



Global imbalances and the international footprint of firms: what role for exchange rates?

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Leading firms straddle national boundaries. Increasingly, they operate globally, are owned by investors around the world, and trade with other global firms in supply chains. But macroeconomic accounting is stubbornly national, and our world view is shaped by the accounting.

The caricature of a textbook description goes something like this. The global economy is a collection of islands. Each national GDP area is an island, and the exchange rate between islands determines the trade balance. A weaker currency boosts one island's exports, but an island running a trade surplus would see its currency appreciate, until eventually the trade balance is restored.

Let me give you two examples where this caricature is misleading.

The first is when a global firm makes profits. When a firm records a profit earned abroad in its financial statements, the balance of payments records it as "direct investment income" of the island where the firm is deemed to be resident.

"Resident" could mean that the firm's production takes place on the island and employs workers who live on that island, but not always. It may just mean that island A is the "economic territory of predominant economic interest" for the firm. So, if you're a resident of island A by virtue of, say, being headquartered there, but production takes place on island B, the profit of the firm is recorded as direct investment income of island A and will boost the current account of A. This is so even if the workers who receive wages and benefit from economic activity live on island B.

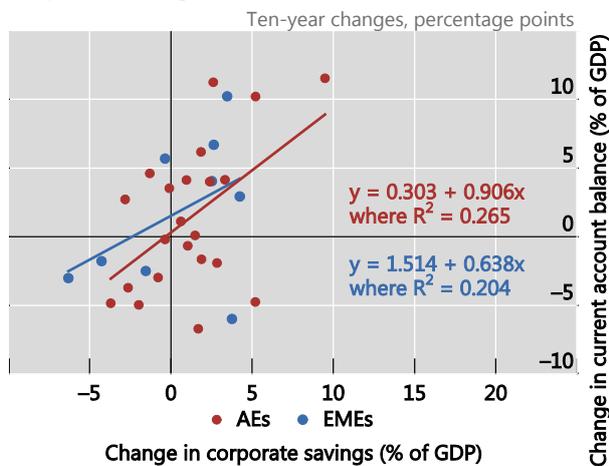
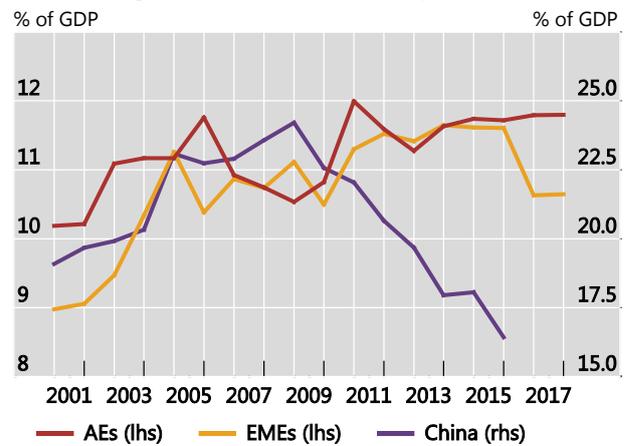
Now, some of the profit is paid out as dividends to shareholders around the world. This payout of dividends will offset the direct investment income, but some of the profit will be retained. The undistributed profit of the firm will add to the current account surplus of island A.

We know "undistributed profit of the firm" by another name: it is "corporate saving". The more profit a firm makes and retains, the bigger the boost to the current account. This is why corporate saving has been such an important determinant of the current account balance recently. If you look at Graph 1, you will see it shows that the current account balance and corporate saving are very closely related, both for advanced economies (AEs) and for emerging market economies (EMEs).

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Corporate saving is strongly related to current account changes

Graph 1

 Corporate saving and current account balances¹

 Gross saving rates of non-financial corporations²


¹ Non-financial corporations. AEs: AT, AU, BE, CA, CH, DE, DK, ES, FI, FR, GB, IT, JP, LU, NL, NO, NZ, PT, SE, SI, SK and US; EMEs: BR, CL, CN, CZ, HU, KR, MX, PL and ZA. Changes over 2007–17 or other periods (2006–16 or 2005–15), depending on availability of data on corporate savings.

² Weighted averages based on GDP and PPP exchange rates. AEs: AU, CA, CH, DK, EA, GB, JP, NO, NZ, SE and US; EMEs: BR, CL, CZ, HU, KR, MX, PL and ZA.

Sources: IMF, *World Economic Outlook*; OECD, *Annual National Accounts*; national data; BIS calculations.

By the way, please do not confuse corporate saving with corporate cash holding. Savings can be used for fixed investment, as well as adding to cash holdings. It is an intertemporal decision, not a portfolio decision. High corporate saving does not mean that firms are not investing and just hoarding cash. The right-hand panel of Graph 1 shows that firms in China are saving much less.

