

It's all about the flows

Why butterflies in EM could hit Treasuries in the belly

- **When flows trump positions** — Investors traditionally look at positions *within* asset classes for signs that markets are overbought. But markets are increasingly being driven by flows *across* them instead. A failure to understand this is one reason so many consensus trades are underperforming.
- **All eyes on USTs** — The most important flow is the net buying of US Treasuries. Low yields are the primary reason demand in credit and in so many other asset classes remains strong.
- **An influx of foreigners** — UST demand has come overwhelmingly from two sources: the Fed, and foreigners. Tapering now leaves us increasingly dependent on the latter.
- **Yield-insensitive – or are they?** — The EM central banks who constitute the bulk of foreign demand may not be sensitive to yields in conventional terms, insofar as lower yields have not prevented them from buying. In another respect, though, their buying is extremely yield-sensitive.
- **Multiple equilibria** — Demand from EM reserve managers depends on their own current accounts and capital inflows. In one equilibrium, low yields spur EM inflows and more CB buying of USTs. But as the taper tantrum demonstrated, the opposite equilibrium is equally possible.
- **Unstable ecosystem** — While the latest signs suggest a reacceleration of EM demand following an April/May slowdown, we remain concerned that the situation is more fragile than it seems. Shifts in the composition of EM balance of payments suggest increasing debt-dependence, and persistent domestic outflows. Above all, though, the existence of feedback loops between asset classes means that – as in nature – a system which appears stable and resilient at one moment can seem dangerously overstretched at the next.

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It's all about the flows

Two of the most remarkable features of this year have been the strength of the rally in US Treasuries, and the difficulty most managers have had making money.

We think the two are connected – and not just because it's been hard to make money if you were short duration.

Across asset classes, the models investors use to make money have been breaking down. Treasuries are expensive to the dots, credit is expensive to corporate leverage, peripherals are expensive to sovereign debt burdens. In every case, traditionally mean-reverting tactical positions have been overwhelmed by a wave of net inflows to the asset class. Those investors who have done best are those who have simply closed their eyes and gone long.¹

To make money in these markets, we think investors need to revisit their traditional investment frameworks, and pay more attention to flows.

This piece first looks at some of the properties of flows in general, then examines some of the most important, namely those which have been helping keep US Treasury yields down. It is these which have indirectly helped fuel such strong demand for credit, EM and other asset classes.

We argue that the current situation is stable, but only up to a point. Provided money keeps flowing into emerging markets, EM central banks' net buying of Treasuries should help keep yields low – and hence money flowing into emerging markets.

But the deterioration in EMs' growth prospects, the fall in their net current account surplus, and the combination of Fed tapering and improving US economic prospects are rendering the current dynamic increasingly stretched. It might not take too much of a shift to push us into an alternative and opposite equilibrium in which higher yields and EM central banks' net selling prove self-reinforcing.

¹ See [Who stole the markets' mojo? – Liquidity, trading, regulation and central banks](#)

Go with the inflow

All through this year, we have been struck by the way in which many investors seem not to like their asset classes, but end up buying them anyway.

In credit, there has been a particular – and justifiable – obsession with inflows. While we remain dubious that the popular weekly mutual fund data are the right way to monitor these, in the broader sense we remain completely convinced that an understanding of these flows is the key to the market outlook. Whether through the constant refrain of there being “too much money”, or through the widespread fear of illiquidity if the inflows were to reverse, flows have never seemed so important.

In EM, likewise, much of the price action over the past year has been explicable first in terms of the fear of net outflows, and then in terms of the relief that – to date at least – they never really happened. Temporary weakness in the retail-dominated EPFR numbers was offset by continued buying elsewhere.

We think this same principle applies more broadly to other markets. The low-yield post-crisis environment has resulted in a significant shift in traditional investor bases. Those who bought govies now buy credit. Those who bought investment grade now buy high yield or emerging markets. Even in equities, much of the net buying has come from companies rather than from investors.

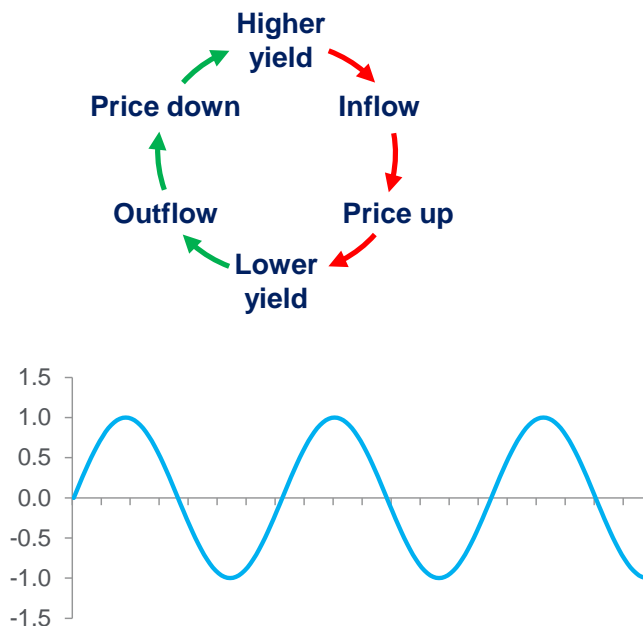
The flows resulting from these asset allocation shifts have been so large that they have often swamped the tactical shifts in positioning which were the more traditional drivers of market pricing. And yet the moves have not necessarily been one-way – think of investors first selling periphery to buy EM, then selling EM to buy the European periphery.

