COMMENTARY

# Crowding Out Redefined: The Role of Reserve Accumulation

**Alan M. Taylor**

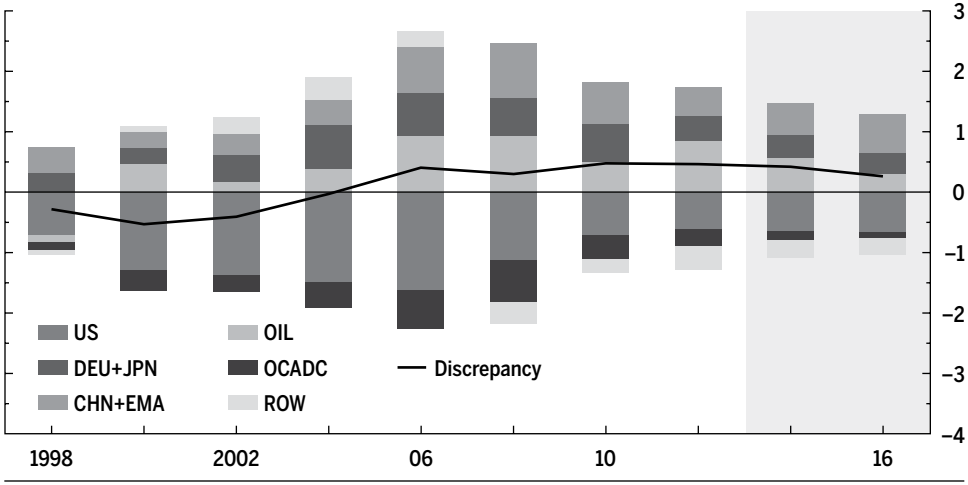
Thanks to Carmen Reinhart for the fine paper. I always learn a great deal from reading her work: It is always original and provocative and suggestive, and there is much here to dig into. I am going to be doing the discussant's job of trying to make some constructive criticisms and suggestions for how to go forward. So let me focus on a few issues.

First I will give a contextual preamble using recent and historical data to get some perspective. I will go from there to summarize what I think are the main points of the paper. Next, I am going to have five comments, one big and four small. And then I will end with five parting questions.

Starting with the contextual preamble, I want to focus on the big fact about the world we live in, and the world we have been living in for the past decade or two. This is the asymmetry between emerging markets and developed markets, which I think is the key fact in international macroeconomics that we have to contend with, that we have to teach our students about, and that policymakers have to worry about as well. So let me look at some aspects of that.

First I turn to global imbalances, their emergence, and the putative rebalancing that we are now going through. Figure 1 from the International Monetary Fund (IMF) *World Economic Outlook* shows the surpluses and deficits of major countries and regions, many of them familiar. On the positive side, the oil-exporting countries have been earning surpluses for three or four decades; China with its precautionary savings or mercantilism, whichever you prefer to call it, of many years; and Germany, which is a new and upcoming mercantilist if you believe recent chatter. On the negative side of these bars you see the deficit countries, the most prominent of course being the United States. This sets up an important context for where we have gotten to, although it may be that imbalances will recede. It is a measure of flows, but it has some stock implications. And if we look a little deeper, moving from net positions to gross positions and how they have been evolving over time, we get to asymmetry fact number two.

FIGURE 1
**Global Imbalances**
(Percent of GDP)



