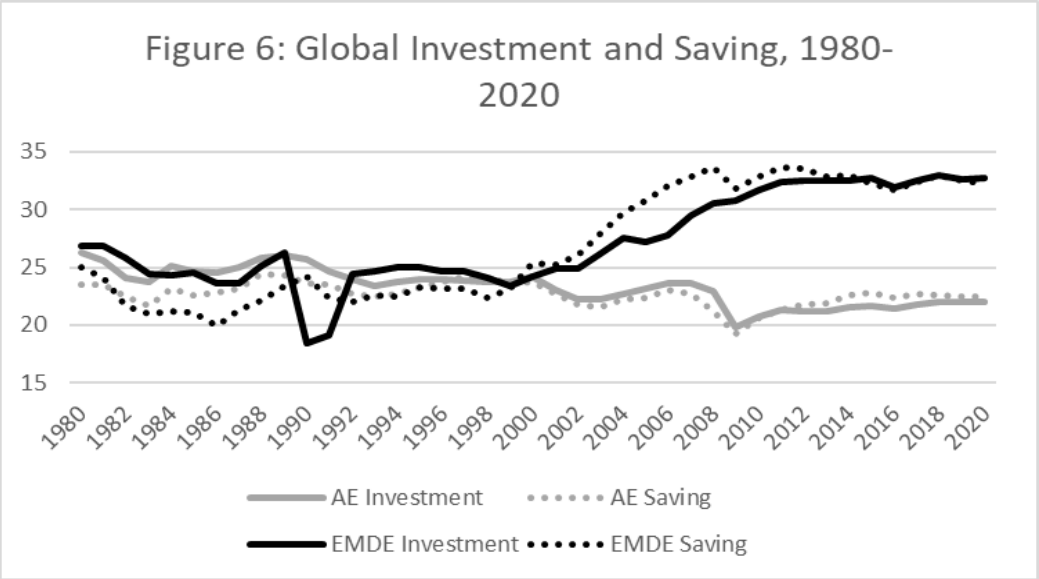


Figure 6: Global Investment and Saving, 1980-2020
35
30
25
20
15
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
AE Investment
AE Saving
EMDE Investment
EMDE Saving

Figure 7: Ostensible Libra architecture

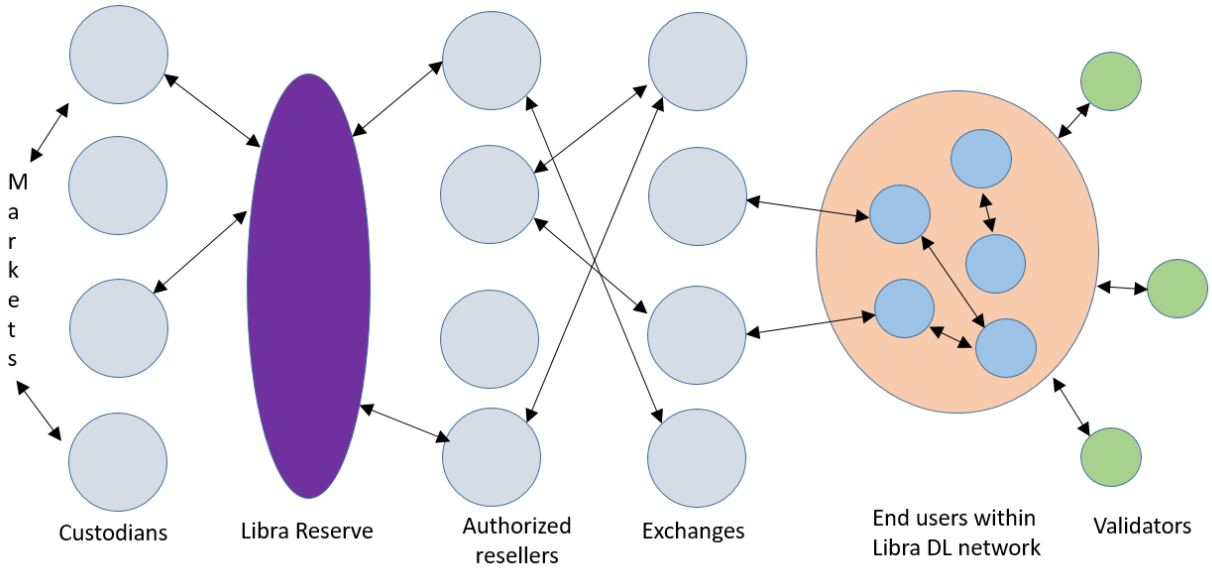


Figure 8: Equilibrium Libra Supply