Journal of International Money and Finance xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf

Short Communication

The curious case of the missing defaults ☆

Carmen M. Reinhart

Minos A. Zombanakis Professor of the International Financial System, Kennedy School of Government, Harvard University, 79 JFK Street, Cambridge, MA 02138, USA

1. Introduction

As Sherlock Homes noted in "The Adventure of Silver Blaze," sometimes what does not happen can be more informative than what does. In his case, a dog did not bark in the night. In a recent paper on the long coincident behavior of international capital flows, commodity prices, and interest rates in global financial centers, my coauthors and I discovered the curious case of missing defaults, Reinhart et al., 2017. Despite the drying up of global capital flows and a sharp fall in commodity prices from 2012 to 2016, sovereign defaults in emerging market economies did not spike higher as predicted by the record of the prior two hundred years.

RRRT (2016 and 2017) pieced together a dataset that allowed the systematic exploration of the evidence. Here, I will expand on that effort to offer a logical, but more speculative, combination of events that explain the anomaly. The familiar part to everyone at this conference is that, even as many emerging market economies strained under the double bust of the sudden stop of capital flows and a freefall in commodity prices, monetary policy makers in the global financial centers kept their policy rates unusually low for an unusually long time. In my judgment, just as important, if not more, is that a new source of support came onto the scene. This part of the answer also comes straight out of the pages of "Silver Blaze," where Holmes identifies the important actor in events hidden in plain sight.

In our context, the actor hidden in plain sight is China in two important respects. For one, the larger global footprint of the Chinese economy, which is growing steadily at a rapid rate, stabilized global trade. For another, Chinese official ambition to become a global power led to large official flows to support development projects and other purposes.

The key question for policy makers and investors is whether these missing defaults are deferred or defused. The key question for researchers is whether this new source of support changes the empirical determinants of capital flows.

2. The data infrastructure

A long view of the capital flow cycle must come to terms with the time variation of the location of the global financial center, or, indeed, whether there are multiple poles to finance. Also, as repeatedly addressed in the literature, what are the push and pull influences on local financing? And, are there other systematic influence of global capital flows beyond interest rates?

My answers are shaped by a comprehensive database on capital flows, complemented by information on the commodity price cycle, starting in 1850. This is a work in progress with coauthors, so I offer a current snapshot of its status.

This is not the place to detail the construction of the data, but, as might be expected with a 200-year sample of more than fifty countries, this necessitated gathering apples and oranges. For the period from 1815 to 1869, we collected data on every bond issued by 34 countries. While issuance is a measure of gross flows, the reality is these were mostly net flows, too, made by newly independent countries tapping markets for the first time. We stick with a gross flow measure of capital flows up to World War I. Because of data restrictions, the rest of the sample involves net flows based on current account data and reserve data.

☆ This is based on my keynote address to the 2017 Asia Economic Policy Conference of the Federal Reserve Bank of San Francisco on November 17, 2017.

E-mail address: carmen_reinhart@harvard.edu

https://doi.org/10.1016/j.jimonfin.2018.06.015

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

A picture of global capital flows relative to world nominal GDP is plotted in Fig. 1. Note the data omissions related to world wars and their aftermath and that the different concepts are distinct by different shading. This 200-year span offers sharp peaks and troughs. Within recent memory, the US rode up and down with much greater amplitude, shown as the solid line that includes the US as a capital importer.

Filling in those gaps in the data, unifying the different concepts, and disaggregating the results fills most of our ongoing agenda. In particular, we are interested in the difference between advanced economies and emerging market economies. Another element of interest is the "participation rate," or the share of economies receiving inflows, as shown in Fig. 2. Surely, it matters if global saving is directed to a handful of countries or is spread widely. The main takeaway from this chart is that in the high capital mobility era, the incidence of participation in capital flow cycles has been quite high.

Much of the modern literature on capital flow cycles focuses on the role of US interest rates.[1] A long sample spanning many countries, however, provides examples of a wider range of the location of financial activity and the importance of other influences, including exchange-rate arrangements, monetary policy regimes, attitudes toward financial activity, and management of national debt, asset price bubbles and busts, and regional and global conflict.

By our reading of this record, there are often more than one financial center and other forces intrude. Included in those influences that we identify are changes in the composition of sovereign debt outstanding, financial regulation, and the efficiency of market functioning. In some important episodes, longer-term interest rates matter as well. Indeed, financial innovation and the liberalization, de-liberalization, and re-liberalization of capital flows creates multiple case studies to examine the importance of these factors to the financing of economic activity as well as the location of financial centers.

The boom in Japanese lending before the Asian crisis, for instance, mimics to some degree the boom in US bank lending in the 1970s that culminated with the debt crisis and emerging market in the 1980s.[2] Recent work has documented the important role Euro area banks played in propagating economic weakness in light of the deteriorating health of their own impaired balance sheets. Reinhart and Rogoff (2009) provide numerous other examples, including a chapter devoted to the significance of the subprime mortgage crisis to what turned out to be the Great Recession.