Predicting these flows – and capturing turning points in particular - has proved extremely difficult. We think their very nature makes them stickier than tactical positioning on the one hand, yet more vulnerable to abrupt reversals on the other.

Professional investors' tactical positioning tends both to be mean-reverting, and to revert with a reasonably high frequency. Not only do they stop buying a market once they consider it to be expensive; they are also reasonably quick to book profits. Markets driven by the tactical positioning of institutional investors – especially when accompanied by leverage – tend to feature frequent, small corrections (Figure 1).

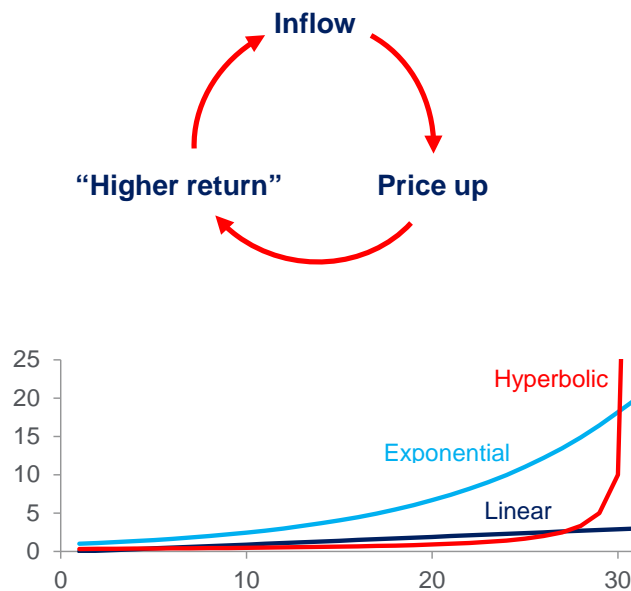
Asset allocation flows, on the other hand, are much more trending in nature. Asset allocation decisions are typically made much less frequently, and tend to work to a different process. High returns on a popular asset class are often considered a reason to allocate still more to it, not as a sign that it is expensive. Negative returns may not trigger outflows immediately, but if sustained are usually an incentive to get out. This positive feedback loop, and the longer delay time in the feedback mechanism, makes markets driven primarily by asset allocation flows more prone to overshooting (Figure 2) – rather like a shower in which there is a significant lag between changes being made at the handle and the water actually changing in temperature.

Figure 1. Negative feedback in tactical-positioning-driven markets



Source: Citi Research. See [Riding the wobble and avoiding the snap](#).

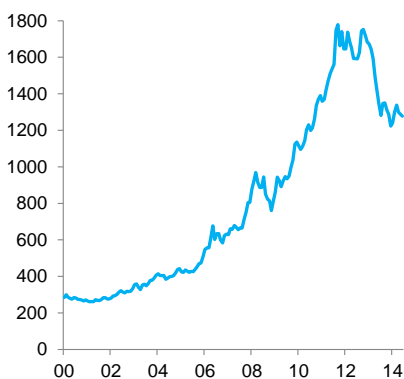
Figure 2. Positive feedback loop in inflow-driven markets



Source: Citi Research. For more on this process, see the various pieces by Didier Sornette on "dragon-kings" in financial markets.²

In markets dominated by such positive feedback loops, most of the time you want to go with the flow, to buy the dip. The flows have a momentum to them which can persist in spite of traditional valuation metrics having been exceeded – all the more so when active managers decide that they too need to go tactically long in anticipation of the inflows continuing.

Figure 3. Flow-driven markets: gold price (\$)



Source: Bank of England.

Every so often, though, such systems are subject to an abrupt and often unpredictable transition. Just think of the price action in gold last year: one minute it was everyone's favourite asset, that you were "structurally underweight" despite all traditional valuations having been exceeded. The next, investors were wondering why they'd bought so much of an asset they didn't understand which didn't pay them nearly enough yield, and which even though it had sold off a lot they had way too much of.

We think what happened to gold is happening in other markets too. While it will always remain difficult to predict the precise point at which we are supposed to stop buying the dips and start positioning for the bubbles bursting, if we are to have any hope of doing so we need to better understand the flows which are causing them.

Who's buying Treasuries at these levels?

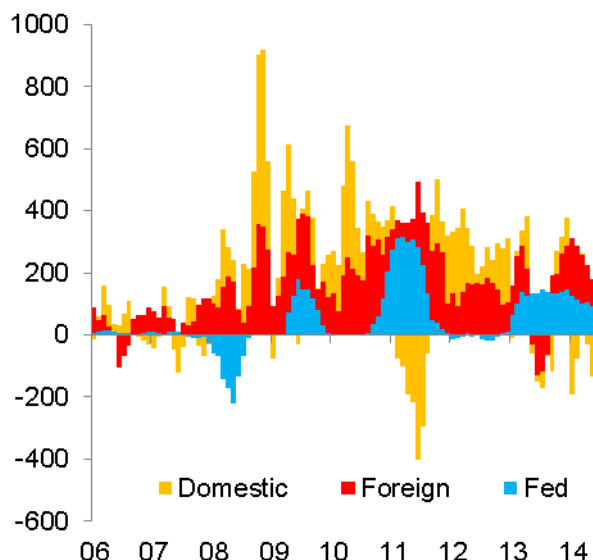
Much of the demand for risky assets stems from the lack of yield on offer in govies, US Treasuries in particular. As such, it is important to understand what's keeping government bond yields at levels which, on the one hand, risk starting to look inconsistent with the increasing strength of advanced economies' growth, and yet on the other have consistently surprised most market participants to the downside.