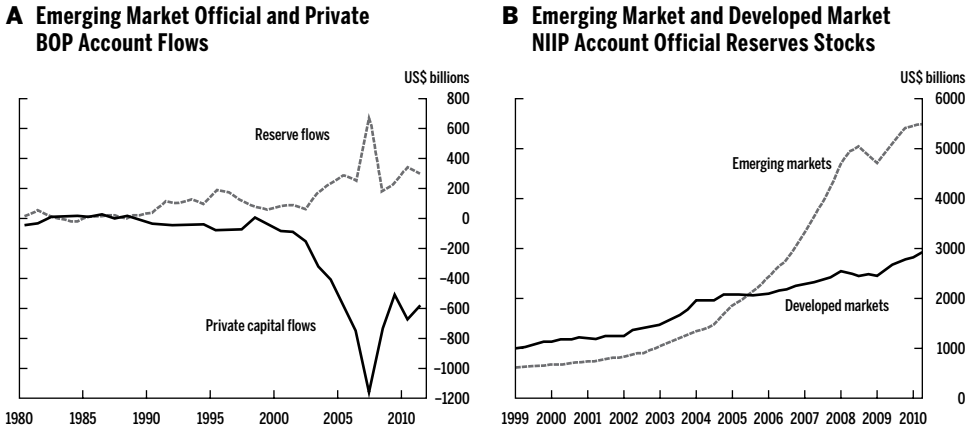

**Sources:** CPB World Trade Monitor; Haver Analytics; and IMF staff estimates.

**Note:** CHN+EMA = China, Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand; DEU+JPN = Germany and Japan; IP = industrial production; OCADC = Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom; OIL = oil exporters; ROW = rest of the world; US = United States.

Figure 2 shows two things: in panel A on the left, official and private balance of payments items for private and official flows to emerging economies, and in panel B on the right, the stock of reserve assets. On the left-hand side is flows and on the right-hand side is stocks. The left-hand side says, in a nutshell, that whatever you learned about the Lucas paradox of uphill capital flows was mostly wrong. It is correct for the aggregate flow, but really the Lucas paradox is about private investor decisionmaking. But when you look at private capital flows, they have in fact been going downhill from rich countries to poor countries for the past 20 or 30 years. So there hasn't been capital flowing in the wrong direction in that neoclassical sense. It is just that if you look at the official flows in the figure, they are large and offsetting—and large enough to *more than offset* in the net balance of payments the downhill flow of private capital into the emerging economies. And what form has emerging country capital accumulation principally taken? It has taken the form of the reserve accumulation that Carmen talked about and we are all familiar with. This is shown in panel B chart in the accumulation of vast stocks of reserves in the emerging markets, going from about $1 trillion to $6 trillion over that period, and growing much faster than their GDP or even their trade flows. And of course much,

FIGURE 2

**Private and Official Assets: Flows and Stocks**

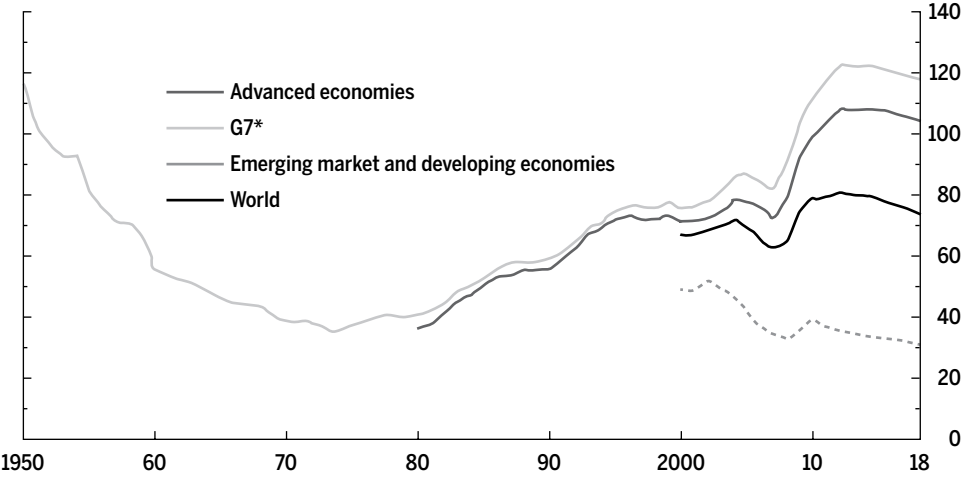



**Source:** Taylor, Alan. 2012. "The Great Leveraging." BIS Working Paper 398. http://www.bis.org/publ/work398.pdf

much faster than in the advanced economies, where reserve accumulation has been fairly flat relative to economic growth.