A second example where island economy accounting can be misleading is on merchandise trade. When island A exports to island B, this does not necessarily mean that the good crosses the shores of island A. Just as “residence” is a legal notion about the island where the firm has “predominant economic interest”, “exports” in the balance of payments is about the transfer of economic interest in the goods. It does not mean that the goods actually cross the border.

For smartphones and other high-value manufactured goods, production often takes place in manufacturing hubs such as Vietnam and China under contract manufacturing agreements. The transfer of economic ownership of the smartphone takes place when the finished product is shipped to its final destination. The smartphone then becomes a Korean export, say, even though it was made in Vietnam employing Vietnamese workers.

This is why many countries show a gap between exports as measured in the balance of payments and exports as reported by the customs data. Graphs 2 and 3 contain examples. The gap can sometimes be very large as a proportion of GDP. Ireland is one example where balance of payments exports are much larger than customs exports. For some economies, the gap opens up the other way, and customs exports are larger than balance of payments exports.

I have only scratched the surface of how the international footprint of global firms shows up in the current account. If you would like to read more about it, the BIS published a special feature on this topic in its Quarterly Review a year ago.²

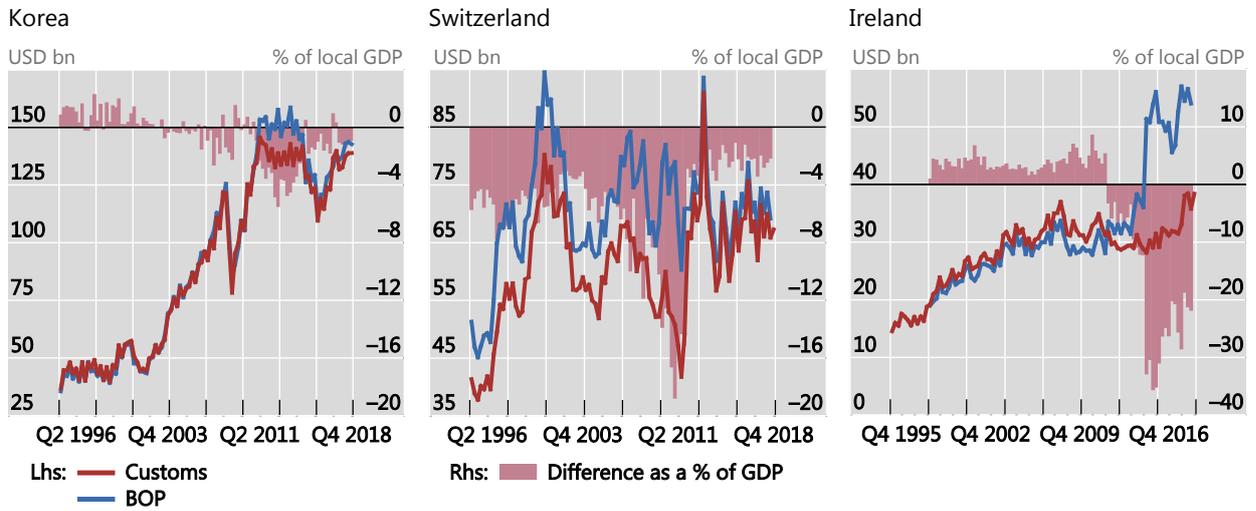
² See S Avdjiev, M Everett, P Lane and H S Shin, “Tracking the international footprint of global firms”, *BIS Quarterly Review*, March 2018, www.bis.org/publ/qtrpdf/r_qt1803f.htm.



