

Is there a link between Indian and US interest rates?

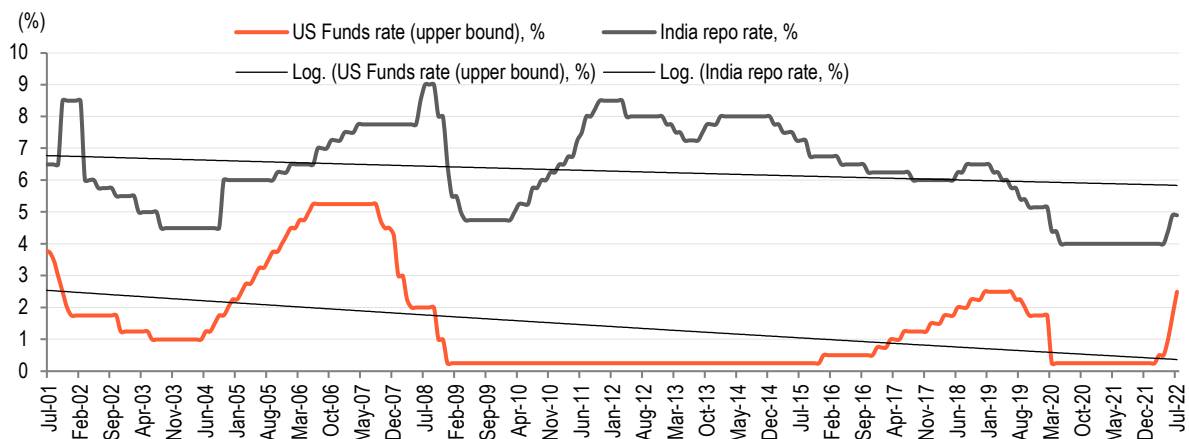
Policy rates in US and India:

It has been observed that global monetary policy rates tend to move in tandem, with the US Fed generally leading the global rate cycle. In the present context of a synchronized global policy tightening effort in response to surging inflation, a regular talking point has been the magnitude of rate hikes. A similar sentiment also exists in the domestic market with investors/analysts alike assessing the possibility of rate hikes by the RBI, and more importantly the extent to which RBI might hike policy rates. Often it tends to get linked with the Fed even though it has been stated that the MPC looks at the global environment but takes decisions based on domestic considerations surrounding inflation.

In this context, we assess the movement of Fed funds rate (upper bound) and RBI repo rate in the past two decades and attempt to draw patterns in the relationship between the two. If such a relation does exist, it can be extended to make conjectures on how the path of repo rate could shape up as the Fed's position becomes clearer.

Figure 1 below charts Fed policy rate with repo rate. Barring a few exceptions, repo rate closely follows the movement in the Fed policy rate. Further, while the magnitude of rate hike/cut may be different in the US and India, the general direction of monetary policy remains the same.

Figure 1: Fed fund rate versus RBI repo rate



Source: Bloomberg, Bank of Baroda Research | Note: Monthly figures are end-period

The table below provides the difference between Fed policy rate (upper bound) and RBI's policy rate since May 2001. We may exclude the period of post global financial crisis when the Fed rate was close to zero while there was a wide variation in the RBI policy rate during this period. The QE which was enforced in the US was not pursued in India as our economy was not buffeted by the financial crisis. This was the case with most of the emerging markets. Some observations are:

- Starting 2001 till the time when the Fed rate peaked at 5.25% in 2006-07, the average variation of our repo rate was around 325 bps.

- Subsequently till October 2008 before the start of the crisis it rose to 485 bps. The period till 2015 was unusual as the Fed rate was kept close to zero under QE policy. This kept the differential between 450-775 bps.
- The Fed rate was subsequently increased continuously till June 2019 with the rate peaking at 2.5% this time. The variation was now around 475 bps.
- The Fed subsequently kept lowering the rate which continued during the pandemic when the rate came back to 25 bps. This time the difference averaged around 340 bps.
- Post February to date the average is around 310 bps, though in July it came down to 240 bps following the most recent hike to 2.25-2.5% by the Fed.

It can be hence seen that the average difference in policy rates of US and India ranges between 350-400bps historically. After the latest rate hike by the Fed, it now stands at 240bps, which is lower than the long-term average. With the Fed expected to raise rates to 3.25-3.5% by year-end (2.5% presently) and a difference of even 300 bps being maintained, the repo rate should be in the region of 6.25-6.5% by the end of the year based purely on past trends.