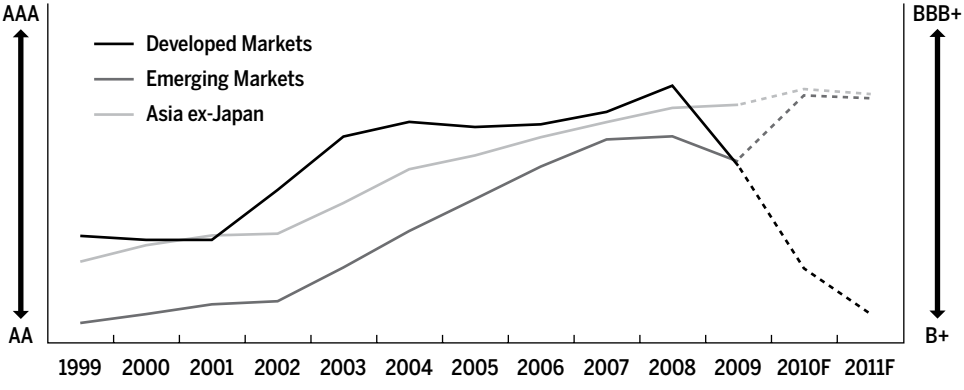
Fact number four concerns public debt, and we can refer to Figure 3. Remember how we used to lecture the emerging markets about their irresponsible fiscal policies and how they were overindebted? But that was then, and the shifts are clear when we look at a long time series for the advanced economies, the Group of Seven, and the emerging economies. It is striking how things have changed since the 1990s, with the emerging markets and developing economies getting their fiscal act more in order and lowering their public debt-to-GDP ratios. At the same time, the advanced economies have gone in the opposite direction. So not only have emerging economies been piling up assets for precautionary or other reasons, they have also been reducing their liabilities. They have been piling up official assets and reducing public liabilities. What's been the payoff? Well, if you believe investment ratings then there has been some payoff in the recent crisis. Traditionally, going back to the 19th century, as economic historians well know, whenever the advanced countries sneeze the emerging countries catch pneumonia. But this recent crisis episode has proven to be an exception. Emerging economies have—remarkably—escaped virtually unscathed, without any crises occurring on their own territory even as the advanced economies have gone through so much turmoil. That achievement is reflected in these observed credit ratings as well, shown in Figure 4. The crisis in the advanced world has brought a great deal of fiscal stress and strain and a lot of economies have been downgraded. Obviously the scales are different.

FIGURE 3
**Public Debt**
(Percent of GDP)




**Source:** IMF staff estimates.
*G7 comprises Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

FIGURE 4
**Sovereign Credit Ratings**




**Source:** Viktor Hjort, *Reverse Contagion: Sovereign Crisis Implications for Asian Credit*, 12, February; Morgan Stanley Research.

On the left axis you've got the advanced economies in AA through AAA range. On the right axis, you've got the emerging countries in the B to BBB range. We don't see much of a blip in emerging sovereign credit ratings, but we see a strong downward trend in the credit ratings of the advanced sovereigns.

Fifth, let me make a final contextual point to conclude my survey of the asymmetry between emerging and advanced economies by looking at private credit. What has been happening there? We all know there has been a credit crunch. Or at least there has been in the advanced economies. But there has not been one in the emerging economies. In fact, emerging economies have been beset by worries in the past year or two regarding whether they are having too much of a credit boom. Again, this is a striking difference between the two groups of countries. The United States seems to be emerging from that credit crunch with growth rates of credit gradually creeping upwards in Figure 5, panel A. Of course the euro zone, beset with the double whammy of a financial crisis and then a lot of sovereign stress, is still seeing zero to almost negative growth rates of credit. But in the emerging economies the growth rate of credit is robust and is supporting high, but maybe (according to arguments in Carmen's paper) *not high enough* rates of investment.

