

# The Indian fixed income market

*It has been just over 12 months since the State Bank of India partnered with FTSE Russell to launch the FTSE SBI Bond Index Series as a measure of the performance of the Indian government bond market.*

*To mark the anniversary, this paper surveys the state of the Indian Rupee-denominated fixed income markets and considers the opportunities for foreign investors.*

With a population of 1.35 billion, India is expected to overtake China to become the world's most populous country by the end of the next decade.<sup>1</sup> Two thirds of the population are of working age. Although GDP per capita (at around US\$ 2,000) is lower than in many emerging economies, India has one of the fastest growing large economies and GDP is on course to rise by 7.3% in 2018-19.<sup>2</sup> The country has recently been recognized by the World Bank as one of the most improved in which to do business.<sup>3</sup>

India will soon be the most populous country in the world, with two thirds of the population of working age. GDP per capita is low, but the economy is growing rapidly.

The International Monetary Fund cites as an important factor in India's continued growth its increasing attractiveness to foreign investors, which is being achieved through reductions in bureaucracy and tariffs, higher standards of governance and greater financial sector reforms.<sup>4</sup>

## Overview of market reforms

Market liberalization began in earnest in 1991. The then Finance Minister Manmohan Singh launched a program of economic reforms which prompted steady flows into capital markets.<sup>5</sup> Bucking the global trend in the wake of the financial crisis, market growth was further boosted in 2009-2010 by several international surveys that had ranked India as one of the most attractive locations for businesses and investors.<sup>6</sup>

Since then, the domestic debt market size has grown at an average rate of more than 34% per year. Together with equities, this represents an annualized average growth rate of more than 24% (see Chart 1).<sup>7</sup>

<sup>1</sup> [http://www.un.org/en/development/desa/population/events/pdf/other/10/World\\_Population\\_Projections\\_Press\\_Release.pdf](http://www.un.org/en/development/desa/population/events/pdf/other/10/World_Population_Projections_Press_Release.pdf)

<sup>2</sup> <https://www.imf.org/en/News/Articles/2018/08/07/NA080818-India-Strong-Economy-Continues-to-Lead-Global-Growth>

<sup>3</sup> [http://www.worldbank.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report\\_web-version.pdf](http://www.worldbank.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf)

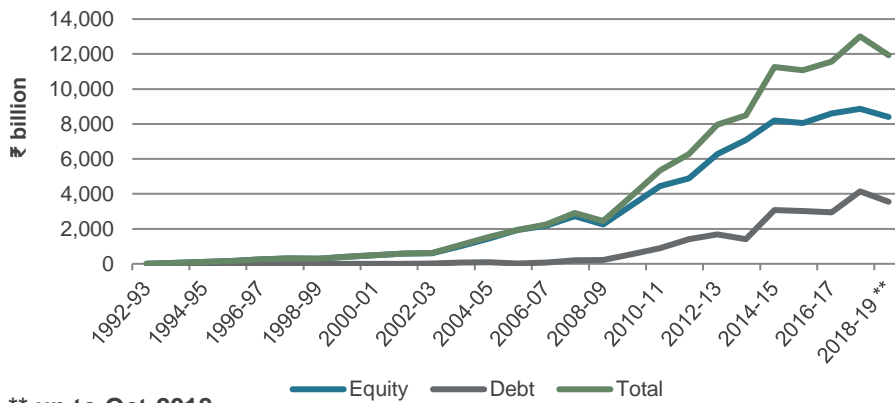
<sup>4</sup> <https://www.imf.org/en/News/Articles/2018/08/07/NA080818-India-Strong-Economy-Continues-to-Lead-Global-Growth>

<sup>5</sup> <https://www.economist.com/leaders/2011/07/21/one-more-push>

<sup>6</sup> [https://unctad.org/en/Docs/diaeia20098\\_en.pdf](https://unctad.org/en/Docs/diaeia20098_en.pdf) , [https://unctad.org/en/Docs/diaeia20104\\_en.pdf](https://unctad.org/en/Docs/diaeia20104_en.pdf)

<sup>7</sup> <https://www.fpi.nsdl.co.in/web/Reports/Yearwise.aspx?RptType=5>

**Chart 1. The growth in Indian capital markets**

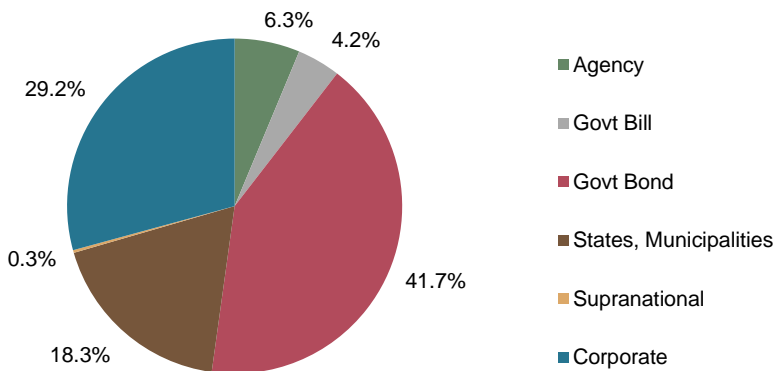


\*\* up to Oct-2018

Source: National Securities Depository Ltd. as of October 2018.

