



A tale of two financial cycles: domestic and global¹

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I am delighted to be here to give these remarks.

In understanding the world around us or even ourselves, the notion of cycles is very appealing. We see cycles in history, in politics, in social behaviour, in the cosmos; we see cycles in phases of our life. It is as if the notion were hardwired into our minds, part of our DNA.

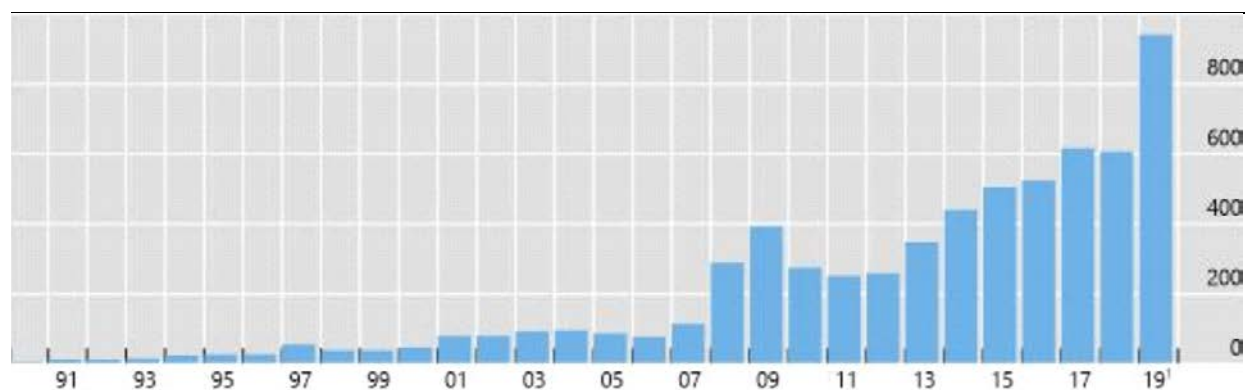
Until the late 1990s, the only “cycle” people would talk about in macroeconomics was the business cycle. The notion refers to those ups and downs in production that drive employment and incomes.

Nowadays, the concept of the “financial cycle” has been catching up. The rise in its popularity has been meteoric, with the Great Financial Crisis (GFC) as the watershed. The number of references to the term “financial cycle” in the press speaks for itself (Graph 1). The notion has become a staple ingredient in the way economists and policymakers understand how the economy works. It is hard these days to discuss, say, monetary or prudential policy without reference to the concept. It has become, as it were, part of the intellectual furniture.

Growing popularity of the term “financial cycle”

Number of press articles

Graph 1



¹ Data up to 30 June, annualised.

Source: Factiva.

¹ This presentation draws on joint work with Iñaki Aldasoro, Stefan Avdjiev and Piti Disyatat; see Aldasoro et al (2019). We are very grateful to Silvia Miranda-Agrippino and Hélène Rey for sharing their updated version of the global financial cycle. I would also like to thank Stijn Claessens for his comments and to Bat-el Berger and Maximilian Jager for excellent statistical assistance. Any errors are my sole responsibility. The views expressed are my own and not necessarily those of the BIS.

But behind this simple story, some ambiguity persists. Often people refer simply to the “financial cycle”; at other times to the “global financial cycle”. In the minds of many, this may have created confusion.

In my presentation today, I would like to introduce some clarity. Drawing on work under way with some of my BIS colleagues, I will address three questions: how are the two phenomena related analytically? How are they related empirically? And what are the policy implications? In the process, I will also pay particular attention to how these phenomena are linked to the more familiar business cycle, although, as I will show, the business cycle may be less familiar than one might think.

I will take as benchmarks for the two: (i) the notion developed at the BIS since the early 2000s, which I will term the “domestic” financial cycle, and (ii) that proposed by H el ene Rey, which she termed the global financial cycle (Rey (2013, 2016)). Interestingly, both of these notions came to prominence at the US Fed’s symposium at Jackson Hole (Borio and White (2004): Rey (2013)). The domestic financial cycle in 2003, three years after we first used the term. The global financial cycle in 2013, one decade later, although the notion is of older vintage, as used by Calvo et al (1993, 1996) among many others.

There are three takeaways from my presentation (see also Table 1).

The global and domestic financial cycles compared Table 1

	Global	Domestic
Common analytical basis	Nexus risk-taking/funding conditions/asset prices (procyclicality)	
Original analytical focus	US monetary policy transmission	Banking crises
Policy focus	Dilemma vs trilemma	Lean vs clean
Components		
Asset prices	Financial	Property
Quantities	All capital flows	Credit
Cross country synchronicity	Full by construction	Partial
Duration	Short	Long
Link between the two	Peaks around crises	
Relationship with GDP	Traditional business cycle	Medium-term business cycle

First takeaway: analytically, the two concepts have a common basis – the ebbs and flows of financial risk-taking and risk avoidance as reflected in funding conditions and asset prices. But there are also substantial differences. Naturally, in terms of geography: the domestic financial cycle describes conditions in individual countries; the global financial cycle, cross-border co-movements, seen as driven largely by how conditions in one country – the United States – spread to the rest of the world. And also, to some extent, in terms of quantities and asset classes. The domestic financial cycle stresses credit and property prices; the global financial cycle, both debt and equity (cross-border) flows and financial market prices. These features are mirrored in the *main* focus of the respective policy debates: lean versus clean for the domestic cycle and dilemma versus trilemma for its global counterpart.²

Second takeaway: empirically, three features stand out. The global financial cycle has a duration similar to that of the business cycle *as traditionally measured* in economic analysis and policymaking (eight years is a typical number); the domestic financial cycle is much longer, sometimes twice as long, and is

² The focus here is on particular definitions of financial cycles that have been prominent, but there are others. Domestically, a large literature focuses on financial conditions indices that include a large number of financial variables including the exchange rate (eg Hatzius et al (2010)). At the same time, global financial cycles have been analysed in terms of co-movements among domestic financial variables such as credit, equity prices and property prices (eg Jord a et al (2018)) or co-movements in international banking flows (eg Amiti et al (2018)).

closely related to the more important, but typically neglected, medium-term fluctuations in GDP. Domestic financial cycles do co-move but they can also be highly asynchronous; the global financial cycle is, by definition, global, although it is explained mainly by developments in advanced economies. That said, the global financial cycle and domestic financial cycles come together around crisis times, when declines in GDP are largest – a kind of turbocharging effect.

Third takeaway: making further policy progress in taming the two cycles calls for more effective anchors in domestic policy regimes and in their interaction through the international monetary and financial system. Doing so requires lengthening the policy horizon towards the medium term, where the most relevant action is.