However, Fed Chair has been less hawkish in his latest statement, hinting that the pace of rate hike may not be as aggressive as was previously anticipated. In such a case, the policy rate difference may settle closer to the long-term average.

Table 1: Difference in policy rates in US and India

Period	Fed rate (upper bound),%	RBI repo rate, %	Difference (India-US), in bps
May'01	4.00	6.50	250
Jun-Jul'01	3.75	6.50	275
Aug'01	3.50	6.50	300
Sep'01	3.00	6.50	350
Oct'01	2.50	8.50	600
Nov'01	2.00	8.50	650
Dec'01-Oct'02	1.75	6.50	475
Nov'02-May'03	1.25	5.50	425
Jun'03-May'04	1.00	4.50	350
Jun'04-Jul'04	1.25	4.50	325
Aug'04	1.50	4.50	300
Sep'04-Oct'04	1.75	6.00	425
Nov'04	2.00	6.00	400
Dec'04-Jan'05	2.25	6.00	375
Feb'05	2.50	6.00	350
Mar'05-Apr'05	2.75	6.00	325
May'05	3.00	6.00	300
Jun'05-Jul'05	3.25	6.00	275
Aug'05	3.50	6.00	250
Sep'05-Oct'05	3.75	6.25	250
Nov'05	4.00	6.25	225
Dec'05	4.25	6.25	200
Jan'06-Feb'06	4.50	6.50	200
Mar'06-Apr'06	4.75	6.50	175
May'06	5.00	6.50	150
Jun'06-Aug'07	5.25	7.75	250
Sep'07	4.75	7.75	300

Oct'07-Nov'07	4.50	7.75	325
Dec'07	4.25	7.75	350
Jan'08-Feb'08	3.00	7.75	475
Mar'08	2.25	7.75	550
Apr'08-Sep'08	2.00	9.00	700
Oct'08-Nov'08	1.00	8.00	700
Dec'08-Nov'15	0.25	4.75-8	450-775
Dec'15-Nov'16	0.50	6.5-6.75	600-625
Dec'16-Feb'17	0.75	6.25	550
Mar'17-May'17	1.00	6.25	525
Jun'17-Nov'17	1.25	6-6.25	475-500
Dec'17-Feb'18	1.50	6.00	450
Mar'18-May'18	1.75	6.00	425
Jun'18-Aug'18	2.00	6.25-6.5	425-450
Sep'18-Nov'18	2.25	6.50	425
Dec'18-Jun'19	2.50	5.75-6.5	325-400
Jul'19-Aug'19	2.25	5.4-5.75	315-350
Sep'19	2.00	5.40	340
Oct'19-Feb'20	1.75	5.15	340
Mar'20-Feb'22	0.25	4-4.4	375-415
Mar'22-Apr'22	0.50	4.00	350
May'22	1.00	4.40	340
Jun'22	1.75	4.90	315
Jul'22	2.50	4.90	240

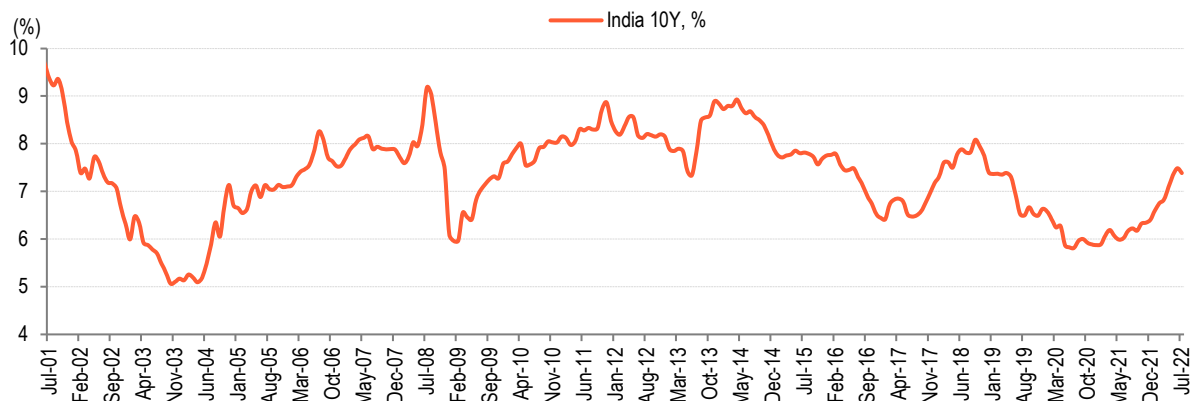
Source: Bloomberg, Bank of Baroda Research | Note: Monthly figures are end-period