We will not deal here with the deep fundamental questions as to whether there are lingering impediments to a US recovery from some form of secular stagnation.

² http://www.er.ethz.ch/publications/complex_systems/dragon_kings

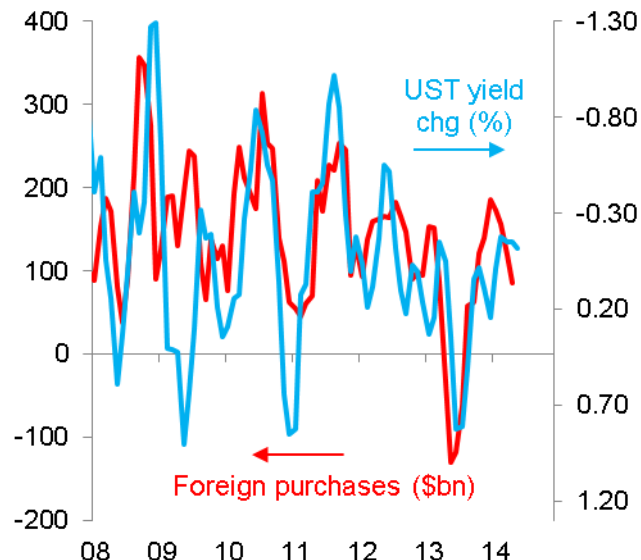
Rather, we wish to examine the simple question of who's buying Treasuries at these yield levels, and what it is that motivates them. We reckon that here too there has been a sustained inflow from a set of market participants not subject to the same considerations as the majority of private investors.

Figure 4. Net purchases of US Treasuries, rolling 3m, \$bn



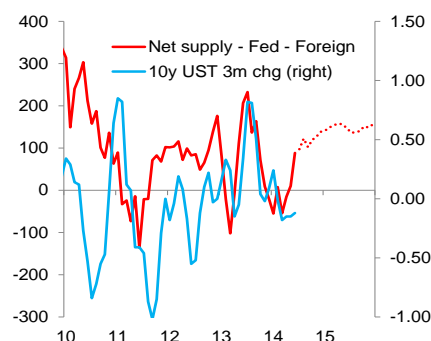
Source: US Treasury, Federal Reserve.

Figure 5. Foreign buying vs UST 10y yield moves, 3m rolling



Source: US Treasury, Citi Research.

Figure 6. Net supply after official buying (\$bn)



Source: US Treasury, Federal Reserve, Haver. Dots show continued tapering, projected supply but assume zero foreign buying.

Figure 4 shows rolling quarterly net purchases of Treasuries over the last few years. Pre-crisis and immediately post-crisis, there was a reasonable balance between domestic and foreign purchases, boosted temporarily by the Fed during periods of QE.

But US domestic investors have bought almost nothing since the middle of last year, leaving the market overwhelmingly dependent on the combination of foreigners and the Fed.

Given the predictability of the Fed's purchases, it should therefore be no surprise that these foreign purchases have played such an important role in setting market prices: as Figure 5 shows, there is a reasonable correlation between foreign purchases and UST yields, and one which has strengthened over time as the market has become more dependent on them.

It is the continued strength of these foreign purchases which (at least in a mechanical sense) help explain why Treasuries have done so well this year, even in the face of persistent domestic selling.³ Furthermore, with the Fed taper likely soon to be complete, unless there is a sudden pick-up in domestic demand the market will seemingly be wholly dependent on these foreign purchases to absorb the net supply of duration.⁴ Although yield moves to date have correlated better with the

³ In principle, of course, the causation could run the other way, or there could be a common factor driving both the foreign purchases and the fall in yields. Nevertheless, we think a closer examination of who's behind the purchasing gives an insight into likely market dynamics – in particular, the likelihood of multiple equilibria.

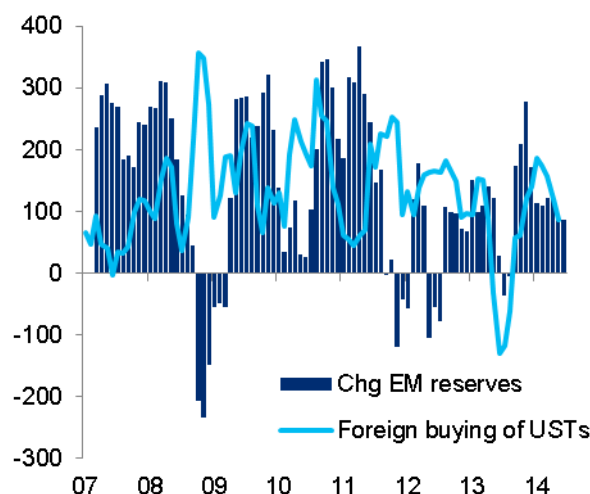
⁴ Foreigners have not been the only source of demand. The data also show around \$70bn of net purchases by (mostly large) US domestic banks, offset by net selling from households/hedge funds and other sectors. We suspect, though, that this was largely a one-off increase in banks accumulating

foreign purchases directly than they have with net supply after both foreign and Fed buying (Figure 6), the Fed's absence will unquestionably raise the pressure on the rest of the market – and the importance of understanding the flows.

