

Hedging FX risk of overseas lending

Thought Leadership Series #20

Professor Jessica James

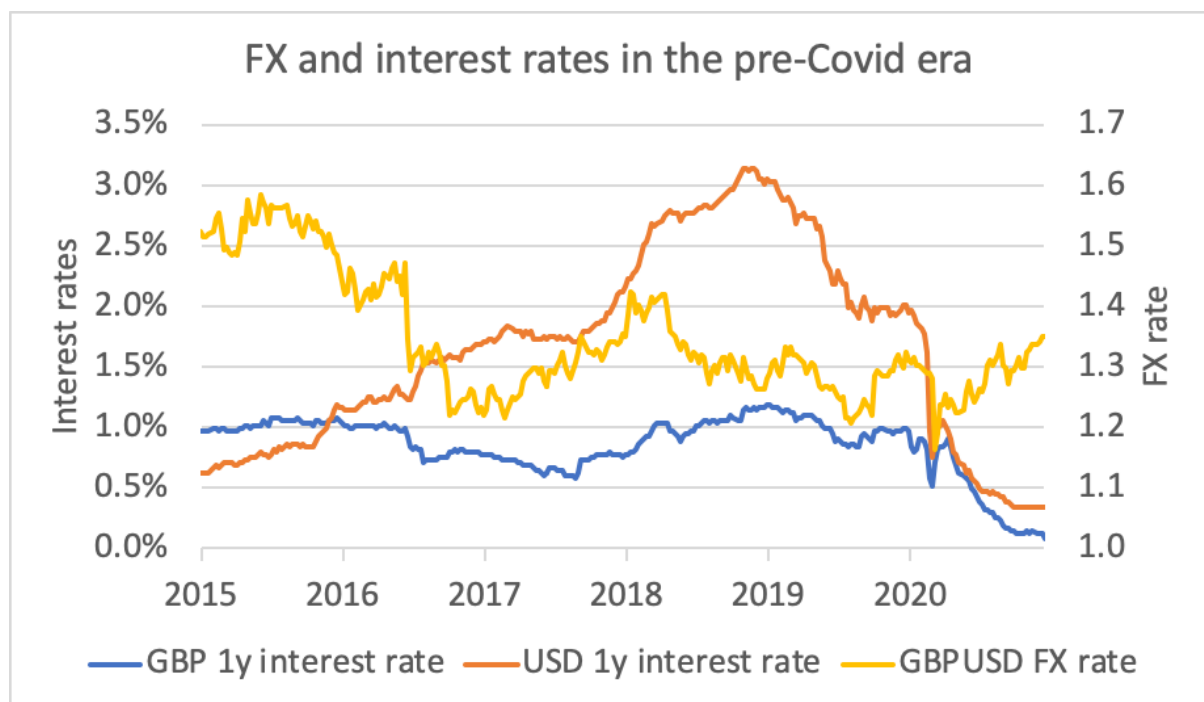
Faculty BTRM

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A bank lending and borrowing overseas will involve not only interest rates, but also foreign exchange or FX rates. It can be attractive to look at higher yielding countries as a lender, of course this comes with FX risks attached. So for instance, in the case of a bank based in the UK and lending USD to USA-based customers, the GBPUSD FX rate becomes very important in their transaction assessment as well as their market risk hedging approach.

The USD and UK have somewhat similar economic cycles, but sometimes with very different rate environments. While in the last year or so interest rates have looked similar both in level and activity, in the pre-Covid era (roughly 2015 – 2020) the USA had significantly higher rates. Prior to that, since the 2008 crash, USD interest rates maintained somewhat lower levels than the UK. So in different eras, the USA has looked like an attractive market for UK lenders and borrowers alike.

Consider a bank that would like to harvest the interest rate difference between the USA and the UK, when USD rates were a few per cent higher than those in the UK. First of all, let's look at the case where they decide to borrow in GBP, with the lower interest rates, to lend in USD in the US. Below we show a chart of the interest rates and the FX rate at that time.



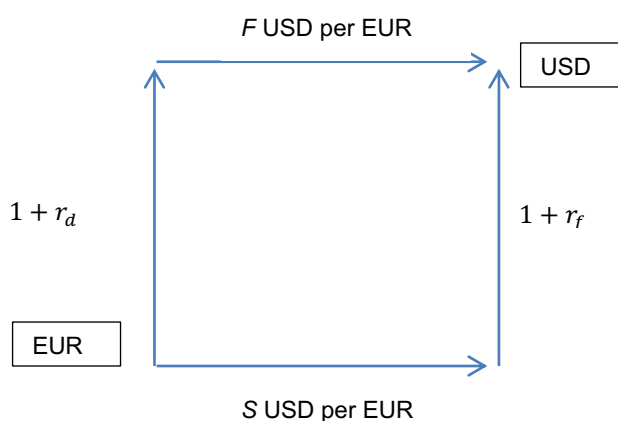
Source: Bloomberg

The critical thing to note here is the scale of the FX rate and the interest rates. The maximum difference between the USD and GBP interest rates was a little over 2%. So, if our bank had borrowed an amount N GBP, exchanged it into USD and lent it out, over the year they would have made a profit of about that much.

But of course this profit is not guaranteed! If we look at the FX rate over the period, it regularly varies by 10% over a 12m period – or shorter. So to make a profit of 1% or 2% we are risking approximately 10%. This isn't a smart move.