Customs-based vs BOP-based merchandise exports

Countries where BOP exports exceed customs exports

Graph 2



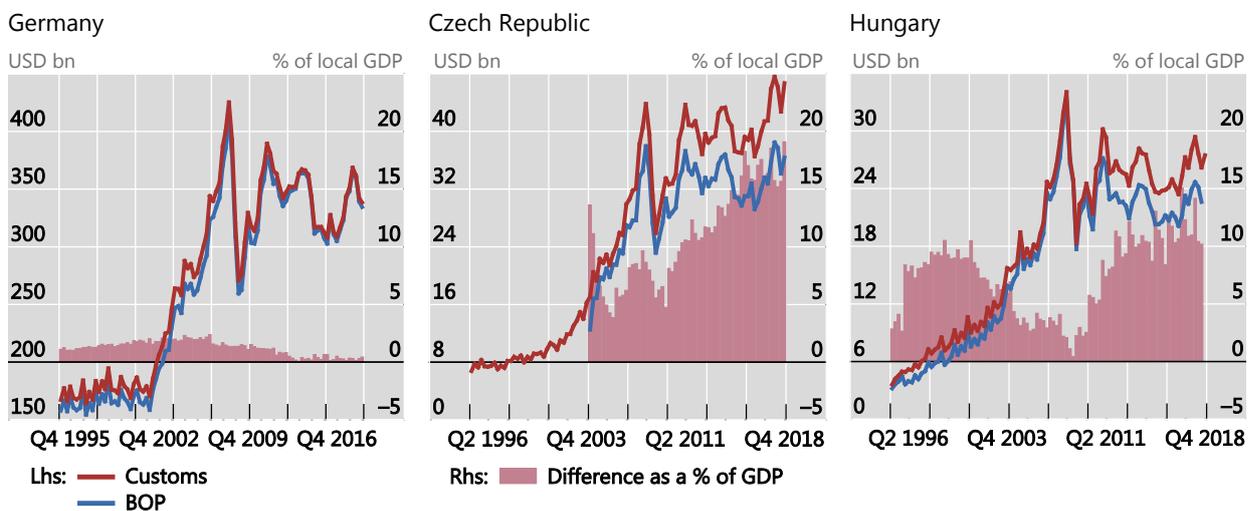
The bars in the positive domain refer to customs-based exports exceeding BOP-based exports. Nominal data measured in 2012 US dollars.

Sources: Datastream; national data.

Customs-based vs BOP-based merchandise exports

Countries where the customs exports exceed BOP exports

Graph 3



The bars in the positive domain refer to customs-based exports exceeding BOP-based exports. Nominal data measured in 2012 US dollars.

Sources: Datastream; national data.

The important point is that the exchange rate loses traction in balancing current accounts when global firms are playing such an important role. When island A is running a current account surplus, but it's due to the activities of global firms, appreciation of A's currency need not reduce that surplus. Instead, the financial channel of exchange rates then exerts much greater influence, especially when global value chains (GVCs) become overextended due to a period of loose global liquidity conditions.

Exchange rates and financial conditions

Trade in manufactured goods powered the increase in global trade. During the heyday of globalisation in the late 1980s and 1990s, trade grew at twice the pace of GDP. In turn, the growth in manufactured goods trade was driven by the growing importance of multinational firms and GVCs. In the BIS Annual Report two years ago,³ we noted how around 90% of AE trade was accounted for by multinational companies, and around 50% was within-firm trade – that is, trade between affiliates of the same company. With so much intermediate goods trade, inventories of parts or semi-finished goods take on great importance.

On the balance sheet, inventories and accounts receivable enter as assets of the firm. As with any other asset, inventories and receivables must be financed somehow, and typically firms dip into their own working capital resources or borrow short-term from banks to finance their working capital. The golden age of trade growth was also the age of financial deepening on corporate balance sheets. What we see from firm-level data is that receivables and inventories grow faster when financial conditions are more accommodative, and the best gauge of financial conditions turns out to be the dollar exchange rate. When the dollar is weak, financial conditions are loose and lending grows faster; but when the dollar is strong, financial conditions tighten and lending slows – see Graph 4, left-hand panel.⁴

Firms managing their global value chains are like jugglers with many balls in the air at the same time. The balls are of different shapes and sizes. Some of them will be heavy, as they represent almost finished products of high value. Long and intricate GVCs mean that there are many balls in the air at the same time, signifying the need for greater financial resources to knit the production process together. Looser financing conditions are like weaker gravity for the juggler. When financing conditions are loose, the firm juggling so many balls in the air finds that it can throw more balls up at the same time and manage to keep them there at little financial cost. But when financial conditions tighten, it is more difficult to keep so many balls in the air at the same time. The large balls become especially heavy.

If the firm looks to outside financing for working capital, it is normally banks that supply financing, and very often in dollars. If financing conditions become less easy, and banks pull back dollar funding, some GVCs will no longer be viable economically. This may explain why a stronger dollar has not led to higher exports by EMEs, as a stronger dollar is generally associated with tighter funding conditions.

This phenomenon is closely related to the invoicing channel of trade that Gita Gopinath has highlighted.⁵ The common element is that a stronger dollar can depress trade. The difference is that my story goes through tightening of financial conditions, rather than the competitive implications of dollar invoicing as such.⁶ However, invoicing affects financial conditions through the currency denomination of working capital, and so the two channels are closely related.

³ See Bank for International Settlements, “Understanding globalisation”, *87th Annual Report*, Chapter VI, June 2017.