Let me take each question in turn.

1. The analytical relationship

The two notions of cycle share the same analytical basis, which is also the one that underlies the notion of “procyclicality”. Procyclicality is another concept that, as applied to finance, has gained ground over the last 20 years or so. It is defined as the proclivity of financial markets, or financial system more broadly, to amplify, rather than dampen, economic fluctuations (eg Borio et al (2001), Brunnermeier et al (2009)).

The common analytical basis of the two cycles comprises those mechanisms that lead to a self-reinforcing interaction between funding conditions, risk-taking and asset prices. This interaction has an inherently cyclical character. The contraction phase is a consequence of the expansion phase that precedes it, and vice versa. Hence terminology like “booms and busts”, or “surges and reversals”.

Underlying both cycle concepts is a notion of risk that has a distinct intertemporal dimension. The notion departs radically from that implicit in the literature on “efficient” asset pricing – think “random walks” – or the macroeconomic models that we are still routinely using today – think of “shock plus propagation and return to steady state”.³

According to this cycle notion, risk is not *low* during expansions and *high* during contractions; rather, risk *builds up* in expansions and *materialises* in contractions. This explains why risk spreads are unusually narrow, volatilities unusually low, asset prices unusually high and credit unusually buoyant before serious financial stress. And why they adjust sharply in the opposite direction once risk materialises. The pattern in the United States around the GFC is just one such example (Graph 2).

What about the differences between the two notions of cycle?

The two cycles differ in terms of the quantities and asset prices to which they pay more attention – although all are relevant for both. In the case of the domestic financial cycle, credit and property prices; in that of the global financial cycle, debt and equity flows as well as financial asset prices.

The reason for this difference is the original focus of the analysis: for the domestic financial cycle, banking crises; for the global financial cycle, capital flows.

More subtly, the balance of the analysis differs. The domestic financial cycle focuses on the accumulation of vulnerabilities and the underlying imbalances; the global financial cycle more on the

³ For the notion of efficient markets, see eg Fama (1991); for the shock-plus-propagation approach to the business cycle, see eg Woodford (2003), who lays out the benchmark New Keynesian model, built on a real business cycle core by adding nominal rigidities, such as sluggish price adjustments.

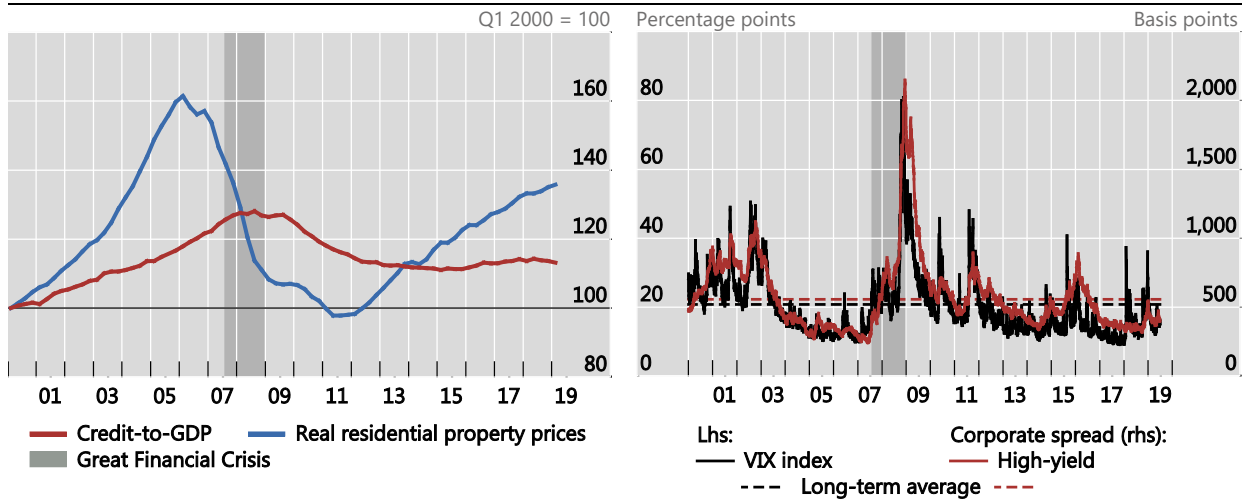


propagation of financial conditions across countries and, more specifically, from the United States to the rest of the world.

Financial booms, low spreads and volatility are signs of high risk-taking

US example

Graph 2



Sources: Bloomberg; ICE; national data; BIS calculations.

This carries over to some extent to the policy discussion. That for the domestic financial cycle centres primarily on ways of restraining the expansions and associated risks. Think of the “lean versus clean” debate: should monetary policy seek to restrain financial booms or just soften the blow after the bust? Can macroprudential measures do the whole job during the boom or do they need a helping hand from monetary policy?⁴ The policy discussion for the global financial cycle deals primarily with ways in which countries on the receiving end can cope with the cycle’s impact. This is the “dilemma versus trilemma” debate. In particular, if capital flows are unrestricted, can flexible exchange rates allow monetary policy to sufficiently influence domestic financial conditions?⁵ If not, what other policies can help (eg FX intervention, capital flow management measures etc)?

2. The empirical relationship

The features of the two financial cycles

The different focus of the two cycles underlies their different empirical features. To be sure, just as in the case of the business cycle, there is no single way of measuring either of them. Even so, some features appear inherent to each.

Graph 3 shows a simple representation of the domestic financial cycle for the United States, going back to the 1970s, alongside a standard one for the business cycle. Using statistical filters,⁶ the representation of the financial cycle combines the behaviour of property prices and of credit, including in

⁴ See eg Aikman et al (2018).

⁵ See eg Obstfeld (2015). Far less attention has been paid to what the country or countries at the source of the global cycle can do; see also Rajan (2019).