Who are these foreign buyers (and when will they stop distorting my market)?

We strongly suspect that the bulk of the foreign buying has been done by emerging market central banks, especially over the past year or two (Figure 7). While not all EM reserves are held in Treasuries, or even in dollars, as low yields have driven other investors into markets like credit, reserve managers are the investors most likely to have been prepared to sacrifice yield in the interest of liquidity.

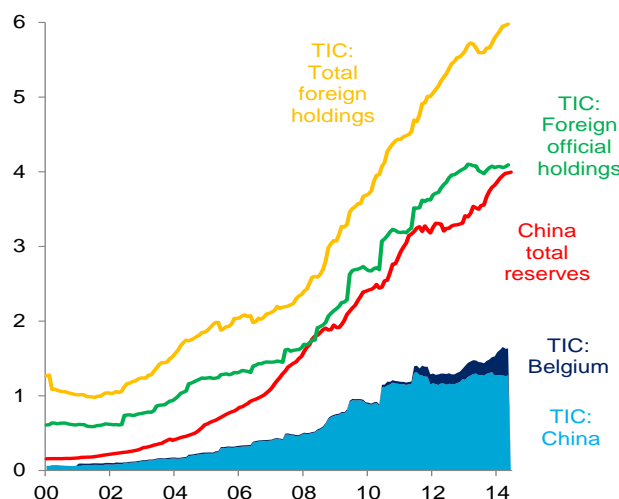
Figure 7. Net change in EM* reserves vs foreign UST buying, rolling 3m, \$bn



Source: US Treasury, national central banks.

* Uses sample of 16 countries which have proved consistent with IMF totals yet which provide more up-to-date data.

Figure 8. TIC data on official holdings no longer seem to be accurate (\$tn)



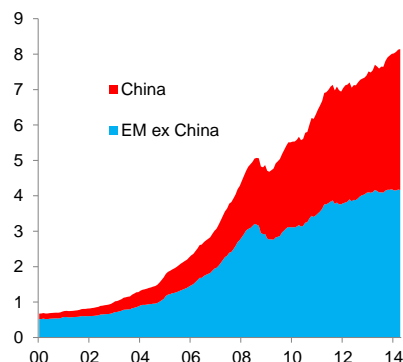
Source: US Treasury, PBOC.

While the TIC data on official foreign holdings could previously be used as a direct measure of central banks' holdings, in recent months we have started to question its reliability. China, in particular, has continued to accumulate large quantities of reserves even as its TIC-reported holdings have remained roughly constant (Figure 8). We suspect that purchases are being channeled through Euroclear in Belgium or other places which, in addition to not being labelled as Chinese, are also now technically classified as coming from outside the official sector. In other countries this seems to be less of a problem (the drop in Russian reserves, for example, corresponds much more closely to its TIC data).

Even more striking is the way in which growth in overall EM reserves has recently come overwhelmingly from China, and from China alone. Since the beginning of 2013, Chinese reserves have risen by \$583bn, compared with an increase of only \$64bn among all the rest of EM put together (Figure 9).

assets for HQLA purposes, which will fizzle out once LCR guidelines on their minimum holdings of liquid assets are clarified later on this year. See *New Liquidity Risk Measures*, K. Horowitz et al., 2 Apr.

Figure 9. EM reserve holdings (\$tn)



Source: Citi Research

Changes in Chinese reserves do not, by themselves, correlate nearly as neatly with Treasury yield changes as do the foreign purchases or the total EM reserves numbers. There are too many other unknowns, such as the amounts allocated to other currencies or assets, or the position on the curve, swings in which could easily detract from the relationship.

But we think the big-picture linkage with EM goes a long way towards explaining the resilience of Treasuries in the face of strengthening economic data, and potentially the much-remarked-upon market pricing significantly tighter than the Fed's dots.

As with the inflows to other asset classes, so EM central banks do not play by the same "rules" as other Treasury investors. Their purchases are motivated relatively little by the absolute yield they are getting, and by immediate return prospects in response to rate and curve moves. Even when individual reserve managers do adjust their holdings in an effort to maximize performance, and are measured relative to some form of benchmark, we suspect that the scale of such active trading is small compared with the scale of their purchases simply as a result of the growth in their portfolios.

But the observation that EM reserve manager buying is not yield-sensitive in a conventional sense, and has remained strong even as data has strengthened, is not to say that it will persist on this scale indefinitely.

How stable is EM demand?