As for capital mobility, consider the 1960s, when everyone, including the US, had capital controls. Whatever the position of the global economic cycle or whether the exchange rate was fixed or floating, international transmission was stopped at the border. The same 100 basis points change in the federal funds rate means something else when capital flows freely. As a more subtle variation, one must consider not just the mobility of capital in the financial center or the larger global players but also in the recipient economies.

Complicating matters, there were often de facto capital controls rather than de jure ones (which is the similar distinction Reinhart and Rogoff made for exchange rate arrangements, as updated in Ilzetzki et al. (2017). De facto capital controls include restrictions on asset holdings that might not distinguish between domestic and foreign investors or reserve requirements and capital charges making some assets more expensive than others.[3] The boundary on de facto capital controls can be blurry and changeable, so I dub some of them quasi-controls. For example, the market illiquidity arising in a crisis may be as an effective impediment to financial trade as a Tobin tax.

A prominent and recurring quasi-control is a familiar part of sovereign finance—default. Simply put, a country that defaults is shut out of global credit markets. For that isolated market, it does not matter whether US interest rates rise or fall because capital flows, which are minimal to nonexistent, are invariant. While this seems obvious, the empirical literature seldom controls for it. As a concrete example, during the boom phase of the global capital inflow phase, from 2003 to 2013, emerging market economies saw a surge in inflows. Argentina, which had defaulted in 2001, was out of the picture. Indeed, until finally dealing with its holdouts, Argentina was outside international capital markets. When interest rates in the US declined dramatically during this interval, nothing happened there.

Debt management at the financial center is also an important, if obscure, push factor. For example, in the 19th century, UK debt managers launched a series of debt conversions with the objective of lowering government interest cost but with the side effect of pushing investors elsewhere in the search to replace yield. In particular, the UK Treasury converted high-coupon consuls for low-coupon ones. Remembering the math of the consul formula, this implied that the UK government lowered the coupon and raised the duration of the converted debt. Apparently, Operation Twist and Quantitative Easing were forgotten before they were rediscovered.

Also central to our story is the cyclical dynamics of commodity prices, based on a long time series pieced together from a variety of source material described in Reinhart et al. (2017). The distinguishing feature of commodity prices is their distinct peaks and troughs, with a sharp amplitude from one to another. Fig. 3 shows these swings of commodity price (deflated by the price of manufactured goods) around turning points dated by the own history of the time series.

3. The long sweep of capital flows and commodity prices

The details of dating cycles, identifying financial centers, sketching out the swings in commodity prices, and discovering important determinants of sovereign default are in Reinhart et al. (2017). Here, I will cover the commonalities of those cycles

[1] The literature is considerable and beyond the scope of my assignment. My early efforts include Calvo et al. (1993). I would be remiss not to call attention to Broner et al. (2013), Claessens et al. (2012), Cerutti et al. (2017), Forbes and Warnock (2012), and Rey (2015).

[2] Kaminsky and Reinhart (1999) expand on this.

[3] Reinhart and Reinhart (1999) look at the use of reserve requirement as a capital control.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

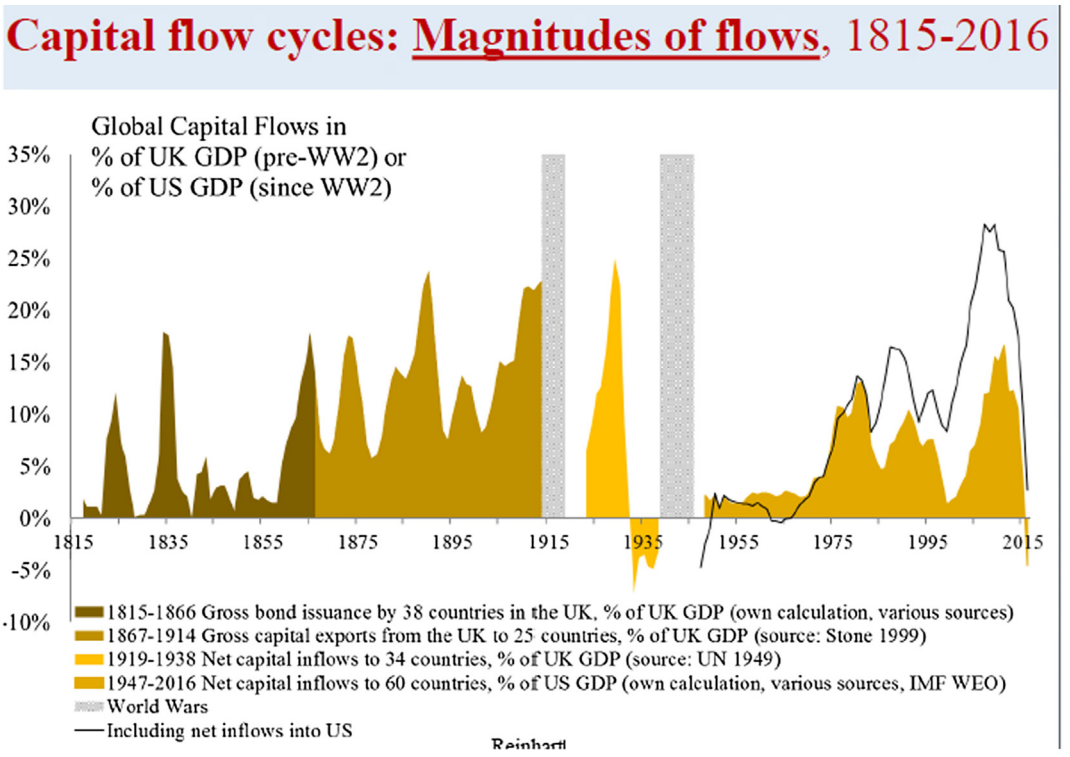

Fig. 1. Capital flow cycles: Magnitudes of flows 1815-2016.