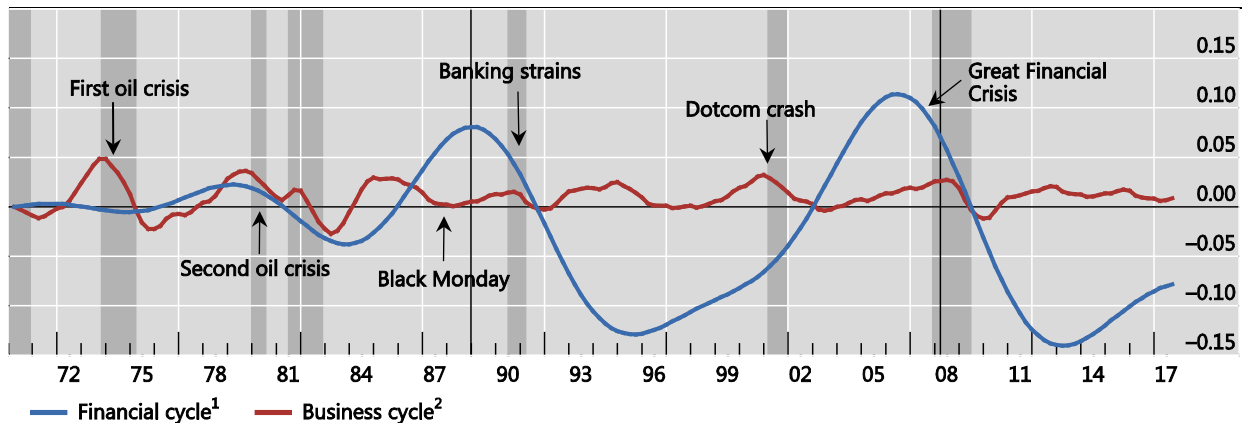
⁶ These are bandpass filters that focus on a specific range of frequencies, as noted below.



relation to GDP (Drehmann et al (2012)). Importantly, it focuses on the *longer-term* fluctuations that are more closely linked to banking distress and to more serious recessions. The corresponding filters cover the range between eight and 30 years. The representation of the business cycle relies on the most common filter used in macroeconomic analysis and policymaking, which focuses on *shorter-term* fluctuations. Here the filter covers durations between two and eight years.

The financial and business cycles in the United States

Graph 3



The shaded areas indicate recessions, solid black lines indicate the start of a banking crisis as defined by Laeven and Valencia (2018).

¹ The financial cycle as measured by frequency-based (bandpass) filters capturing fluctuations in real credit, the credit-to-GDP ratio and real house prices over a period from 32 to 120 quarters. ² The business cycle as measured by a frequency-based (bandpass) filter capturing fluctuations in real GDP over a period from five to 32 quarters.

Source: Drehmann et al (2012); Laeven and Valencia (2018).

We see two key features. For one, since the early 1980s the domestic financial cycle has grown in amplitude and has become considerably longer than the business cycle *as traditionally measured*. In addition, financial cycle peaks tend to usher in recessions and to coincide with banking distress. Indeed, in recent research we have found that, since 1985, domestic financial cycle proxies tend to outperform the term spread for both advanced and emerging market economies (EMEs) as indicators of recession risk, especially beyond a two-year horizon (Borio et al (2018, 2019)).⁷

Given this predictive power and close link with recessions, what if we go one step further and use the *medium-term* lens employed for the domestic financial cycle, rather than the standard shorter one, to look at business cycle fluctuations as well? Strikingly, and as yet unrecognised, the domestic financial cycle and what one may call the medium-term business cycle track each other quite closely, with the business cycle leading the financial cycle by about a year. Graph 4 illustrates this for the United States and the United Kingdom.

This close link is very important for two reasons. Fluctuations at this frequency turn out to be more important in explaining overall variation in GDP than those at the standard, shorter frequency. This stylised fact is already known,⁸ but has not attracted the attention it deserves. Furthermore, by focusing on shorter cycles, traditional business cycle analysis neglects these larger and more important movements,

⁷ While the financial cycle indicator will miss some recessions, given the relative length, the term spread can be noisier. In addition, the debt service ratio misses fewer recessions. This variable is included in a less reduced-form version of the financial cycle than the one used here, see Juselius and Drehmann (2015) and Drehmann et al (2017).

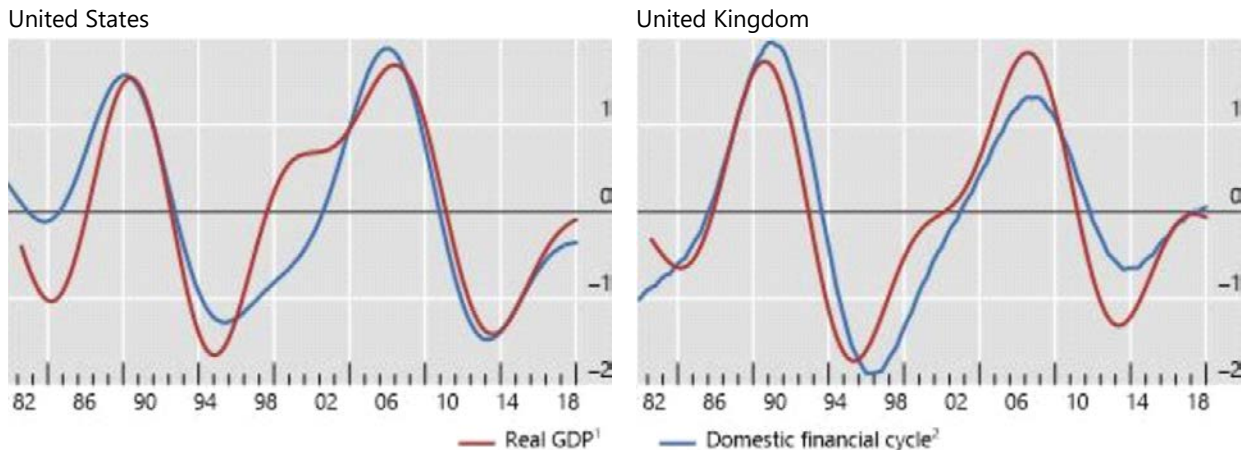
⁸ See eg Comin and Gertler (2006). The fact does not depend on the choice of frequency range, as above, but emerges from an unrestricted analysis of the full frequency range.



where the domestic financial cycle appears to be particularly relevant. This has significant policy implications, to which I will return.

The domestic financial cycle and the medium-term business cycle are highly synchronised

Graph 4



¹ Frequency-based (bandpass) filters capturing fluctuations in log of real GDP over a period from 32 to 120 quarters, plotted with a four-period lag. ² Domestic financial cycles are measured by frequency-based (bandpass) filters capturing fluctuations in real credit, the credit-to-GDP ratio and real house prices over a period from 32 to 120 quarters.

Sources: National data; BIS calculations.

Now, while domestic financial cycles may co-move across countries, they can also diverge substantially. The post-crisis experience highlights this point (Graph 5). Countries that suffered the GFC following an unsustainable domestic boom have seen the private sector as a whole deleverage. The retrenchment of the household sector, which was at the heart of the crisis, has so far offset any leveraging-up of the corporate sector. Examples include the United States, the United Kingdom, Spain and France. By contrast, countries that have not experienced such a domestic boom-bust and that largely imported the crisis through trade have seen their domestic financial cycles expand further and, in several cases, turn recently. This group comprises a number of EMEs, including China, and advanced small open economies. Altogether, it makes up about one third of global GDP.