⁴ See S Avdjiev, V Bruno, C Koch and H S Shin, “The dollar exchange rate as a global risk factor: evidence from investment”, *IMF Economic Review*, March 2019, vol 67, issue 1, pp 151–73.

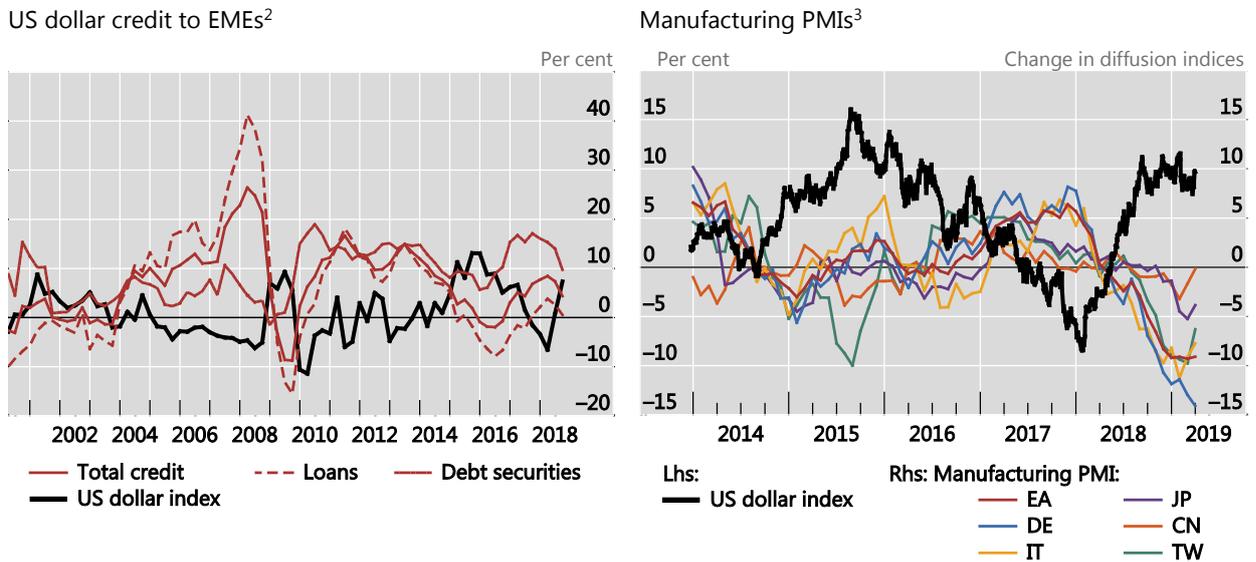
⁵ See G Gopinath, “The international price system”, proceedings of the Federal Reserve Bank of Kansas City Symposium at Jackson Hole, August 2016; G Gopinath and J Stein, “Trade invoicing, bank funding, and central bank reserve holdings”, *AEA Papers and Proceedings*, May 2018, vol 108, pp 542–46; and G Gopinath, E Boz, C Casas, F Diez, P-O Gourinchas and M Plagborg-Møller, “Dominant currency paradigm”, *NBER Working Papers*, no 22943, March 2019.

⁶ See V Bruno, S-J Kim and H S Shin, “Exchange rates and the working capital channel of trade fluctuations”, *AEA Papers and Proceedings*, May 2018, vol 108, pp 531–36.



US dollar index for broad basket of EME currencies¹ is negatively related to growth of US dollar credit and to evolution of manufacturing PMIs

Graph 4



¹ Annual growth of the Federal Reserve Board trade-weighted nominal dollar index, major EMEs (“other important trading partners”). ² Annual growth of credit to non-banks denominated in US dollars. ³ Twelve-month differences in PMI levels.

Sources: Federal Reserve Bank of St Louis, FRED; Datastream; Dealogic; Euroclear; IHS Markit; Thomson Reuters; Xtrakter Ltd; national data; BIS locational banking statistics; BIS calculations.

These insights shed some light on the recent slowdown in manufacturing and trade. If we look at the right-hand panel of Graph 4, we can see that the manufacturing purchasing managers’ indices have weakened recently as the dollar has strengthened.

I leave you with two key takeaways. First, the accounting basis for macroeconomics is looking increasingly creaky in an age of global firms and global value chains. We need to rethink some key elements.⁷

Second, the financial channel of exchange rates has become more potent, even as the traditional islands economy model has waned in importance.

All of this bears on the G20 theme of global imbalances. I am looking forward to a good discussion today.

⁷ See S Avdjiev, R McCauley and H S Shin, “Breaking free of the triple coincidence in international finance”, *Economic Policy*, July 2016, vol 31, issue 87, pp 409–51.