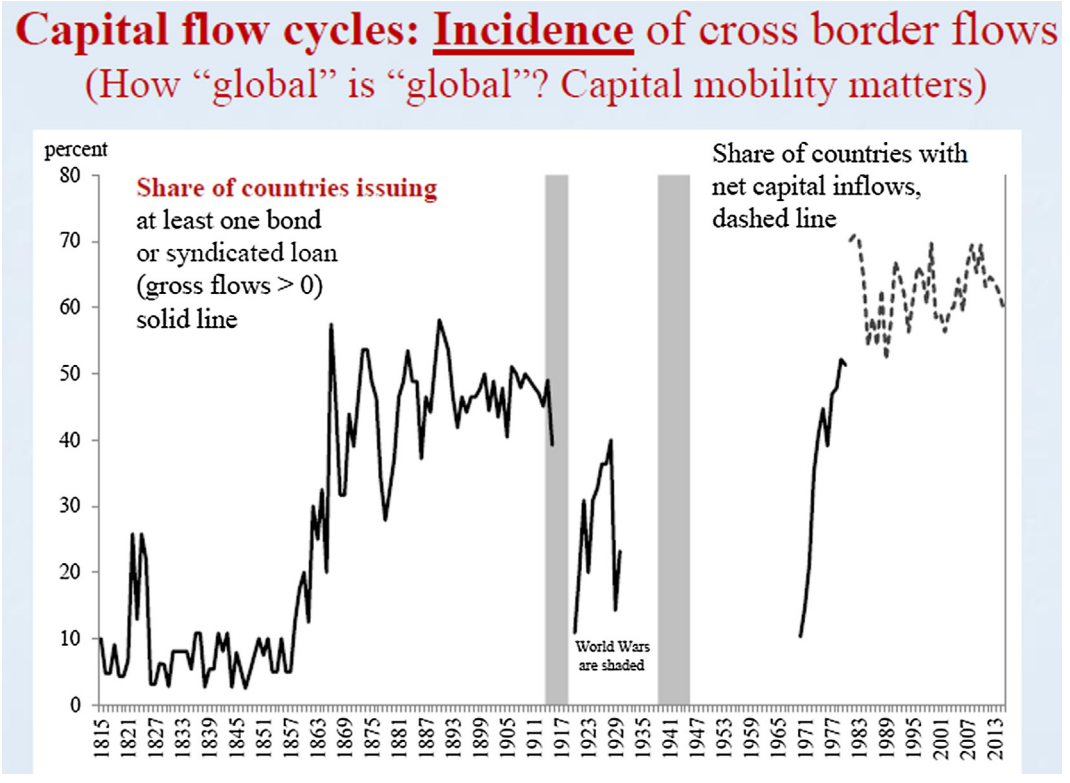

Fig. 2. Capital flow cycles: Incideence of cross border flows, 1815-2016.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