If we now turn to the global financial cycle, the differences are apparent. Let me start with two measures (Graph 6). The first and best known, by Miranda-Agrippino and Rey (2015), traces the cross-country co-movement of risky financial asset prices. The co-movement is captured by the common factor behind those prices – a factor that explains roughly 20% of their movement (red line). The second is a measure based on quantities. Here I show the first principal component of gross capital inflows (relative to GDP) for 31 countries (blue line) – a factor that, again, explains some 20–25% of their overall movement.⁹

Four points stand out.

First, there exist distinct cycles in both prices and quantities. The sequence of expansions and contractions is apparent in the raw series.

Second, the cycles in asset prices and quantities are remarkably similar.¹⁰ This suggests that they reflect similar forces despite the very different nature of the underlying series. It is thus worth combining

⁹ Cerutti et al (2019) find similar results.

¹⁰ Recent studies have confirmed this finding (Davis et al (2019), Habib and Venditti (2019)).

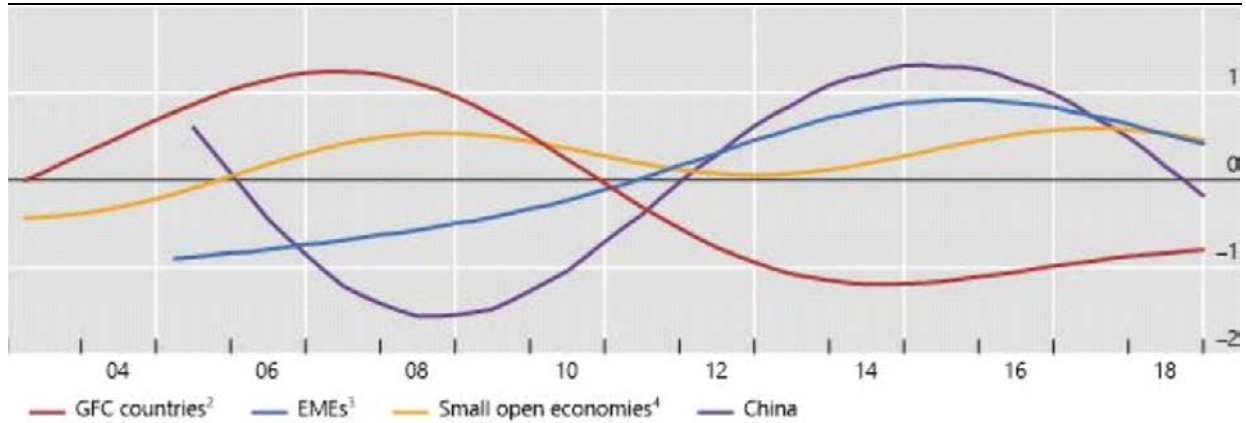


them into a single variable, here by taking a simple average. I will use this representation of the cycle in what follows.

Financial cycles across country groups: dancing to different tunes¹

In standard deviations

Graph 5

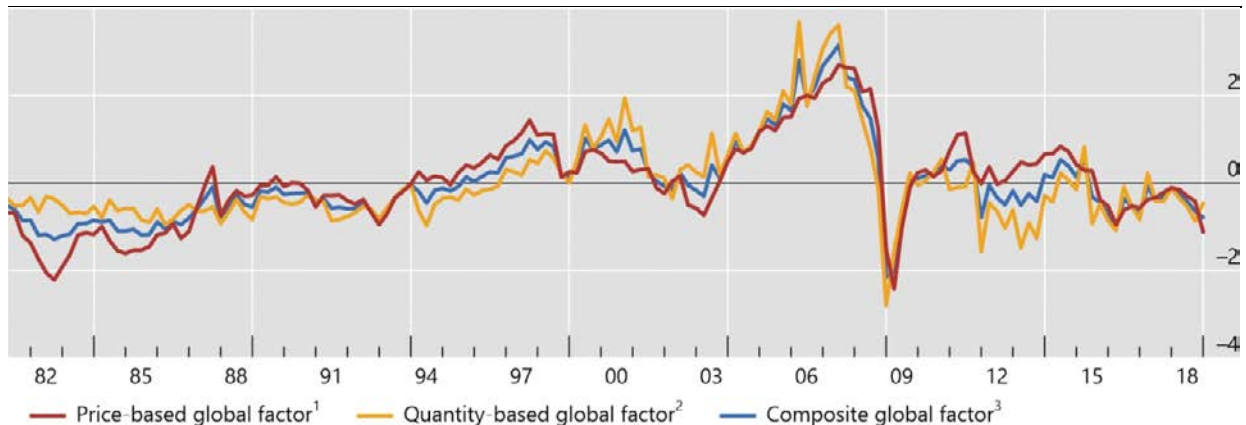


¹ Financial cycles are measured by frequency-based (bandpass) filters capturing fluctuations in real credit, the credit-to-GDP ratio and real house prices over a period from 32 to 120 quarters. Financial cycles are normalised by country-specific means and standard deviations before simple averages are taken for country groupings. ² ES, FR, GB and US. ³ BR, CL, CO, HK, ID, KR, MX, MY, SG and TH. ⁴ AU, CA, CH, FI, NO and SE.

Sources: National data; BIS calculations.

The global financial cycle

Graph 6



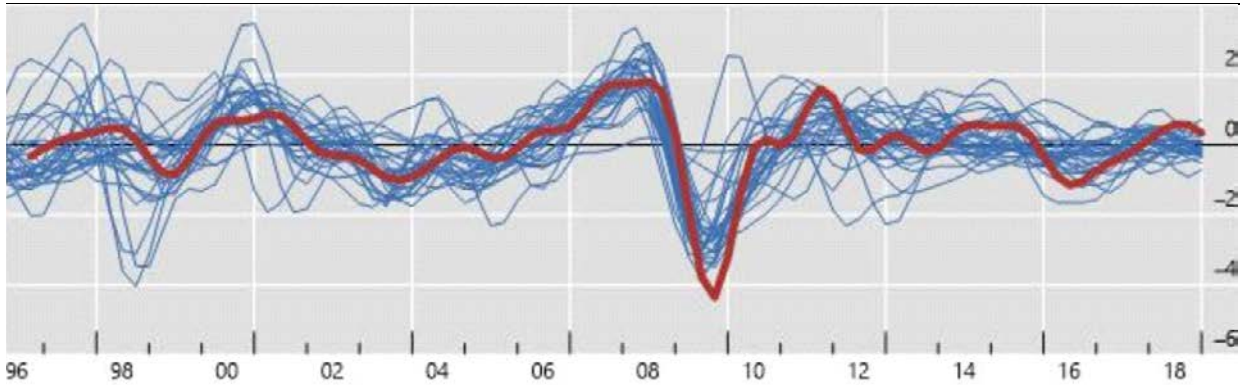
¹ Miranda-Agrippino and Rey (2015) global financial factor. ² First principal component of total external flows/GDP of 31 countries. ³ Average of the price-based global factor and the quantity-based global factor.