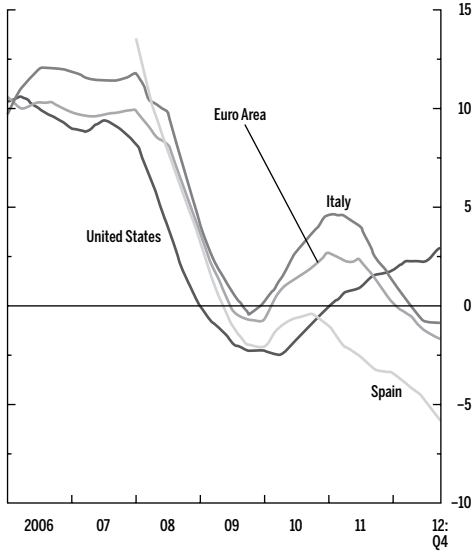
So that is a tour of the landscape. Let me now come back to what the paper is saying and what it is trying to do. I see the paper as drilling a little bit deeper into this emerging market asymmetry. It looks at investment after financial crises for the emerging market countries in the 1990s and tries to make some parallels with the euro zone today. And it asks whether the massive reserve accumulation I just described has constituted a form of crowding out, and whether the government balance sheet, even if it is safer, represents a diversion of resources that may incur a growth or investment penalty.

Now some aspects of these claims are completely understandable and uncontroversial. We know that investment-to-GDP is highly procyclical, so when there are big crises or big recessions we expect investment to go down hard and stay down for some time. So I think the question here is not really about the short run, at the business cycle frequency. It is really medium to longer term: Can we discern anything reliably at that horizon? Can we tease out evidence from these few recent macroeconomic events?

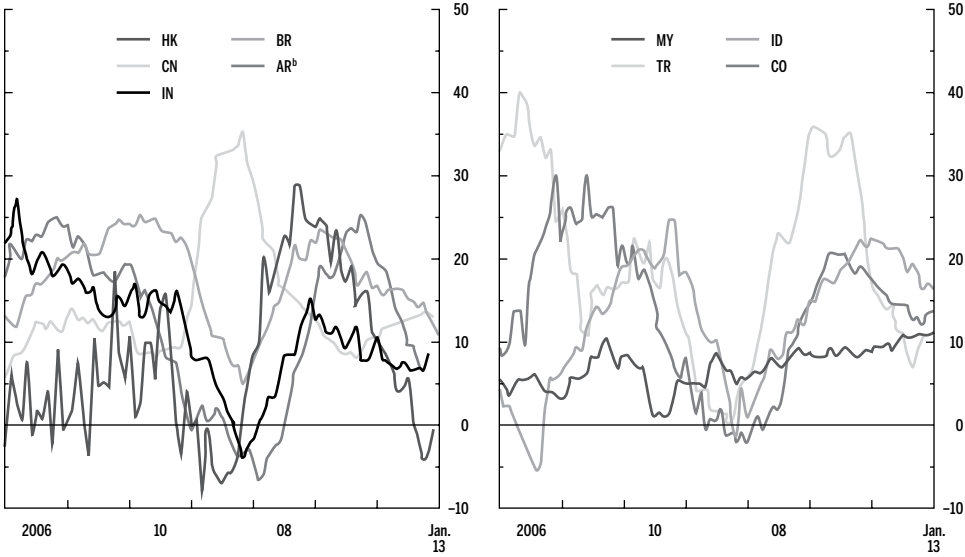
Let's begin not with theory or evidence, but something beyond dispute: accounting identities. The basic story is running through the balance of payments identity, current account equals saving minus investment. And we know from the data that crises tend to be associated with the current account moving sharply in the positive direction, out of deficit towards surplus. As an accounting matter, that means saving must be rising or investment must be falling, or

FIGURE 5
## Private Credit

**A Nonfinancial Firm and Household Credit Growth**[a] (year-over-year percent change)




**B Real Credit Growth** (year-over-year percent change)




**Sources:** Haver Analytics; IIF Emerging Markets Bank Lending Survey; IMF, *International Financial Statistics*; and IMF staff calculations.

**Note:** AR = Argentina; BR = Brazil; CN = China; CO = Colombia; HK = Hong Kong SAR; ID = Indonesia; IN = India; MY = Malaysia; TR = Turkey.

**a** Flow of funds data are used for the euro area, Spain, and the United States. Italian bank loans to Italian residents are corrected for securitizations.

**b** Nominal credit is deflated using the IMF staff's estimate of average provincial inflation.

some combination of the two. Looked at this way, the overarching questions in the paper boil down to tracing balance of payments shifts: How large? For how long? Which components? What's the causal story? And is reserve accumulation an important part of that story?