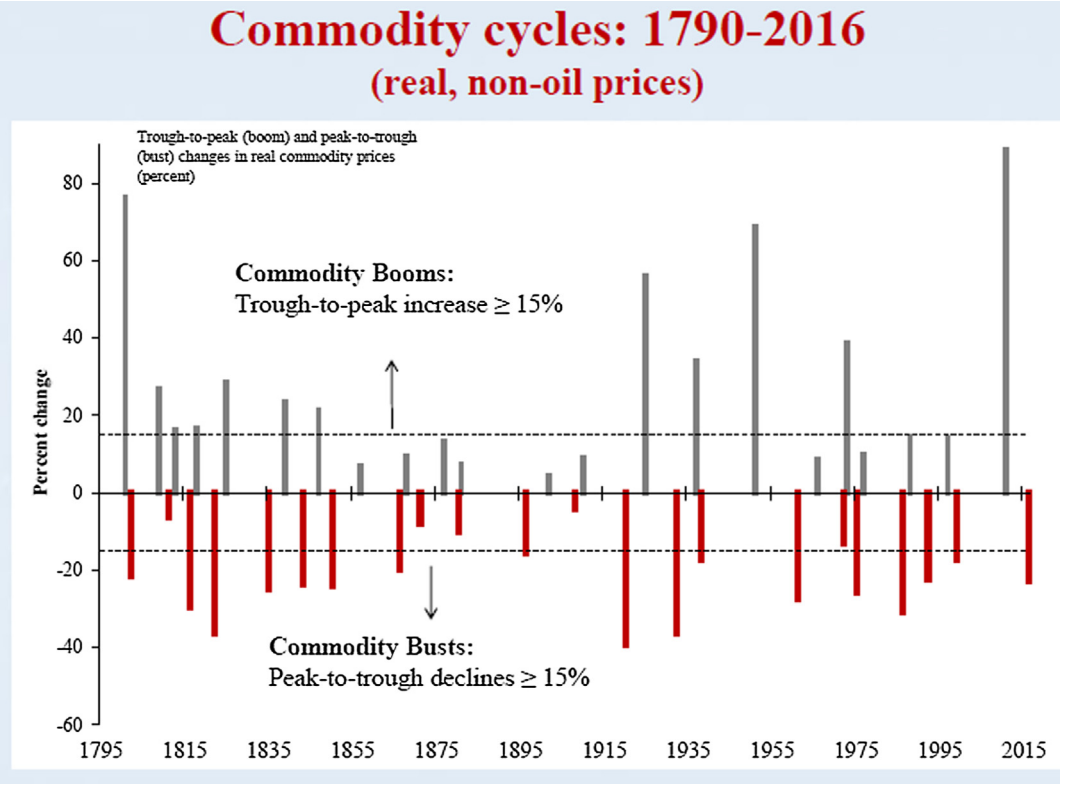

Fig. 3. Commodity cycles: 1790-2016 (real, non-oil prices).

and isolate an important anomaly. Despite the fact that the dataset spans a myriad of institutional arrangement only discernible over 200 years, there are a few important commonalities in cycles and one significant difference.

For one, capital flow cycles are slow to build. However, they end abruptly.

For another, commodity cycles are much more frequent than capital flow cycles. Mega-commodity-price cycles, as we just lived through, that end with a spectacular bust are few and far between.

An important focus of our attention is also the object of interest in many recent papers: What is the role of developments in the financial center on capital flows? This literature finds mixed results. Rey (2015) argues that a few summary statistics of US financial markets leave a large footprint on capital flows. Cerutti et al. (2017) conclude that there is no such reliable association. Our findings incline toward the former, in that interest rates in financial centers matter more often than not. However, finding that result over time and across countries requires controlling for the time variation of the location of the financial center, the extent of capital mobility, and the wedges driven between national markets by other factors.

We took a nonstructural approach to examining the co-movement in capital flows. Across a large number of countries over a very long period of time, the first three principal components explain about two-thirds of the variation in the data. The first factor explains somewhere between 26 and 30-some percent, consistent with some of the modern era findings on the extent of co-movement. Despite considerable heterogeneity across regimes and across countries, our results (Table 1) tend to suggest global capital flows covary.

We find evidence of a strong connection between commodity prices and international capital flows. A particular highlight is that there are a lot of false alarms. That is, many booms and busts in commodity prices are not easy to relate to the overall capital-flow cycles.

As for the association between capital flows and the policy rate at the financial center over the long sample, we spliced together a UK short-term rate for the early portion of the period and a US one for the remainder. As is evident in Table 2 reporting the regressions in Reinhart et al. (2017), in the period of high capital mobility, there is a strong and negative relationship between capital flows and real interest rates in the financial center. Considering the heterogeneity and the long time spans, the push factor story comes through quite well. This relationship breaks down, as one would expect, when capital is immobile. I appreciate that this is not an especially robust relationship, but there is much more work to be done in enumerating the other effects on capital flows that I have discussed.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

Table 1
Co-movement of capital flows across countries factor analysis and principal components, 1870–2016.

	1870–1914		1950–2016	
Factor	% Explained	Total	% Explained	Total
First	26	26	32	32
Second	24	50	18	51
Third	17	67	13	64

Table 2
Global capital flows, capital mobility, and "global" interest rates, 1815–2016.

	(1) 1815–1869	(2) 1815–1869	(3) 1870–1914	(4) 1918–1975	(5) 1976–2016
Nominal interest rate in financial center	0.249 (0.891)				
Real interest rate in financial center		0.216 (0.163)	−1.317** (0.494)	0.582* (0.305)	−0.936*** (0.327)
Observations	53	53	45	50	41
R^2	0.001	0.023	0.098	0.114	0.120

Notes: The dependent variable is the value of global capital flows as percent of UK or US GDP (Fig. 1). The explanatory variable is the interest rate in financial centers (UK until WW1, US thereafter, see Data Appendix) Robust standard errors in parentheses. *, **, and ***, indicate significance at the 10%, 5% and 1% – level.

4. The curious case

Many of these booms in capital flows end badly. During the boom phase, concerns echo about asset price bubbles, rising leverage, and worsening in current account balances. Not much is typically done on the policy front and, in the event, some of the worst outcomes stretch beyond banking crises and currency crises to default.[4]

The post-crisis period has witnessed exceptionally low and stable real interest rates. Equally exceptional, to my mind, was the magnitude of the boom in commodity prices. It is rare in our sample to have a triple boom, or robust capital flows, low interest rates, and high commodity prices, as was the case from 2000 to 2007. The reversal in any or all of these factors historically produced a surge in the share of sovereigns in default.