Sources: Miranda-Agrippino and Rey (2015); IMF, *Balance of Payments*; BIS calculations.

Third, shorter ones aside, the fluctuations are at standard business cycle frequencies, roughly eight years, and hence are considerably shorter than the domestic financial cycle. More formal statistical analysis confirms this. There is also a remarkably close association between the global financial cycle and the business cycle of various countries, as measured at the *standard* frequencies, with the global financial cycle leading GDP by around two quarters (Graph 7). This is not entirely surprising, since equity prices naturally co-move closely with the business cycle as traditionally measured – in fact, more than property prices do. It may be more surprising for quantities, however.

The global financial cycle co-moves with traditional business cycles

Graph 7



The red line is the composite global financial factor (measured by a frequency-based (bandpass) filter capturing fluctuations over a period from five to 32 quarters and lagged by two quarters) while the blue lines are individual business cycles of 29 countries.

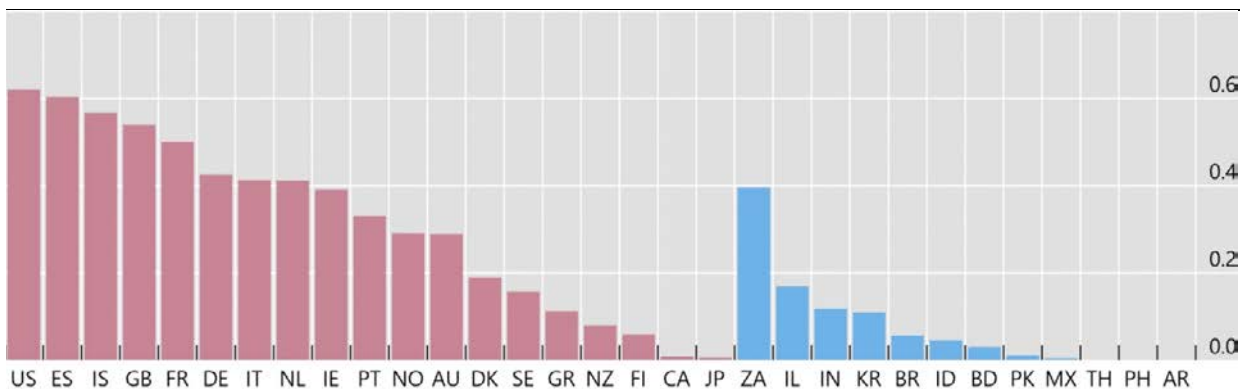
Source: BIS calculations.

Finally, the global financial cycle predominantly reflects developments in advanced economies. Graph 8 shows the fraction of the variance of capital flows in a given country that is explained by the global financial cycle. Capital flows among advanced economies are generally more closely associated with the cycle than those in EMEs.¹¹ Indeed, the association is closest for the United States, with some 60% of the variance so explained.

The global financial cycle is more representative of capital flows in advanced economies

Fraction of the variance of a country's capital flows accounted for by the global financial cycle

Graph 8



The chart shows variance decomposition of individual country capital flows. It depicts the percentage of total variability in capital flows in each country that is captured by the quantity-based global factor (first principal component of capital flows in all countries). Red bars are advanced economies, blue bars are for emerging market economies.

Source: BIS calculations.

Importantly, this does not mean that the global financial cycle, and capital flows more generally, have less *impact* on EMEs: we know that most of the concerns are precisely among EMEs. Rather, it simply means that in EMEs idiosyncratic shifts in capital flows are bigger than in advanced economies so that the identified global common component does not fully capture the variation of capital flows in these countries. The impact of the global financial cycle and capital flow variations on countries' financial

¹¹ Disyatat and Rungcharoenkitkul (2017) document similar findings in terms of cross-country term premia.

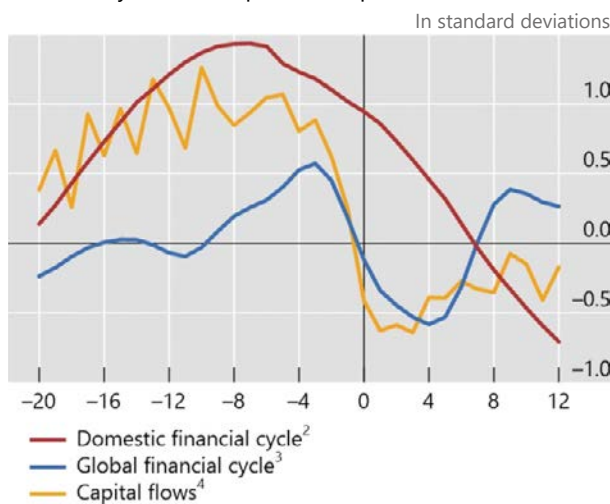
conditions may well be larger. The close association of the global financial cycle with advanced economies suggests that developments there are likely to be important drivers. I will return to this.

What about the co-movement between the two financial cycles? While they largely dance to different tunes, they do come together around crisis episodes. One way of thinking of this is that the global financial cycle can turbocharge the domestic financial cycle. This is especially evident during the credit booms that have ended in financial crises (Graph 9). Following a strong expansion, the domestic financial cycle and the global financial cycle, as well as capital flows more generally, turn before the crises in both advanced economies and EMEs. The main difference between the two sets of countries is that the appreciation and then sharp depreciation of the domestic currency is only visible in EMEs. This is consistent with more formal empirical evidence, which indicates that the combination of strong credit growth and exchange rate appreciation is a useful leading indicator of banking stress in EMEs but not in advanced economies (Borio and Lowe (2002), Gourinchas and Obstfeld (2012)). Moreover, as analysed in the latest BIS *Annual Economic Report*, this probably reflects the important role of currency mismatches in EMEs (BIS (2019)). I will come back to this.