I always look through a paper for the crucial quotes and I think there are two crucial quotes in this paper. The first is, "The crisis experience sets the stage for both a policy that redirects government borrowing toward the domestic market and a central bank that strives to build a foreign exchange war chest as a financial stability policy tool."

The paper is asking us to think about the possible downsides to this response in the emerging economies, and possibly now in the euro zone today. Maybe one can view this in some sense as a rational macroprudential or "financial repression" policy, but in addition to putative benefits it may also incur some costs. This ties into the much broader debate about finance and growth. If you have a freewheeling financial sector, does that give you more rapid growth in the long term? But does it also come at the cost of higher volatility, higher frequency of crises, and deeper crises?

The second crucial quote is this: "The fact remains that whether the outflows are official or private, a slice of domestic saving is directed to the purchase of foreign assets in lieu of domestic investment."

I ask myself, is this a priori true? And I think the answer is clearly no. And it gets to the question of what is the counterfactual. Whether it is true is going to depend on the responses of other items in the national income accounts and the balance of payments accounts. What is going to happen in the counterfactual to private savings? What is going to happen to the current account? And so what I think this paper forces us to do is to think about the substitutability of the private and official holdings of foreign assets in the actual and counterfactual worlds, and possible side effects operating through other channels such as risk and volatility, which I'll come to in a moment. But you have to have all of those ingredients in place for this policy change—if it is that—to lead to the big counterfactual being declining investment. And there are some scenarios in which it might conceivably go in exactly the opposite way.

A crucial figure in Reinhart's paper (Figure 8) shows that the reserve accumulation is going up quite steadily but investment does kind of jump down at the 1997 crisis turning point. My question is, can we get a bit more detail here? Maybe we need to dig into the balance of payments items or look at flows versus flows rather than just flows versus stocks to get a sense of which components are doing the work. Is it private savings moving around, or is it current accounts moving, and which elements are in motion? Knowing that could provide a little

more granularity and detail to clarify the story. And perhaps going deeper, doing some statistical analysis country by country, item by item, would help.

I now turn to my main comments, of which the first is the most important.

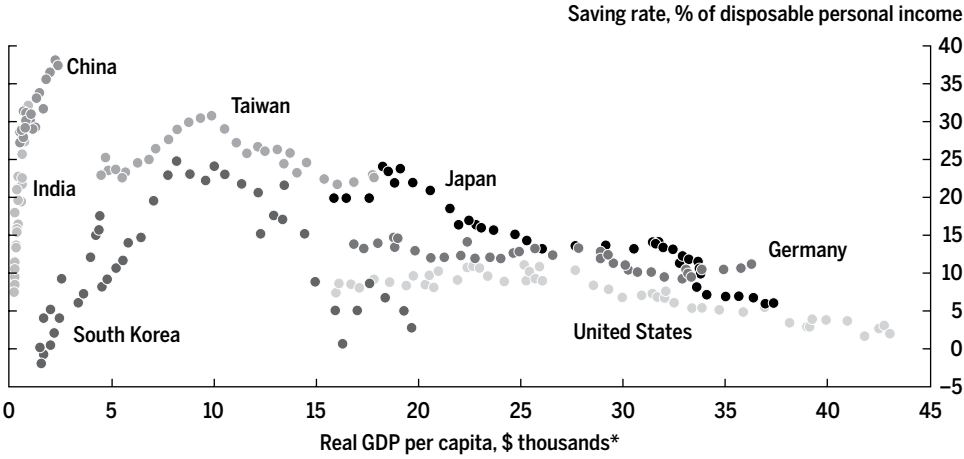
**Comment 1:** This recapitulates a point made by Lant Pritchett in the first session of this conference, which is that all fast-growing economies are going to hit some kind of a slowdown. Maybe it's predictable, maybe it's not, and I don't want to get into that argument. But even if you take the standard neoclassical model, you're going to have growth slowing down. In the standard model, growth deceleration is monotonic and linear; in reality of course it jumps around. I took what Lant was saying as basically consistent with the observation by Daron Acemoglu et al., that not only do higher quality institutions lead to higher levels of output per capita, but they also lead to less volatile output per capita growth. Thus, in the left-hand tail where you have low quality institutions, things are going to be jumping around more. That is why you get more reversals and accelerations in the bottom end of the institution and income distribution. We would therefore expect countries that have been developing and emerging and traveling up that income escalator to eventually slow down, but it may not be linear, they may hit some inflection points.