The mechanisms should be straightforward. If international capital is not available to roll over maturing debt, balance sheets get stretched. If international interest rates rise, perhaps significantly, solvency is undermined. If commodity prices fall significantly for many countries, for the commodity producers, solvency is compromised.

When these cycles come together and the boom becomes a bust, the incident of defaults increases, at least judging from history. Those episodes in Fig. 4 plotting the share of countries entering default are isolated by the shaded areas in which there are a double bust in both capital flows and commodities. We have had the double bust of lower commodity – significantly lower commodity prices and a significant reversal in capital flows. Defaults have not increased (but for the late-breaking news about Venezuela). What explains these missing defaults?

5. Hiding in plain sight

The first impulse of the detective is to round up the usual suspects. If something goes wrong, then the credit goes to something going well. Why have there been so few defaults thus far?

Macroeconomic policies in emerging markets have improved significantly.

The boom in commodity prices was better managed (presciently discussed in Izquierdo et al., 2008).

There was less procyclicality in fiscal and monetary policies (as assessed in Kaminsky et al., 2004, and Frankel et al., 2013).

The more au courant focus is to emphasize macroprudential regulation during the boom that reduced potential currency and maturity mismatches, as well as any other manner of vulnerabilities in the financial sector (as in Ostry et al., 2012, and Bruno and Shin, 2014).

A related literature credits better hedging in emerging markets (Miyajima et al., 2015).

Policies may collectively be better, but this is a judgment best made in hindsight. After all, many of the accelerants to our latest financial crisis only appeared obviously threatening in the rearview mirror. Moreover, never rule out the role of luck. The global financial system has yet to see a normal reversal in policy interest rates as in previous cycles. Thus far, the increase in US interest rates has been mild, gradual, and foreshadowed. It remains an open question if good policies are sufficient to keep the system resilient were international interest rates to rise more sharply.

The second possible solution to the mystery is that some other correlation broke down. In previous cycles, low international commodity prices were a reflection of low growth in the financial centers, or for the recent period, the US. In the latest

[4] For some of the fall-out from capital inflow bonanzas, see Reinhart and Reinhart (2009) and Ghosh et al. (2016). To be sure, defaults are costly, as in De Paoli et al. (2009).

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

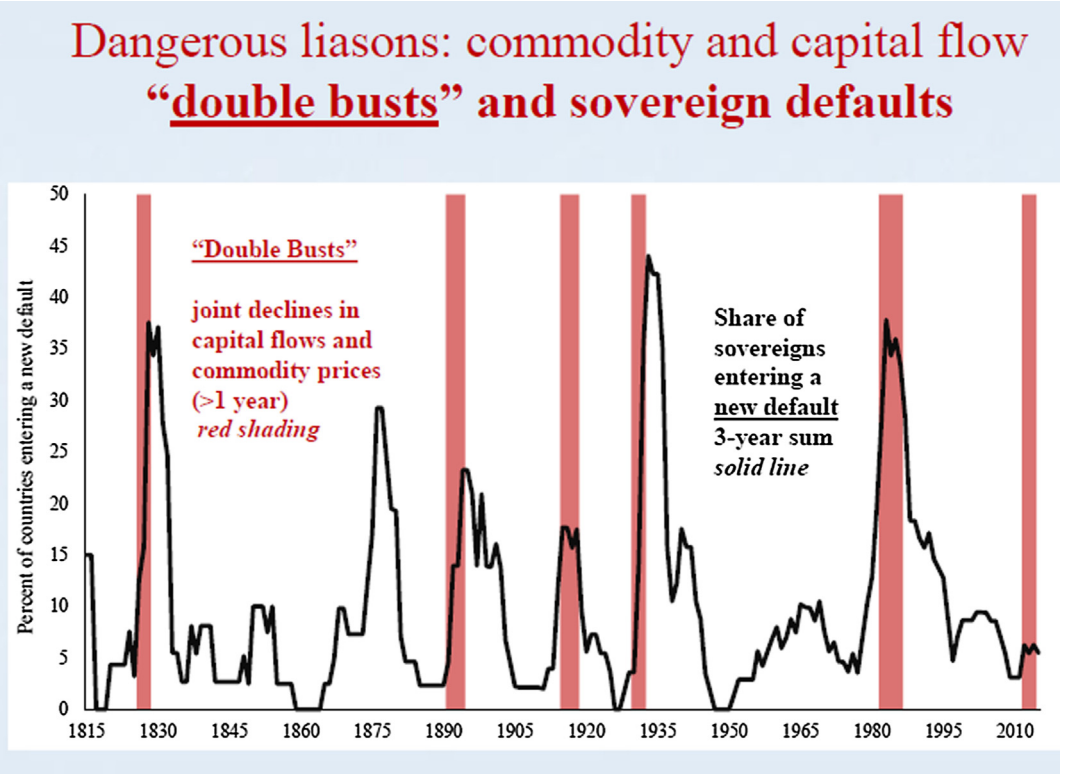

Fig. 4. Commodity and capital flow "double busts" and sovereign default.

episode, even as we had low commodity prices, China was expanding rapidly. As a result, other emerging market economies had a better market for exports than otherwise.