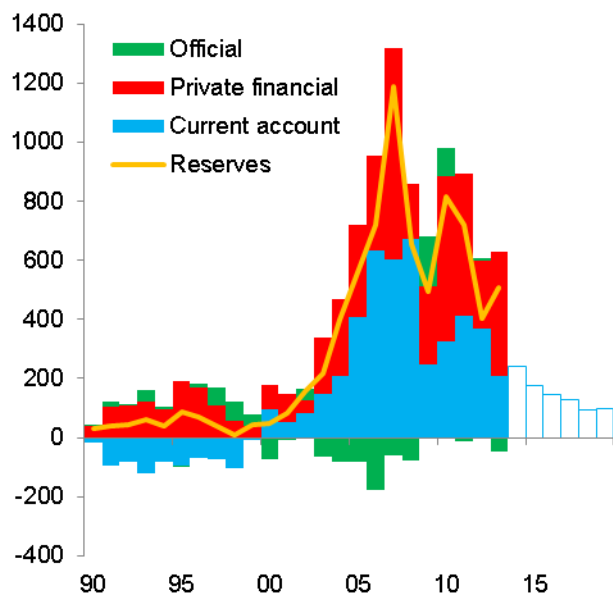
The reason that EMs buy Treasuries is, of course, to stem upward pressure on their currencies.

This upward pressure in turn comes about both as a result of net exports through the current account, and net financial flows into EMs. Mathematically, the change in reserves⁵ must be equal to the current account, plus private sector flows, plus any official sector flows (Figure 10). So the reason EM demand for Treasuries has been so great in recent years is because they have had so many net exports, and had such big financial inflows.

This pattern is starting to change. In spite of all the reserve accumulation, many EMs' currencies have nevertheless risen to the point where their exports are no longer competitive, especially relative to the decline in many DMs (Figure 11). DM corporates are increasingly manufacturing products at home. This is why EMs are not benefiting from the recovery in advanced economies to the extent many would have liked, and why EMs' current account surplus is coming down. And most projections for coming years show EM current accounts falling further.

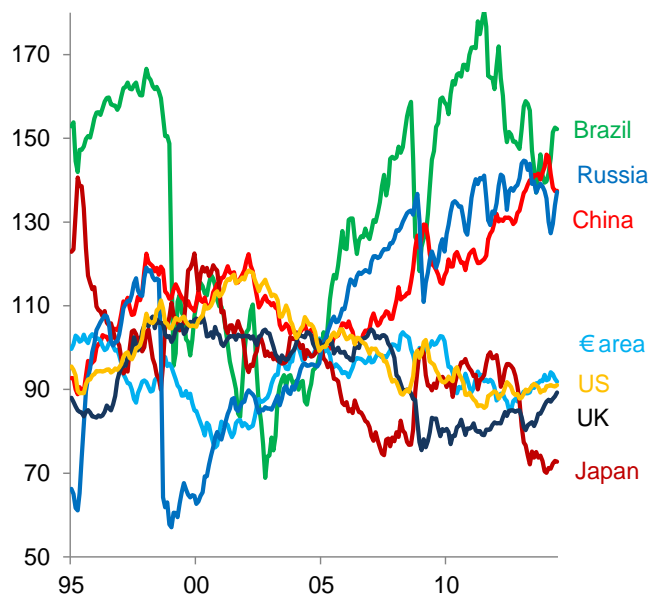
⁵ Conventionally given a negative sign in the balance of payments.

Figure 10. Drivers of EM reserve accumulation (\$bn) with IMF projection



Source: IMF.

Figure 11. EM no longer competitive vs DM – broad real effective exchange rates (index, 2005=100)

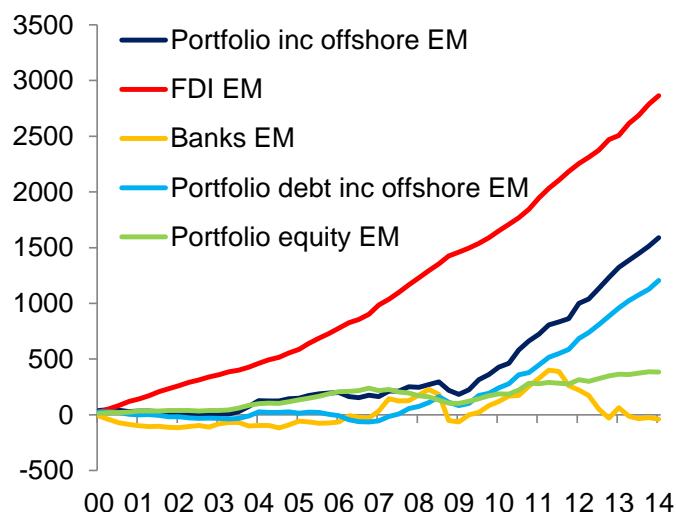


Source: BIS.

Prospects for further reserve accumulation are therefore increasingly dependent upon net *financial* flows to EM. These financial flows are really worthy of a paper in their own right, but comprise foreign direct investment (FDI), portfolio debt and equity, and banking sector flows (conventionally described in the balance of payments as “other investment”).