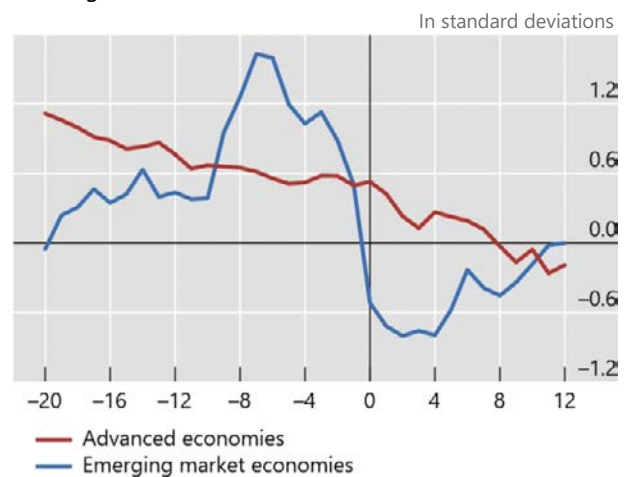
Behaviour of selected variables around crises¹

Graph 9

Financial cycles and capital flows peak ahead of crises



Exchange rates matter more for EMEs⁵



¹ The horizontal axis denotes quarters around crises, with the start date set at zero (vertical lines). The average of the relevant variable is taken at the specific quarter across all crisis episodes available for the respective indicator. ² Composite financial cycle proxy calculated from frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices, normalised by country-specific mean and standard deviation. ³ Frequency-based (bandpass) filter of the composite global factor, at business cycle frequencies (between five and 32 quarters). The composite global factor combines the price-based global financial factor of Miranda-Agrippino and Rey (2015) with a quantity-based factor based on total external flows to 31 countries. ⁴ Gross capital inflows, scaled by GDP, normalised by country-specific mean and standard deviation. ⁵ Geometric trade-weighted averages of bilateral exchange rates adjusted by consumer prices, normalised by country-specific mean and standard deviation.

Sources: Miranda-Agrippino and Rey (2015); IMF, *Balance of Payments*; national data; BIS exchange rate statistics; BIS calculations.



Drivers of the global financial cycle

So much for the main stylised features, but what can we say about the *proximate* determinants of the two financial cycles? Both have been studied in great depth.¹² But since I have discussed the domestic financial cycle at length elsewhere (Borio (2014)), let me focus on the global one, which will naturally allow me to take a more global perspective and then link the two more easily.

Probably the proximate determinant that has attracted most attention has been risk appetite, typically approximated with the VIX (Graph 10, top panel). Historically, the correlation of the global financial cycle with the VIX has indeed been negative and highly statistically significant, eg risk-on phases coincide with upswings in the cycle. But the link seems to have weakened after the GFC.¹³

The reasons for the weakening deserve further examination. One possible explanation is that, post-crisis, many internationally active banks, especially from the euro area, retrenched, so that aggregate cross-border flows proved less sensitive to the VIX even as portfolio flows grew.¹⁴

By contrast, the relationship with the US dollar exchange rate has remained stable pre- and post-GFC (Graph 10, middle panel). A weaker US dollar coincides with upswings in the global financial cycle.

Why? The reasons are not yet entirely clear, as the US dollar embodies many things, including risk sentiment and US monetary policy. One possibility is that a weaker US dollar improves the balance sheets of currency-mismatched borrowers and raises the portfolio returns of unhedged dollar-based investors in local currency assets, boosting the cycle (Bruno and Shin (2015a,b)). This is the so-called “financial channel of the exchange rate” (BIS (2019)).¹⁵ The channel is probably more relevant for EMEs¹⁶ and less so for advanced economies, which, however, are the countries that mainly explain the cycle, in statistical terms. A more general explanation is that a weaker dollar could reflect heightened global risk appetite or easier US monetary policy, both of which would boost cross-border lending.

Thus, we need to go beyond proximate factors and examine the relationship with US monetary policy. After all, the global financial cycle is fundamentally about how financial conditions in the financial world’s “anchor” country – the United States, given the dollar’s dominance – spread to the rest of the world.

This is a bit harder to document. Miranda-Agrippino and Rey (2015) document that asset prices, volatility and a mix of quantity variables, such as credit and banks’ leverage, respond to “shocks” in US monetary policy, ie to the *non-systematic* component of the Fed’s policy. For illustrative purposes, and to deal with the complications raised by quantitative easing, here I look simply at correlations between the global financial cycle and two alternative measures of US monetary policy: the two-year Treasury rate and the Wu and Xia (2016) shadow policy rate (Graph 10, bottom panel)).

¹² See Claessens and Kose (2018) for a review of the literature.

¹³ This weakening has been documented in the past; eg Shin (2016); Avdjiev et al (2017), Cerutti et al (2017)).

¹⁴ See Bénétrix et al (2019) for the retrenchment of euro area banks.

¹⁵ Bruno and Shin (2015a,b) call it a variant of the “risk-taking channel” of monetary policy (Borio and Zhu (2011)).

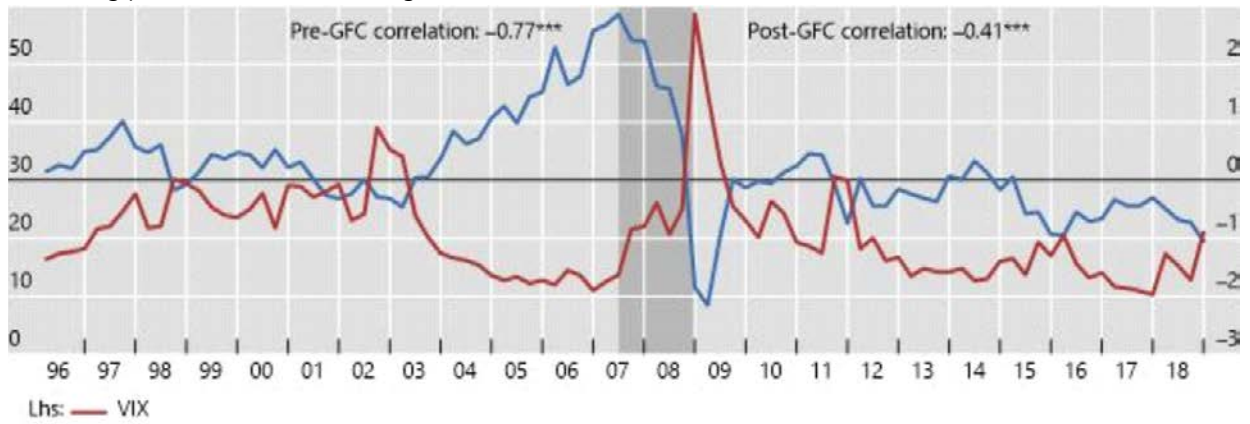
¹⁶ Indeed, the relationship between the strength of the US dollar and US dollar credit outside the United States – a BIS global liquidity indicator – is stronger for EME than for advanced economy borrowers (not shown).