The third possibility is mismeasurement. In ongoing work, Cristoph Trebisch and I show that many low-income countries had borrowed from official sources, not from the private market (expanding on Reinhart and Trebesch, 2016). If they are in arrears with their official creditors, this does not raise flags from Fitch, Moody's, or Standard & Poor's.

A new source of mismeasurement remains more of a mystery. China has grown to become the second largest economy in the world following an export-led growth strategy. During the boom phase of capital flows between 2003 and 2013, Chinese lending to many emerging markets, especially commodity producers, increased significantly. This, to say the least, is difficult to measure.

As a first exercise, because trade and money generally move in tandem, we can assess the part of the bargain that is easier to measure. International trade is important to China and, conversely, China is important to her trading partners. We can infer the rising importance of China by examining the evolution of the bilateral weights put on China in the effective exchange rates of her trading partners. The Bank for International Settlements publishes effective exchange rate indexes for 61 economies based on bilateral trade in base years updated infrequently.[5] The blue bars in Fig. 5 plot the weight China had in its 60 trading partners' indexes, which were based on trade shares in 1993–1995. Ten years later, the red bars, China's footprint on the trade of the rest of the world was much more considerable.

This is casual confirmation of what is widely known, the China has made enormous inroads (silk roads?) in trade.

What we do not know very much about is the expansion into finance. In other ongoing work, my coauthors and I estimate bilateral exposure to Chinese lending in two different ways. One involves actually looking at the development banks reports and tallying up lending on a project-by-project basis. Aggregating this arrives at a stock, in principle. The problem, of course, is that some of those projects may never be fully disbursed, so this represents an upper bound.

The alternative approach is to use other BIS data that have only recently become available. In the fourth quarter of 2016, China started to report on borrowing and lending flows. As of this writing, it does not report counterparties. One can estimate the bilateral exposure by looking at the before and after—comparing the BIS reports for the totals from other countries before China joined and after China joined. By way of example (and in the interest of space), Fig. 6 below shows the differences in

[5] The BIS employs a consistent methodology in the difficult job of matching bilateral trade flows even as definitions and coverage from the source data change. The data are found here https://www.bis.org/statistics/eer.htm.5

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

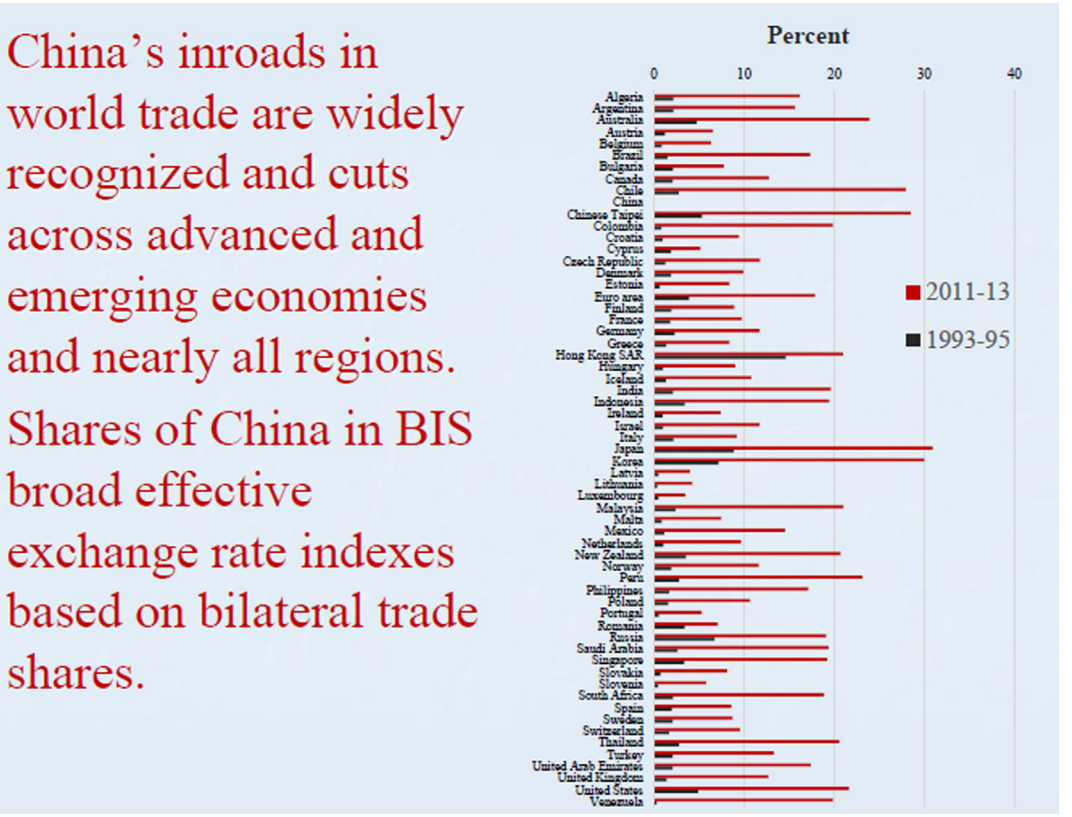

Fig. 5. China's share in effective exchange rate indices: A cross-country comparison, 1993-2013.

cross border flows from the vantage of Africa and Asia. The bottom line is that in many low-income countries, mostly in Africa but also in Asia, some in Latin America and the Caribbean, the major lender is now China.