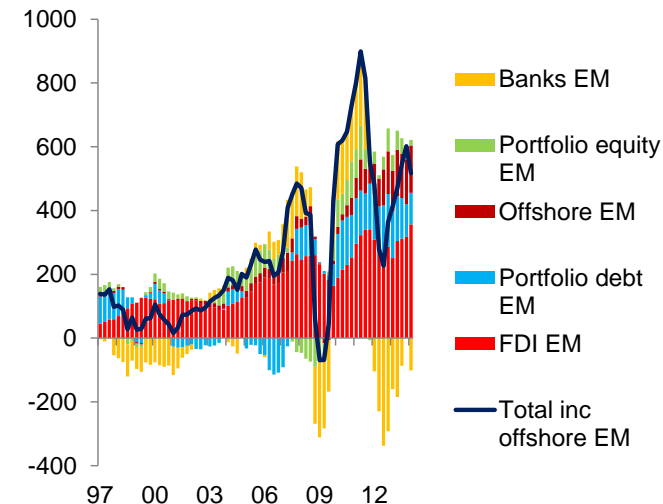
Aggregate net financial inflows accelerated in 2009, and have remained strong ever since (Figure 12). But their composition has shifted substantially – and in such a way that we have doubts about their future resilience.

Figure 12. Cumulative net financial flow into EM* since 2000 (\$bn)



Source: Citi Research, IMF, national central banks, Haver Analytics.
* Sample of sixteen representative countries

Figure 13. Net inflows to EM by sector (\$bn, rolling 4qtr sum)



Source: Citi Research, IMF, national central banks, Haver Analytics.

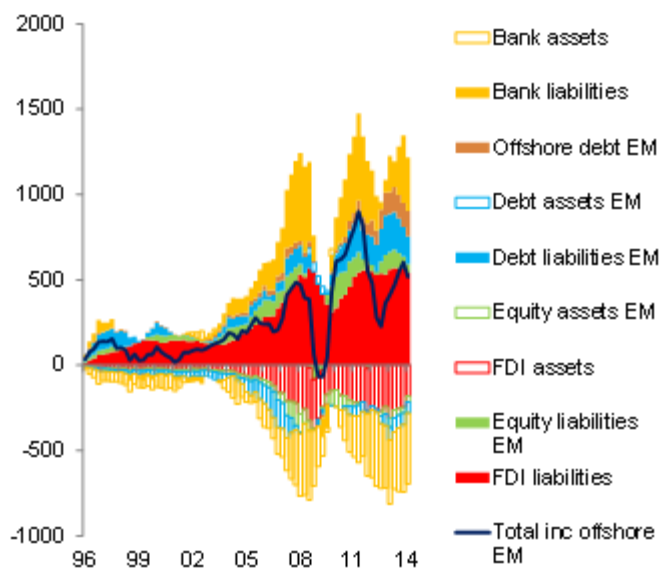
Pre-crisis, almost all of the net flow came through FDI; now more than half of it consists of portfolio flows. The vast majority of these are purchases of debt (Figure 13), which have historically proved more volatile than either FDI or equity flows.

The most volatile source of financial flow, the banking sector, has actually been recording net outflows since 2011. Yet here too, we think there is a greater vulnerability than is visible in the net numbers.

Figure 14 and Figure 15 show the *gross* financial flows behind these net numbers, for EM as a whole and for Asia in particular. The positive “liabilities” are net foreign inflows into EM; the negative “assets” are net EM assets being acquired abroad.

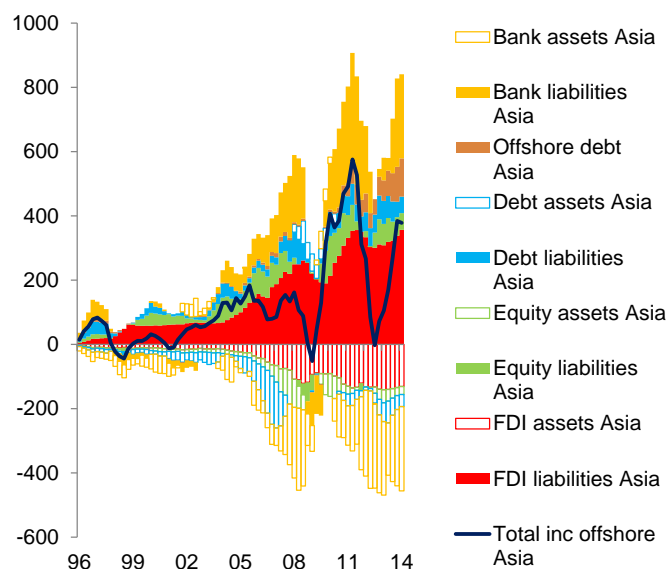
Gross banking liabilities have actually been growing in recent quarters at the global level, and in Asia have surged (and specifically in China). It is the change in these which are the real source of net inflow to EM in recent quarters, and hence the real backing for EM reserve accumulation and UST purchasing.

Figure 14. Gross EM financial flows by sector (\$bn, 4qtr sum)



Source: Citi Research, IMF, national central banks, Haver Analytics.

Figure 15. Gross financial flows into Asia (\$bn, 4qtr sum)

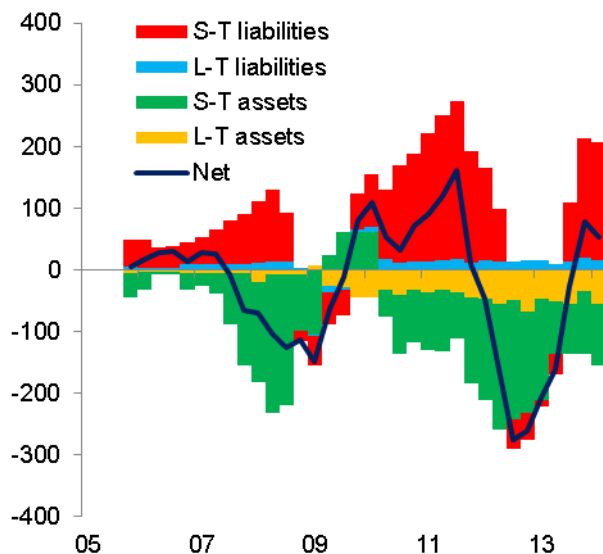


Source: Citi Research, IMF, national central banks, Haver Analytics.