Over the very long run, the data do suggest that, beyond a certain point, for maturing economies, growth and investment steadily decline together. Figure 6 from a McKinsey report shows savings rates (which are approximately equal to investment rates in the long run). This goes back into 19th century data using very long time series. What you see is that at very low levels of per capita income, near a subsistence constraint, savings can rise pretty rapidly, but they hit a peak. Economies have hit that peak and growth just chugs on and on, through the 5, 10, 15, 20 thousand dollar range, and saving and investment start to track downward as economies mature and returns diminish. (Germany, of course, is the exception.) The data in the paper are quite consistent with some long-run historical patterns. You see big negative changes in investment to GDP in the pre- and post-crisis samples that are quite evident. If you dig into the appendix, you also see that these are transitions associated with high to low growth. Growth slowed in the countries in which investments slowed. So for the moment we can only say this is correlation and not causation. It's quite a challenge to move forward and say something causal and get some identification that we can test.

But that kind of correlation may not be simply a reflection of a slow, long-run shift; it could be a deep, cyclical, but protracted response to a financial crisis. In my work with Òscar Jordà and Moritz Schularick, we see the same empirical

FIGURE 6

**Household Saving Rate and GDP per Capita for Selected Countries, 1960–2008**




*At constant 2005 prices and exchange rates.

**Source:** Bank of Japan; Bank of Korea; Directorate-General Budget Accounting and Statistics, Republic of China; Global Insight; Reserve Bank of India; U.S. Bureau of Economic Analysis; World Development Indicators, World Bank; McKinsey Global Institute analysis. Exhibit from "Farewell to Cheap Capital? The Implications of Long-Term Shifts in Global Investment and Saving," December 2010, McKinsey Global Institute, www.mckinsey.com/mgi. McKinsey & Company. Reprinted by permission.

regularity in 140 years of data for 14 economies. After financial crises there are big slowdowns in growth, but also collapses in investments and sharp moves in the current account toward surplus. It is a pattern we have been seeing for a long time: Major crisis events are followed by big and lasting macroeconomic shifts.

**Comment 2:** I worry a little about the interpretation of what emerging governments and central banks are up to when accumulating all of these reserves. Carmen spoke to this, and I think that was well put. Before all of the crises we were telling emerging economies that they were taking too many risks: We told them they had foreign currency mismatch, too much borrowing, and that was all incredibly risky and they should do something about that, which they did. That suggests all of their reserve accumulation and prudential stuff was great, but there can be too much of a good thing. Now the concern is that they may have a new kind of distortion, perhaps even financial repression, which could be bad. Carmen has written on both sides of this point. But if we stand back, there must be a middle ground where we can ask what the supposedly optimal position is for these economies. Then we can ask if they have really transgressed beyond that.

**Comment 3:** This takes us to the observation that this reserve accumulation wasn't unintentional. We can go back and profitably reread the 1990s literature by Martin Feldstein on self-insurance for emerging markets, and more recent papers in the 2000s by Lawrence Summers and Dani Rodrik on the opportunity costs of reserve accumulation. We know there is likely to be a cost of reserve accumulation: You are parking your resources in very low return—now near-zero return—assets; and you are not doing alternative things such as consuming, or investing in real positive-return projects and creating real capital in your economy, or even outside of your economy. So one fundamental issue to confront first is, is this just an income effect? You have just sacrificed a return on a portfolio, but that's a price you are willing to pay as an insurance premium.