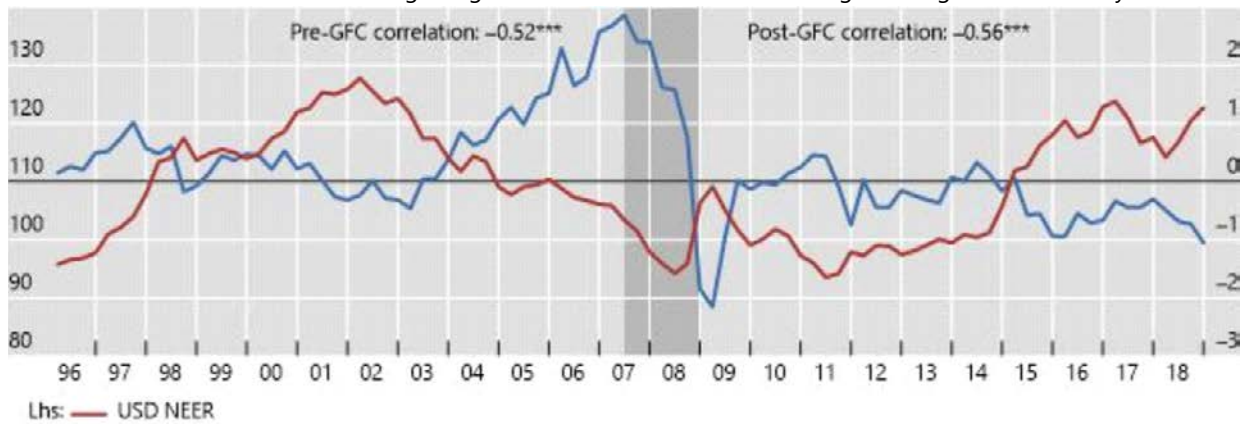
Drivers of the global financial cycle

Graph 10

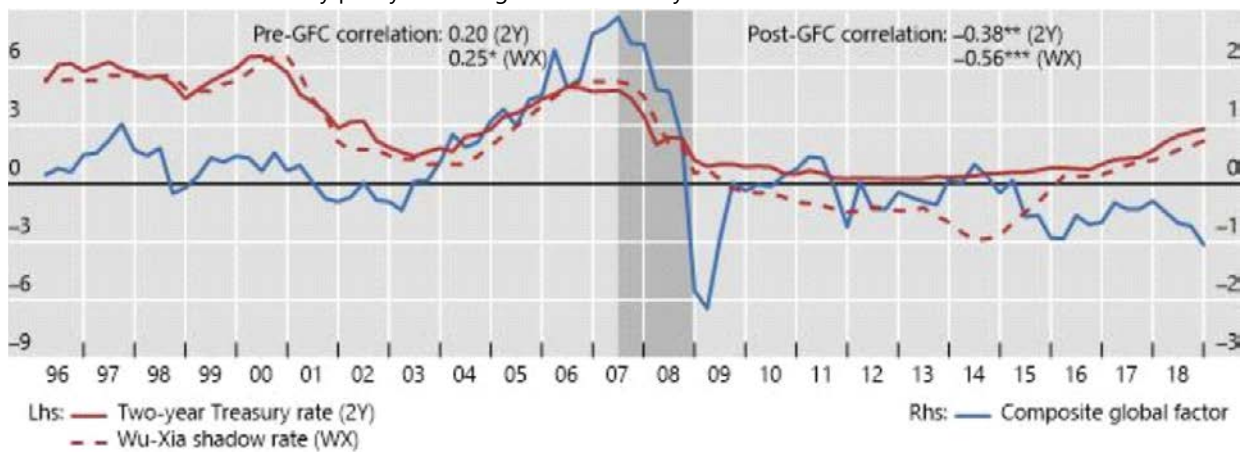
The strong pre-crisis correlation with global risk aversion has weakened



Relation with the dollar remains strong: a higher USD coincides with downswings in the global financial cycle



The link between US monetary policy and the global financial cycle is far from stable



The shaded area shows the Great Financial Crisis (GFC).

Sources: S Miranda-Agrippino and H Rey, "US Monetary Policy and the Global Financial Cycle", *NBER Working Papers*, no 21722, November 2015; IMF, *Balance of Payments*; Bloomberg; national data; BIS effective exchange rate statistics; BIS calculations.

The relationship exists but, in fact, is not stable. Pre-GFC, easier policy (lower rates) coincides with a *weaker* global financial cycle; post-GFC, with a *stronger* one.¹⁷ Therefore, the presumed relationship holds only post-crisis, at least when US monetary policy is proxied as done here.

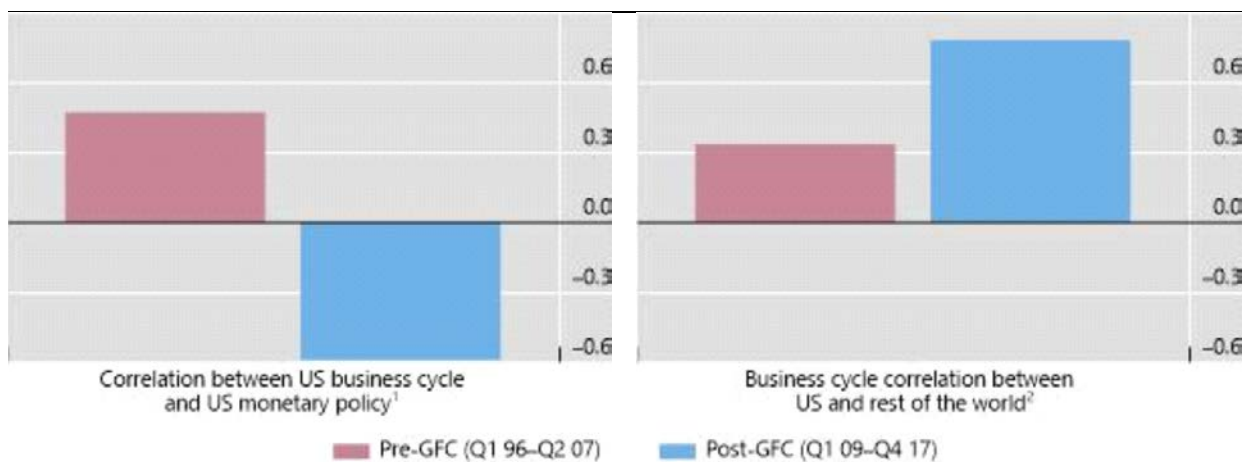
What might explain all this? I suspect it has to do with changes in the conduct of US monetary policy. Specifically, pre-crisis, policy was leaning *against* US business cycle expansions, which in turn co-moved closely with those in other advanced economies and EMEs. Thus, say, higher interest rates coincided with global business cycle upswings and global financial cycle expansions. Post-crisis, US monetary policy has diverged considerably from the US business cycle, which has continued to co-move closely with those in other advanced economies and EMEs. That is, post-crisis, inflation has been stubbornly low and the Fed has been very cautious in order to promote the recovery, keeping monetary policy accommodative even during the business cycle upswing. Recall that real interest rates are now roughly zero or negative even as the US economy is operating close to, or above, standard estimates of potential. Thus, post-crisis, lower (and stable) rates plus a growing balance sheet have coincided with a global financial cycle expansion.