Movement in 10Y yields

Figure 2 charts the movement in 10Y yield In India since 2001. It can be seen that from a peak of 9.38% in Jul'01, bond yields eased to a low of 5.07% in Oct'03. Thereafter, 10Y yield climbed up to ~9% in Jul'08, before falling sharply to 5.96% in Jan'09 amidst a sharp drop in global oil prices. In the period thereafter, 10Y yield continued to trade in the range of ~8% amidst elevated oil prices. There was a sharp drop in bond yields in the period thereafter amidst demonetization in India. After recovering in the succeeding period, bond yields once again dropped lower during the peak of the Covid-19 crisis. However, yields started inching up in CY22 amidst a combination of rising inflation, higher oil prices and central government's elevated borrowing program.

In Jul'22 yields have softened by around 10bps led by easing concerns on the inflationary front. Rising fears of a global recession have translated into lower commodity prices including for oil. Furthermore, government measures in form of excise duty cut etc. as also RBI intervention through repo rate hike are also expected to ease domestic price pressures.

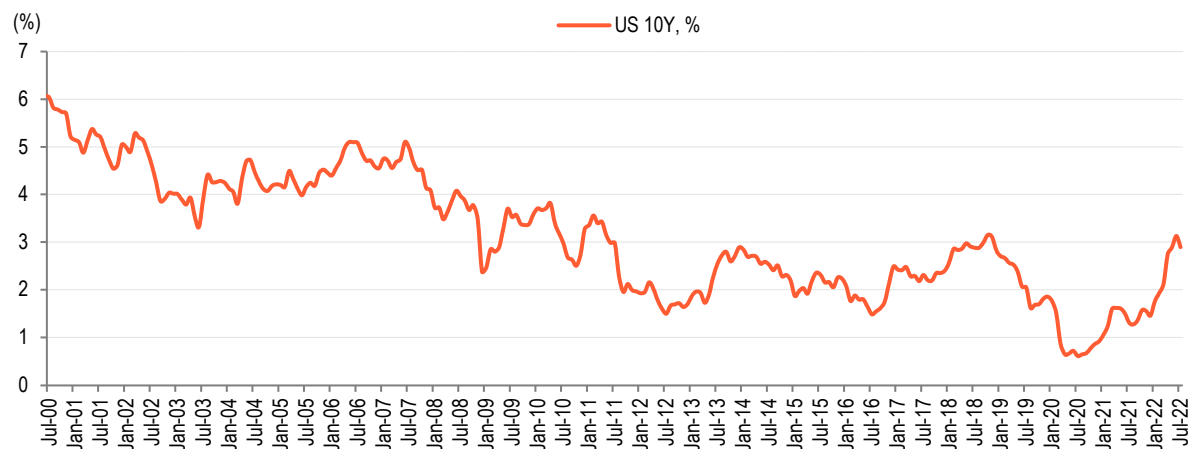
Figure 2: Movement in 10Y G-sec yields India



Source: Bloomberg, Bank of Baroda Research | Note: Data as of 28 Jul 2022

Even in the USA, 10Y bond yield fell to a record-low of 0.52% in Apr'20 during the Covid-19 crisis amidst growth concerns. However, hopes of a fast recovery from the pandemic drove US bond yields higher in CY21. In this period, US 10Y bond yield averaged about 1.43%. In CY22, inflationary concerns led to an increase in US bond yields. This was aggravated by the Russia-Ukraine war which drove global commodity prices higher, further exacerbating risks to the global inflation outlook. Expectations of aggressive Fed rate hikes has kept US treasury yields elevated, even breaching the 3% mark. More recently, higher risks of a recession has contributed to lower yields globally as well as the US. Further, investors now expect the Fed to be less hawkish than was earlier expected which is also weighing on treasury yields. In Jul'22 so far, US 10Y yield has fallen by 23bps.