But banking sector flows are notoriously volatile. They tend to be short in maturity, and vulnerable to any rise in interest rates.

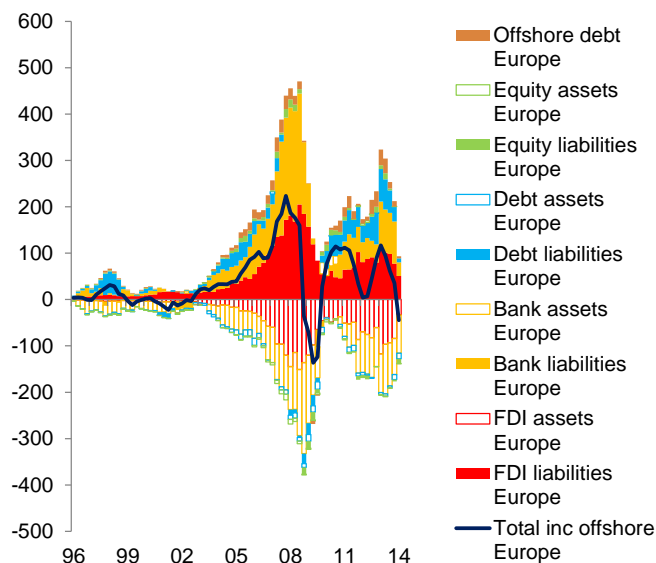
For China in particular, there is a large and growing mismatch between the short-term nature of its dollar borrowing, and the increasingly long-term nature of its assets (Figure 16).

Figure 16. China banking sector gross financial flows by maturity (\$bn, rolling 4qtr sum)



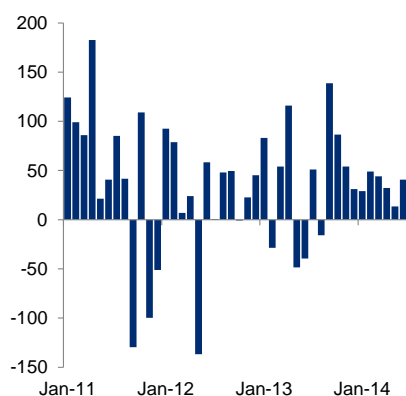
Source: China Balance of Payments / SAFE.

Figure 17. Gross financial flows into Eastern Europe (\$bn, 4qtr sum)



Source: Citi Research, IMF, national central banks, Haver Analytics.

Figure 18. Monthly change in EM* FX reserves (\$bn)



Source: National central banks, Haver Analytics.
* Uses a sample of 16 of the largest EM central banks who report reserves earlier than the TIC data are released.

So both for EM in general and for China in particular, continued reserve accumulation has become increasingly dependent upon continued international borrowing, and short-term borrowing at that. It is all too easy to imagine a situation in which a drying up of those banking sector flows is followed by a fall in portfolio inflows – as seems to be happening in Eastern Europe (Figure 17).

Such a process might be sparked by country- or EM-specific concerns. But with so much EM funding coming from the US, it is easy to imagine another catalyst: rises in US rates and yields.

Multiple equilibria

Unfortunately, what all this analysis cannot do is tell us exactly how much of a US rate rise, or exactly how negative an EM headline, constitutes a sufficient trigger.

But it does suggest that the recent equilibrium is more fragile than it seems on the surface.

On the one hand, to judge from CFTC numbers, near-record shorting of US Treasuries this year has failed to prevent yields from rallying in the presence of steady inflows to EM, and hence strong buying by EM reserve managers. If anything, the latest June numbers on EM reserves, and the IIF's [portfolio flows tracker](#) estimates for July, suggest a reacceleration after previous months' decline. Low yields in the US may well have been fuelling EM inflows, and hence further reserve accumulation, in turn contributing to low yields.

But on the other hand, the slowdown in EM growth, deterioration in current accounts, and increasingly debt-financed and short-term nature of financial inflows, coupled with the strength of US growth and employment data, suggest it may not take much to change this. And if higher yields lead to EM outflows, we could well see the cycle running in reverse, with EM central banks' reserve selling in turn contributing to higher US yields – just as was the case last year.

If EM central banks are prepared to see their currencies weaken, the effect may be less pronounced in this direction – but this would have an inflationary impact which many seem reluctant to contemplate at this stage. And even a reduction in the pace of their buying would allow USTs to behave more “normally” than they have – ironically just as many investors seem to have given up on the short positions our strategists [still recommend them](#).

Markets dominated by flows and driven by positive feedback loops tend not to move continuously. They can remain very stable for long periods, then suddenly move from one state to another. While all markets exhibit this behaviour to some extent, it is particularly obvious in credit, where moves driven by secondary trading have long been less important than those driven by net inflows. As flows have become more important in other markets, so they too seem likely to become more “credit-like” – i.e. discontinuous – in their behaviour.