A simple set of correlations is consistent with this interpretation (Graph 11). The correlation between the US policy rate and the business cycle turns from positive to negative after the GFC and is statistically significant. By contrast, the correlation of business cycles remains positive.

US business cycle correlations with US monetary policy and business cycles in the rest of the world

Correlation coefficients

Graph 11



¹ Two-year Treasury rate. ² Median of correlation coefficients between US business cycle and the business cycles of 45 other jurisdictions.

Source: BIS calculations.

I conclude from all this that US monetary policy is by no means the only factor, but it does matter. And that there are regime shifts. Moreover, as I shall argue next, it may matter more than Rey's econometric analysis suggests, focused as it is on "shocks".

¹⁷ See also Claessens (2017) for a review of the evolution of this correlation. Avdjiev and Hale (2018) find similar results measuring the monetary policy stance by changes as deviations from a "neutral" rate, ie the deviation from a Taylor rule (Taylor (1993)). By this measure, Maddaloni and Peydró (2011), for example, found that US monetary policy was relatively loose in the lead-up to the GFC.



3. The policy implications

What are the policy implications of the analysis so far? Policy can play a dual role: at the domestic level and at the global level, through the interaction of domestic choices. In both cases, what matters most is the policy regime, ie the rules of the game and policymakers' *systematic* response to the economy.

This is important, because the empirical evidence I mentioned earlier examines something quite different, ie the (random) deviations of policy decisions from their systematic pattern, that is, monetary policy "shocks". Intuitively, such deviations cannot tell us much, if anything, about the impact of systematic policy. A number of economists and econometricians are fully aware of this (eg Sims (1998), Cochrane (1998), Hoover and Jordà (2001)). But because measuring the impact of the systematic component empirically is very hard – recall the Lucas critique – the issue is generally ignored. So, I will offer a tentative narrative about why regimes may be important and provide some indirect or less formal evidence.

In a nutshell, the argument, developed elsewhere in more detail (eg Borio (2014b), Borio et al (2018)), consists of three steps.¹⁸ First step: policies have so far failed to tame the domestic financial cycle, which was the heart of the GFC and subsequent very slow recovery. Recall how domestic financial cycles have become larger and longer since the early 1980s; an outsize one triggered the crisis and subsequent recession. Second step: larger financial cycles, together with stubbornly low inflation, have contributed to a downward trend in nominal and real interest rates. As inflation remained subdued in the run-up to the crisis, monetary policy did not tighten as the financial boom proceeded. But it eased strongly and for a long time post-crisis – through both interest rate cuts and much bigger balance sheets. Initially, it did so to contain the damage; later on, to prop up the recovery and push inflation back towards target. Third step: these very accommodative monetary policy conditions in the core advanced economies – primarily the United States – then spread to the rest of the world, through the global financial cycle. They spread even to countries at very different points in their domestic financial cycles, boosting them in the process.

There are at least three mechanisms at work in transmitting conditions in core countries to the rest of the world. There is a direct effect: financial conditions in US dollars directly affect financial conditions for borrowers in that currency around the globe. There is an indirect effect: policymakers in countries at the receiving end faced with unwelcome appreciation pressure may initially respond through FX intervention but, ultimately, they will find it very hard to keep interest rates at very different levels from those in the anchor country. This is true regardless of the reasons for wishing to resist appreciation – inflation below target, financial stability considerations or competitiveness. As a result, monetary policy eases also in other currencies, in turn loosening domestic financial conditions. Finally, there is an amplification effect via the US exchange rate – the financial channel of the exchange rate: as noted, a depreciation encourages further lending and borrowing in the presence of currency mismatches. This is true for those who borrow in dollars, largely firms, as well as for those who invest in local currency securities on an unhedged basis, largely asset managers. My colleagues have been documenting this in their research (Bruno and Shin (2015a,b), Hofmann et al (2016), Avdjiev et al (2018)).

What does all this imply for policy? I have discussed this in more detail elsewhere (Borio (2014b)). Simply put, in order to more effectively address both the domestic and global financial cycles we need stronger anchors for domestic policy regimes and for their interaction. In other words, we need to keep our own house in order as well as the global village.

¹⁸ The theoretical and empirical analysis that Raghuraj Rajan presented at this year's Karl Brunner Lecture here in Zurich is consistent with the one presented here (Rajan (2019)). For another theoretical treatment yielding similar results in the context of the domestic financial cycle, see Rungcharoenkitkul et al (2019).



Stronger anchors *domestically* will already be a major step forward, since they would limit the incidence of unwelcome spillovers. Recall the “envelope theorem” of welfare economics: if each country is already doing what is best for itself, the additional gains from cooperation are naturally smaller.

At the BIS, we have argued that the way forward involves setting up a more holistic macro-financial stability framework, involving monetary policy, prudential policy, both micro- and macro-, and fiscal policy. For instance, the latest BIS *Annual Economic Report* (BIS (2019)) discusses in more detail how in EMEs a combination of flexible inflation targeting, FX intervention and macroprudential measures can help achieve this objective.

In addition, stronger anchors *internationally* would help better internalise spillovers. Depending on the degree of ambition, these range from enlightened self-interest – taking into account spillbacks from one’s own spillovers – to coordinated action in specific circumstances, not just at times of crisis, but also in good times, all the way to new rules of the game (BIS (2015)).

Of course, exploring how to do all this would require a whole presentation by itself. But I would like to leave you with one thought. Common to these proposals is a more *medium-term* policy horizon. We saw that the larger component of GDP fluctuations is at medium-term frequencies, not at the standard ones employed in macroeconomic analysis and stabilisation policies. It is at this horizon that the domestic financial cycle also plays a key role in close sync with the business cycle. It surely makes sense to adjust the policy lens and its focus accordingly. For monetary policy, in particular, a more medium-term orientation may not only better anchor the domestic financial cycle and hence the economy at large, but it could also mitigate the spillovers associated with the global financial cycle. Killing two birds with one stone, as it were.



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