Perhaps the missing defaults signal policy success. Perhaps the defaults are merely deferred because of the lingering lowness of policy interest rates in major advanced economies that, in the fullness of time, will end. But, perhaps they indicate that China represents a major force to reckon with in global finance.

6. Some concluding thoughts

An ascendant China in international finance requires rethinking the push and pull factors for capital flows, at the least for lower-income countries. The problem is that loans gotten from Chinese commercial banks controlled by the state are very opaque. Of course, it has been understood in international finance that external factors are not the same for everyone for a long time. Years ago, I did an analysis with Guillermo Calvo of capital flows to sub-Saharan Africa (Calvo and Reinhart, 1999). The consistent variable that was statistically significant in explaining capital flows, much more robust than international interest rates, were terms of trade. Commodity prices mattered for capital flows because many of these economies were in default and shut out of international capital markets. A change in international interest rates did not change their situation. What matters is official and quasi-official lending, linked to their ability to supply their natural products.

Remember two features of official lending.

First, long-term development loans are typically disbursed in tranches, implying a contingent element. If the situation deteriorates (including in the political relationship with the official lender), not all the planned disbursements take place.

Second, China has made other inroads in bilateral finance. In particular, the People Bank of China arranged contingency lines, central-bank-to-central-bank (as first discussed in Aizenman et al. (2011). Such lines matter materially on the emerging market side, offering a backstop that reassures market participants. For example, Argentina tapped its line of credit from the Chinese central bank in late 2014 to shore up reserves, a significant precedent in its transition to a unified exchange rate the next year.

In such an environment, measurement lacks reality, and the mechanisms influencing international capital flows are not the same. This actually resembles the period after World War II. In the aftermath of war, the US was a major official lender in an environment of comprehensive capital controls and limited exchange rate flexibility.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

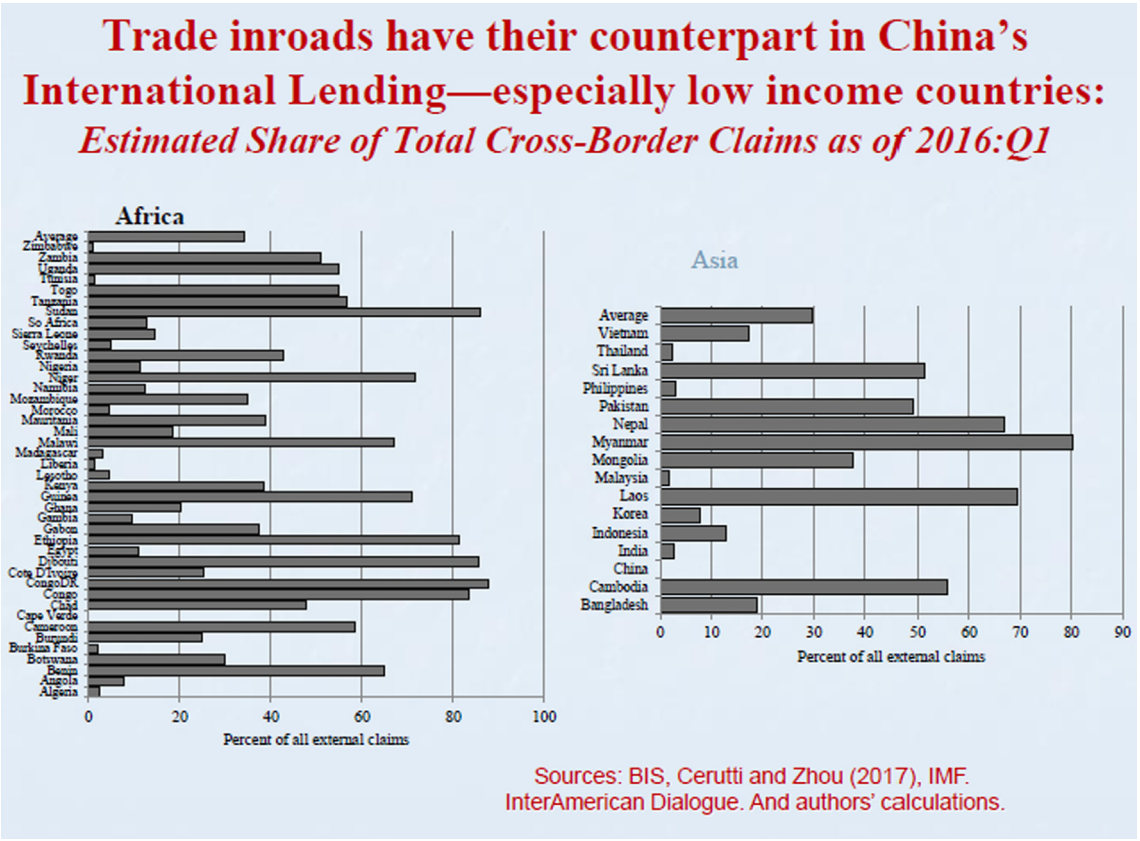

Fig. 6. China's international lending to Africa and Asia (Estimated share of total cross-border claims as of 2016:Q1).

