Guy Debelle: How I learned to stop worrying and love the basis

Dinner address by Mr Guy Debelle, Deputy Governor of the Reserve Bank of Australia, at the BIS Symposium: CIP–RIP?, Basel, 22 May 2017.

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Thanks to Matt Boge for many educative discussions on the basis over the years.

Drawing on the title of this conference, 'CIP–RIP?', one possible opening line for my speech tonight is that, unlike Marc Antony, 'I come to praise the basis, not to bury it'. But instead of a theatrical inspiration, I will resort to a cinematic one and talk about how I learned to stop worrying and love the basis.[1]

One of the main points that I want to make tonight is that the basis is not something to be always and everywhere feared. It is not a violation of a fundamental principle of global finance that should lead to excessive gnashing of teeth and wringing of hands; most of the time.

However, it is useful to ask the question why a non-zero basis exists, that is, why is there a deviation from CIP? When should we worry about it? When shouldn't we?

To answer these questions, it is useful to remember what the basis is. At its simplest, it is a price that clears a market for which there is supply and demand.[2]

Whenever the words supply, demand and price appear in close proximity, the word 'identification' immediately comes to mind. Identification problems have often been ignored in many discussions of the basis over the years. The analysis has often been partial, looking at the basis (the price) and linking it to shifts in demand or supply, but not both. Many factors are often assumed to be exogenous, when in reality they are both endogenous and consequential.

We need to better understand what underpins the supply and demand that determines the basis and what causes those two curves to shift. Who are the relevant participants and what, if any, constraints might they have on their behaviour? The CIP assumption of risk-less arbitrage needs to be questioned. The tendency to focus only on banks needs to be broadened. We need to be taking into account the various motivations for the cross-border transactions underpinning the supply and demand.

In addition to that, we need to make sure we are measuring the basis correctly. There is no issue with measuring the foreign exchange component. Measuring the relative rates of return in the different currencies is where it gets more complicated. Indeed, even framing the issue in terms of relative rates of return, rather than in terms of funding and investing currencies shifts the focus.

The papers at this symposium generally address these issues, coming at them from a variety of perspectives. A common theme across the papers is that banks aren't the only players and that the arbitrage is not risk free, and perhaps at least as important, the arbitrage is not costless. The manner in which it is not risk free and what and how large the costs are, very much depends on who you are.

In my view, there is not complete fungibility across all the various funding sources or the investment opportunities. Not everyone borrows at LIBOR on the one hand, or is willing or able to take on the credit risk of investing in LIBOR on the other side. Moreover, LIBOR aggregates across different credit exposures, not all of which are available to a potential investor with a mandate with credit limits. Beyond that, the composition of LIBOR changes through time as the borrowing needs of global banks change. So there are measurement problems involving LIBOR, which is often the interest rate used to measure the basis.

So, who are the various suppliers and demanders in the market and what are their constraints? A useful taxonomy is the following: banks, hedge funds, corporates and asset managers/real money pools, including central banks. Each of these groups has varying degrees of flexibility to arbitrage the basis. They have varying constraints on how they can use their balance sheets, varying funding sources and varying credit appetites and limits which constrain the investable universe. There is a fundamental difference between a bank (or a hedge fund) that needs to fund itself to arbitrage the basis, compared to a real money investor, which may be naturally long in the funding currency. On the other hand, real money often has restrictions on the ability to take on leverage in the way that a bank doesn't. Real money can often be constrained in their ability to arbitrage the basis because their mandate doesn't allow them to.

In my experience, one of the fundamental laws of finance is to never underestimate mandate constraints.

While the constraints on the various participants in the market vary, so do the potential risks.

The risk that concerns me the most is the combination of maturity and currency mismatch; in particular, a bank funding a portfolio of foreign currency assets, by swapping its local currency (for which it has a natural funding base) into the foreign currency with short-dated swaps.

The assets are generally long-dated and not particularly liquid. So we have a dangerous cocktail of maturity and currency transformation. If the basis gets too wide, then this can quickly become unprofitable. Even more worryingly, if a quantitative constraint hits the swap market, rather than just experiencing just an increase in the cost of the swap, a bank funding itself with short-dated swaps is quickly going to find itself in the equivalent of a sudden stop. (Note this is quite a different scenario from funding domestic assets with foreign currency swapped back into domestic currency, for which there is ultimately a domestic backstop in the event of liquidity stresses.)

A positive basis is often described as indicative of a US dollar shortage. I don't find that term very helpful at all. 'Shortage' very much implies a quantitative constraint, rather than a pricing constraint. But in most circumstances, we are talking about the latter. That is, the supply of dollars might go down, so the price goes up. There is no shortage, there is just more demand than supply, and, as with other markets, the price adjusts to equilibrate the market. The market is functioning effectively and efficiently. The focus of analysis should be on the various factors that affect demand and supply. The papers at this conference highlight the range of factors that need to be taken into account.