If it's just an income effect, then it might be hard to make an argument that this is necessarily harmful for domestic investment and growth. Why? Imagine the perfectly elastic, frictionless model of capital accumulation in a neoclassical world in a small open economy. You have decided to buy a lot of reserve assets but you can still access the world capital market at a real interest rate $r^*$; your domestic interest rate or return on capital is presently $r > r^*$, so you can still just borrow whatever you want, until the two equalize. You have just increased your gross position, but the net effect on your economy needn't be significant at all, it could be zero. Official flows leave, but private flows come in to take their place. So presumably to get some traction you have to break that kind of simple neoclassical assumption. How? You have to argue that something else is going on. That is where we get back to the point I made earlier, that you may need to look at individual balance of payments and asset accumulation items to try to figure out what is going on. Why are these changing? And are they leading to changes in private savings, the current account, and investment outcomes that you can identify as being really different?

**Comment 4.** A potential problem is that this could all go the other way. A well-known example, widely discussed in recent years, is the so-called Bretton Woods 2 argument of Michael Dooley et al., and their so-called total return swap view of capital flows. Their argument is that, when an emerging country accumulates all these official reserves, it does not lead to the outcome of lower investment, but rather higher investment—because the reserves have made the economy a safer investment bet for foreign capital. It is as if the economy is posting a bond or forming some kind of collateral that makes global investors more likely to put money into the economy, say, via a lower risk premium, thus allowing the country to invest more and grow more rapidly than it otherwise would. So there are theoretical arguments out there, though they haven't

necessarily been empirically tested, that could have these mechanisms operating in exactly the opposite direction of what Carmen proposes.

**Comment 5.** Carmen speaks of the rise of home bias, which may be perplexing or confusing to some in the audience who use that term or read about it in other settings. That's because she is talking about something slightly different than we typically mean when we use the term. Gross foreign asset positions are massively up for emerging and advanced economies, and we know that is a long-run trend. More foreign assets, more foreign liabilities: We see that in all the charts churned out by the IMF and others. In conventional parlance that doesn't necessarily sound like a world of increasing home bias, does it? Furthermore, we know there has been a shift away from currency mismatches, as work by Lane and Shambaugh have shown, so some of the more disaggregated features of home bias have been diminishing. But I believe Carmen has in mind a different use for the term home bias (and it may be a bit of a stretch), that is, the composition asymmetry between public and private portfolios. For an emerging country there is clearly a foreign bias in assets, via its accumulating all these official reserves, so there is bias in that part of the portfolio. My one thought is that it takes two to tango. If there is home bias in liabilities and foreign bias in assets for emerging markets then that's got to be counterbalanced by exactly the opposite for the rich countries or at least for the rich reserve countries. Which reminded me of the work by Gourinchas and Jeanne. To get this outcome you have to have some venture capitalist countries on the other side of the transaction, willing to be long emerging risky assets and also supply the safe assets that the emerging countries want to buy. So does that make them home biased too, in some different way? It is home bias in an unfamiliar shape, and I worry that it is potentially perplexing terminology. Maybe there is a different, and less confusing, way to describe it.

My five parting questions:

- Great paper, good description but could we get more formal empirical evidence? I think that's going to be hard because it is a small sample, but it could be feasible if we slice up the data more.
- Can we get causal inference? I think that's going to be harder still; I don't know if we can go beyond correlation and get to causation.
- Can we discriminate between this story and the Bretton Woods 2 story, which is the main counter-example of reserve accumulation encouraging investment rather than discouraging it.
- Is sterilization a key part of the argument, for example when central banks borrow in local currency by issuing sterilization bonds? Can we get more data on that? This is another piece of granular data that might

help cement the argument. For China that is a big part of the story. It might be nice to relate that to the large debate on sterilization. Does it depend on capital controls and other features of the policy environment?

- Last, can we say something about the political economy? We talk in macro about these countries having purchased insurance and gotten rid of currency mismatch, but we are talking about the entire national balance sheet here. I think an important issue, particularly if—or should I say when—we get an emerging market crisis is that all the insurance is on the official balance sheet, but many risks are on the private sector balance sheet. Who gets access to the insurance and who doesn't? Is it going to be banks or firms or households in the private sector, and which ones? There are large political economy questions, and these could be the next disruptive events for the emerging economies: moving from how to accumulate reserves in good times to how to dole them out in the bad times.