Of butterflies and ecosystems

And yet to sum up, what we think this piece demonstrates is the strength of the linkages between supposedly disparate markets.

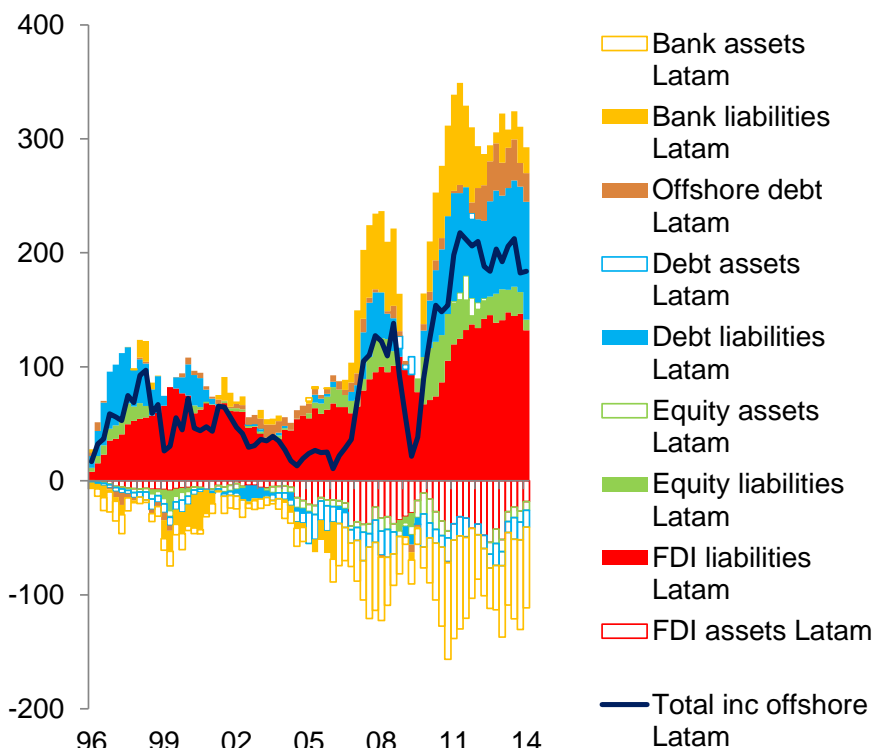
Economies and markets are not discrete, self-contained boxes vulnerable to the occasional external shock and analyzable solely in terms of trade linkages and internal fundamentals – no matter how much the central banks and many market participants might like them to be.

Rather, they all form part of a complex ecosystem, in which feedback loops mean that small changes in one area can produce surprising effects in another.

We may not be able to specify exactly which flap of a butterfly's wings will take us from one equilibrium to another. But through studying the flows, we can at least hope to understand what it is that's driving these markets, how much they have the potential to move, and which actions could potentially prove destabilizing.

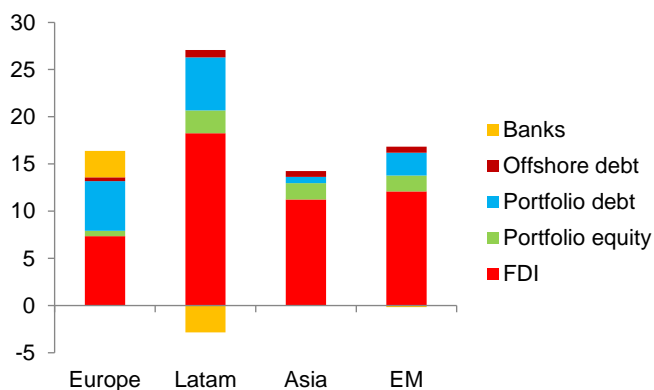
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Figure 19. Gross financial flows into Latin America (\$bn, 4qtr sum)



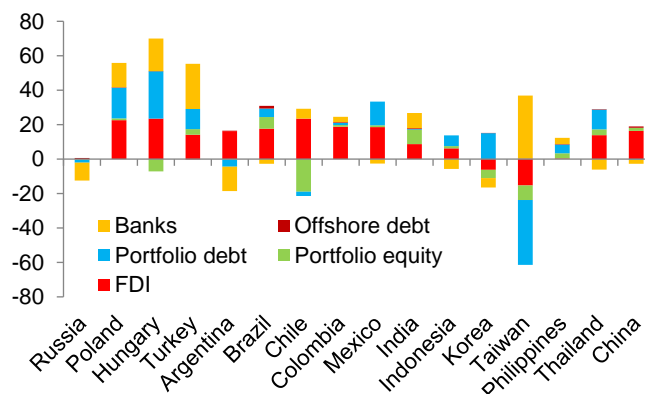
Source: Citi Research, IMF, national central banks, Haver Analytics.

Figure 20. Cumulative net financial inflow since 2000 by region (% GDP)



Source: Citi Research, IMF, national central banks, Haver Analytics.

Figure 21. Cumulative net financial inflow since 2000 by country (% GDP)



Source: Citi Research, IMF, national central banks, Haver Analytics.

Appendix A-1

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