There are exceptions, most obviously 2008, where there clearly was a dollar shortage. At that time, there was effectively no market-clearing price and rationing was in effect. But that period was the exception, rather than the rule.

Over the past few years, that has not been the state of the world. The basis has gone up and down in response to the shifts in demand and supply. As it has moved around, it has in turn generated behavioural responses from market participants. For example, when the basis got particularly wide a year or so ago, a number of banks which had previously found it uneconomical to arbitrage the market, re-entered as it was profitable to do so, even given the balance sheet costs to them of the trade.

In the past, we might have expected wide divergences in money market rates reflected in a large basis to trigger greater use of central bank standing facilities. We would have thought that was appropriate as something must have been going wrong. Now, we're no longer surprised by these anomalies (be they in FX swaps, repo, etc.) because we are more comfortable with the idea that an increase in the basis is not always a sign of stress and can be consistent with functioning markets (and seemingly have little implication for monetary policy transmission). Nowadays, monitoring markets for signs of stress requires more knowledge of market dynamics than in the past.

So most of the time, the basis is not a sign of stress. Understanding what is behind it is a useful exercise and can identify potential vulnerabilities. But I wouldn't be losing sleep over it in the way that I (literally) lost sleep over it in 2008.

Clearly in all of this the speed of equilibration matters. Take the recent US money market reform as an example. Banks that had previously relied on money market funds to source US dollar funding could no longer rely on this to the same extent. How they adjusted in part depended on what those US dollar activities were. If they were simply arbitraging the FDIC deposit levy to intermediate US dollar funding pools to earn the deposit rate at the Fed, then they could let those activities run off. This was easy to do because the assets were short dated. They didn't need to switch funding to the swap market if it was not profitable to do so. If instead, they were funding US dollar lending, then they did need to raise funding from other sources and we saw both US dollar LIBOR and the basis rise as both of those markets were tapped.

Another risk worth contemplating is behaviour that might be induced if the basis gets 'too' wide. While that might entice some participants back into the market to keep a lid on the basis, there is a risk that it engenders behaviour that might concern us. It can incentivise people to stop hedging and take on the exchange rate risk. Corporate borrowers or asset managers might decide to run unhedged foreign exchange positions. While some might argue that the price is leading them to make the 'right' decision, I would be concerned about the different degrees of sophistication in assessing the risk of unhedged FX positions. Another risk is that it could also incentivise banks/investors to make higher-risk loans/investments to cover the higher cost of hedging.

Let me finish by coming back to the title of my talk and explain why I have learned not to worry and love the basis.

In the current world of low returns on reserve assets, for conservative asset managers like ourselves at the RBA, the return enhancement offered by the basis is highly beneficial.[3] We can still confine ourselves to our conservative investable universe of sovereign assets, but earn the (often quite substantial) return by swapping from the various reserve currencies that we hold into yen (where the basis tends to be the widest). In addition to that, we can also swap Australian dollars, our natural funding currency, into yen for domestic liquidity management purposes. We can manage the risks around these transactions with a well-articulated and conservative counterparty framework, reinforced by ISDA agreements with daily margining.

In doing so, we can also take comfort that we are playing a useful role in providing a counterbalancing flow in the market, thereby limiting the rise in the basis and facilitating hedging of cross-border flows. Of course, we don't want everyone to love the basis as much as we do, otherwise our return enhancement would soon disappear.

So I hope we can all learn not to worry, most of the time, about the basis. But while we are not worrying, we should still spend time understanding the various cross-border flows that underpin the basis. But please can we make sure we look at all the different participants in the market and the different factors that affect them, as the papers presented at this conference generally do. Then, on the hopefully rare occasions when we do need to worry about the basis, we are better placed to respond appropriately.

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1 For those who don't share my cultural heritage, I am referring to Stanley Kubrick's Dr Strangelove or: How I Learned to Stop Worrying and Love the Bomb.

2 The basis is shorthand for the extent of the deviation from covered interest parity (CIP). It is the difference between the cost of borrowing directly in US dollars (say) and the synthetic cost from borrowing in a foreign currency and swapping the foreign currency into US dollars. A positive (negative) basis means that the US dollar interest rate is higher (lower) than the foreign interest rate adjusted for the cost of the swap.

3 This is covered in detail in the RBA's Annual Reports: www.rba.gov.au/publications/annual-reports/rba/2016/operations-in-financial-markets.html.