This is where FX hedging comes in. How does a Forward work? If we have EUR today, and want to lock in a risk free exchange rate with the USD in a year, the diagram below shows how the forward rate F is calculated. If I have EUR now and want to have USD in a year, I can exchange now at the spot rate S , and invest the USD for one year at the USD interest rate r_f . Or I can invest the EUR now at the EUR interest rate r_d , and then exchange at the forward rate F . Applying the time-honoured “no-arbitrage” principle, these two ways of getting from EUR now to USD in the future MUST be equivalent – apart from bid-offer costs – so this enables us to derive the expression below.

$$F = S \times \frac{1 + r_f}{1 + r_d}$$



We know all the interest rates and S , so we can calculate F .

So, if the USD 1-yr interest rate is 5%, and EUR is 4%, and the FX rate is (say) 1.10 USD per EUR, then $F = 1.10 \times (1.05/1.04) = 1.11$.

Thus we can see how using a 1-yr forward contract enables us to lock in an FX rate to exchange at in 12-mo time.

Problem solved? Sadly no. The forward rate in the contract is the current FX rate adjusted for interest rate differentials – which means that the difference in interest rates that we were hoping to monetise is pretty much exactly cancelled out. We were hoping to make about 1% - but that's about the difference of the locked-in forward rate from the spot rate.

However, today this isn't entirely true. Pre-2008, the cancellation of any potential profit would be almost perfect. But credit sensitivity in the post-crash world resulted in the existence of a cross-currency basis, which means that for certain tenors and credits, there are times when one can indeed borrow in a lower yielding currency like GBP at this time, lend in the higher yielding USD, and hedge the FX risk, and lock in a small but fairly risk-free advantage. For higher quality credits this is certainly feasible at times.

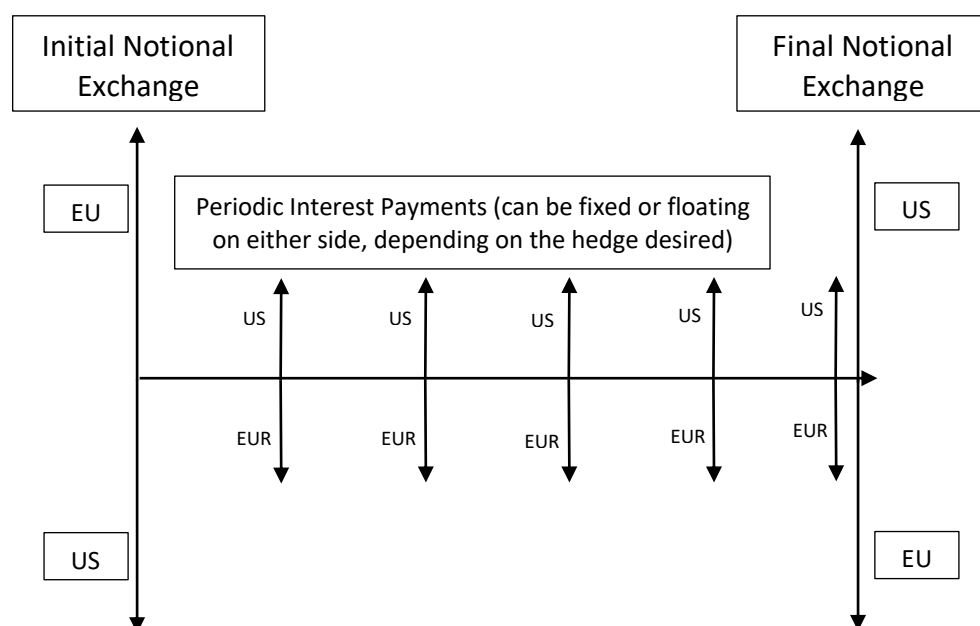
Another scenario arises where instead of having to borrow in the home currency (GBP) to lend abroad, the bank has a capital base in the UK, and lends in the USA. In this situation there is not a specific GBP loan which is used to finance the USD lending, so we would focus more on the income from the USA side. For example, a UK-based institution might decide to invest in USD-denominated bonds issued in the USA. In the period we have considered, this might generate interest income of perhaps 3%. Now, what is happening with the FX?

There are a couple of elements to this. First, the annual income. If a bond pays 3% per year, that 3% will be in USD, so its GBP value will vary as the FX rate varies. If USD falls say, 10% vs the GBP, then that fall will apply to the annual interest income. But, that's 10% of the 3%. While one might indeed want to hedge this translation risk, the hedged amount will be only the annual income amount. Also, the forward FX rate will not have the same cancellation effect as it would with the previous case; its impact would be small.

Apart from the annual income, there's the final payment to consider. That also will be in USD, and will be much larger; the FX risk will be substantial and it would be advisable to hedge.

How might we do that? It's easy enough to enter into a set of FX forwards but a cross-currency swap might be more efficient.

Below is a schematic of this type of swap – it can be very flexible. An initial notional exchange is followed by interest payments which may be fixed or floating, and the final notional exchange (of the same initial amounts) reverses the initial stage. Because there are significant capital flows into the future, this deal is heavy on the usage of risk capital. As a derivative contract it will also be collateralised, which is a funding requirement of the counterparty that is negative mark-to-market at any time.



The XCCY swap is very common in liquid currencies and enables cross-border lending in large volume.