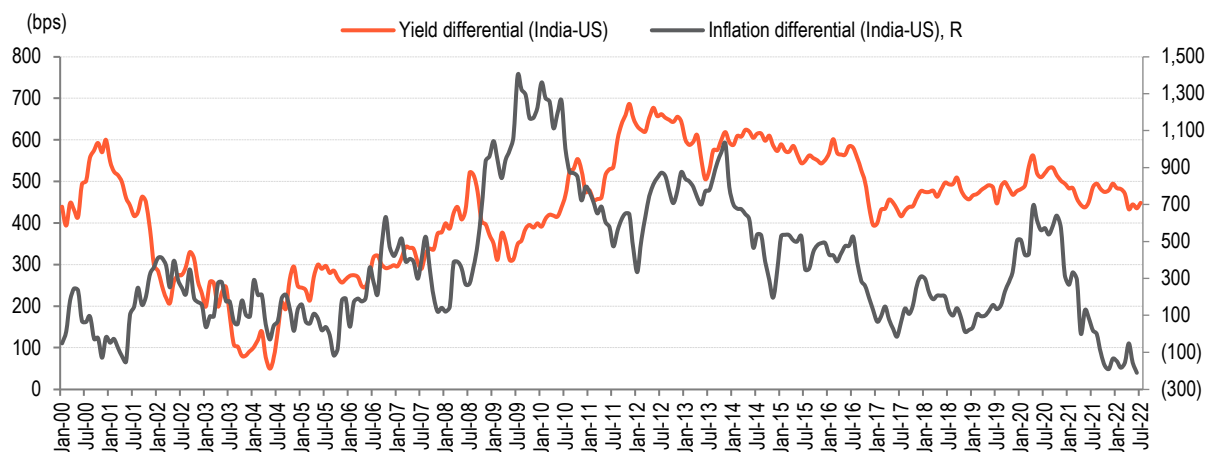
Figure 3: Movement in 10Y G-sec yields in US



Source: Bloomberg, Bank of Baroda Research | Note: Data as of 28 Jul 2022

After falling for most part of 2022, the difference between US and India's 10Y bond yield inched up in Jul'22. As discussed earlier, while India's 10Y yield has declined by 10bps, US 10Y yield has fallen by 23bps thus widening the rate differential. This could theoretically be because of difference in the relative inflation and growth dynamics in US and India which is determining the monetary policy actions in both the countries.

Figure 4: Yield and inflation differential between India and US



Source: Bloomberg, Bank of Baroda Research | Note: Data as of 28 Jul 2022

Reconciling inflation rate differential with interest rate differential

The chart above maps the differences in inflation in India and USA with the bond yield differential. There is probably limited a priori reason to believe that the two should be related as markets react to various bits of data and information and central bank policy measures vary depending on domestic conditions. Yet, some significant observations stand out:

- The interest rate differential was in the range of 160 bps and 285 bps during 2002-2006. In this period the inflation differential was 59-302 bps.
- There were distortions at the onset of the financial crisis till 2010 when the inflation rate differential was as high as 1118 bps in 2009.
- The level of interest rate differential however went up post 2011 till around 2016 when it was in the range of 500-650 bps. Inflation differential however, came down from a high of 836 bps in 2013 to 369 bps in 2016.
- After 2016, the interest rate differential was in the range of 430-520 bps while inflation rate differential was between 100-200 bps barring 2020 when it rose to 540 bps.
- From September 2021 onwards the inflation differential has been negative meaning thereby that it is higher in USA relative to India while the interest rate differential was around 470 bps.

From the past trends it does appear that notwithstanding the inflation differentials, the difference in interest rates would be in the region of 400-500 bps. This is something that can be expected to prevail in the future too. Significantly as observed from the graph, interest rate differential has been increasing over time and while inflation accounted for a large part of the differential prior to the financial crisis, the link has gotten severed subsequently especially after 2015.

Concluding remarks

Based on observed data on policy rate, interest rates and inflation, the following may be concluded.

- The difference between the Fed rate and repo rate has averaged 350-400 bps in the last two decades after leaving out the unusual data points.
- The ten year yield differential has been 400-500 bps in recent years irrespective of the inflation numbers.
- While theoretically inflation differential should get reflected in the interest yields, given that the bond market is driven by several other factors, inflation impact does not always play a significant part.

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