Finally, on the missing defaults. I do believe that there has been better management of the capital inflow boom and that fiscal and monetary policy in emerging market economies has been less procyclical than in previous cycles. However, we all should be humbled by having declared the great moderation shortly before the largest global financial crisis since the 1930s.

References

Aizenman, Joshua, Jinjarak, Yothin, Park, Donghyun, 2011. International reserves and swap lines: substitutes or complements? Int. Rev. Econ. Fin. 20 (1), 5–18.
Broner, Fernando, Didier, Tatiana, Erce, Aitor, Schmukler, Sergio L., 2013. Gross capital flows: dynamics and crises. J. Monet. Econ. 60, 113–133.
Bruno, V., Shin, H.S., 2014. Cross-border banking and global liquidity. Rev. Econ. Stud. 82 (2), 535–564.
Calvo, Guillermo A., Leiderman, Leonardo, Reinhart, Carmen M., 1993. Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors. In: IMF Staff Papers, vol. 40(1), pp. 108–151.
Calvo, Guillermo A., Reinhart, Carmen M., 1999. The Consequences and Management of Capital Inflows: Lessons for Sub-Saharan Africa. Expert Group on Development Issues.
Cerutti, E., Claessens, S., Rose, A.K., 2017. How Important is the Global Financial Cycle? Evidence from Capital Flows. BIS working paper nr. 661.
Claessens, S., Kose, M.A., Terrones, M.E., 2012. How do business and financial cycles interact? J. Int. Econ. 87 (1), 178–190.
Frankel, Jeffrey A., Vegh, Carlos A., Vuletin, Guillermo, 2013. On graduation from fiscal procyclicality. J. Dev. Econ. 100 (1), 32–47.
Forbes, Kristin J., Warnock, Francis E., 2012. Capital flow waves: surges, stops, flight, and retrenchment. J. Int. Econ. 88, 235–251.
Ghosh, Atish R., Ostry, Jonathan D., Qureshi, Mahvash S., 2016. When do capital inflow surges end in tears? Am. Econ. Rev. 106 (5), 581–585.
Ilzetzki, Ethan, Reinhart, Carmen M., Rogoff, Kenneth, 2017. Exchange Arrangements Entering the 21st Century: Which Anchor Will Hold? NBER WP Nr. 23134.
Izquierdo, Alejandro, et al., 2008. All that Glitters May Not Be Gold: Assessing Latin Americas Recent Macroeconomic Performance.
Kaminsky, Graciela L., Reinhart, Carmen M., 1999. The twin crises: the causes of banking and balance-of-payments problems. Am. Econ. Rev. 89 (3), 473–500.
Kaminsky, Graciela L., Reinhart, Carmen M., Végh, Carlos A., 2004. When it rains, it pours: procyclical capital flows and policies. In: Gertler, Mark, Rogoff, Kenneth S. (Eds.), NBER Macroeconomics Annual 2004. MIT Press, Cambridge, Mass, pp. 11–53.
Miyajima, Ken, Mohanty, Madhusudan S., Chan, Tracy, 2015. Emerging market local currency bonds: diversification and stability. Emerg. Markets Rev. 22, 126–139.
Ostry, Jonathan D., Ghosh, Atish R., Chamon, Marcos, Qureshi, Mahvash S., 2012. Tools for managing financial-stability risks from capital inflows. J. Int. Econ. 88 (2), 407–421.
Reinhart, Carmen M., Reinhart, Vincent R., 1999. On the use of reserve requirements in dealing with the capital-flow problem. Int. J. Fin. Econ. 4 (1), 27–54.
Reinhart, Carmen M., Reinhart, Vincent R., 2009. Capital flow bonanzas: an encompassing view of the past and present. Chicago University Press for the NBER, Chicago, pp. 1–54.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015

Reinhart, Carmen M., Reinhart, Vincent R., Trebesch, Christoph, 2017. Global capital flow and commodity cycles: a very long view. International Monetary Fund Annual Research Conference.
Reinhart, Carmen M., Rogoff, Kenneth, 2009. This Time is Different: Eight Centuries of Financial Folly. Princeton University Press, Princeton.
Reinhart, Carmen M., Trebesch, Christoph, 2016. Sovereign debt relief and its aftermath. J. Eur. Econ. Assoc. 14 (1), 215–251.
Rey, Hélène, 2015. Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence. In: Proceedings of the Federal Reserve Bank of Kansas City Economic Symposium at Jackson Hole.

Please cite this article in press as: Reinhart, C.M. The curious case of the missing defaults. J. Int. Money Fin. (2018), https://doi.org/10.1016/j.jimonfin.2018.06.015