What does this mean today for international investors who may be looking for opportunities to invest in a rising economy? Choices for international investors to invest in India’s fixed income market remain limited but are increasing as restrictions fall. Chart 2 shows the major Indian Rupee (INR) bond markets and their relative sizes, which foreign investors may consider.

**Chart 2. Indian rupee fixed income market breakdown by issuance**



Total Market Value = ₹ 135.6 tn, ~ US\$1.9 tn

Source: Refinitiv as of January 2019.

## The government securities market

India’s central bank, the Reserve Bank of India (RBI), is responsible for issuing almost half of the outstanding INR-denominated debt. Short-term discount bills account for INR 5.7 trillion (c. USD 80 billion) of this, while longer-term, fixed-rate government bonds, at INR 56.6 trillion (c. USD 804 billion), constitute by far the largest market sector.<sup>8</sup> This part of the market is tracked by the FTSE SBI Bond Index, which was launched in 2017 as a product of a partnership formed by

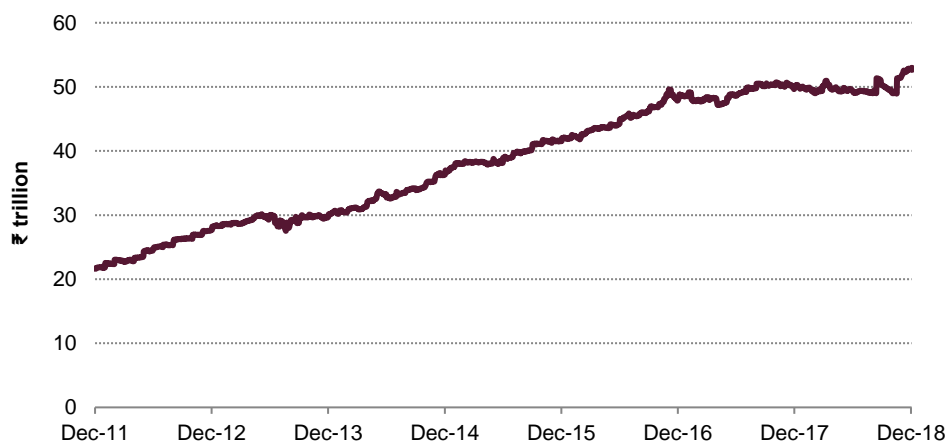
Foreign investment inflows play an important role in India’s economic growth. To simplify compliance requirements and provide uniformity in guidelines foreign, investors have been classified as a single investor class termed “Foreign Portfolio Investors” (FPIs).

Government securities, or G-SECS, constitute the largest segment of the Indian fixed income market; restrictions on foreign investors’ holdings of both bills and bonds were lifted in September 2018.

<sup>8</sup> Refinitiv as of January 2019

FTSE Russell and the State Bank of India. The 60% government-owned SBI is India's largest bank with over 18,000 branches throughout the country.<sup>9</sup> Restricted to issues with a minimum outstanding face value of INR 50 billion (USD 711 million), the index comprises 70 bonds maturities between one year and a current high of 27 years, and a total value of INR 52.8 trillion (USD 750 billion) as of January 2019. However, 41 smaller fixed-rate bonds with a combined value of INR 6 trillion (USD 8 billion) and a single inflation-linked bond are not included in the index.

**Chart 3. Growth in market value of the FTSE SBI Government Bond Index**



Index market value, at end of:

	INR bn	Annual Change	As %
Dec-18	52,642	2,419	4.8%
Dec-17	50,223	1,736	3.6%
Dec-16	48,487	6,928	16.7%
Dec-15	41,558	5,210	14.3%
Dec-14	36,348	6,588	22.1%
Dec-13	29,760	2,062	7.4%
Dec-12	27,698	6,061	28.0%
Dec-11	21,637		

Source: FTSE Russell, January 2019.

Since its inception at the end of December 2011, the size of the FTSE SBI Government Bond Index has more than doubled, before levelling off through much of 2017 and 2018.

Aggregate limits on foreign ownership of Indian government bonds have been stringent with foreign investors being allowed to own a maximum of 6% of outstanding government debt. However, the Reserve Bank of India has been progressively relaxing restrictions.<sup>10</sup> Prior to May 1, 2018, it was forbidden for foreign investors to purchase government securities with a remaining maturity of less than three years.<sup>11</sup> That restriction has now been lifted and the entire government bill market (previously off-limits) is now accessible. The new rules stipulate that:

- at most, 20% of a portfolio can be invested in government securities with a maturity of less than one year;
- no single security can account for more than 30% of a portfolio's value;
- the 5% withholding tax on coupon payments from government securities has been reduced to zero until at least March 2019.<sup>12</sup>

<sup>9</sup> [https://en.wikipedia.org/wiki/State\\_Bank\\_of\\_India](https://en.wikipedia.org/wiki/State_Bank_of_India)

<sup>10</sup> [https://www.rbi.org.in/scripts/FS\\_Notification.aspx?Id=11241&fn=6&Mode=0](https://www.rbi.org.in/scripts/FS_Notification.aspx?Id=11241&fn=6&Mode=0)

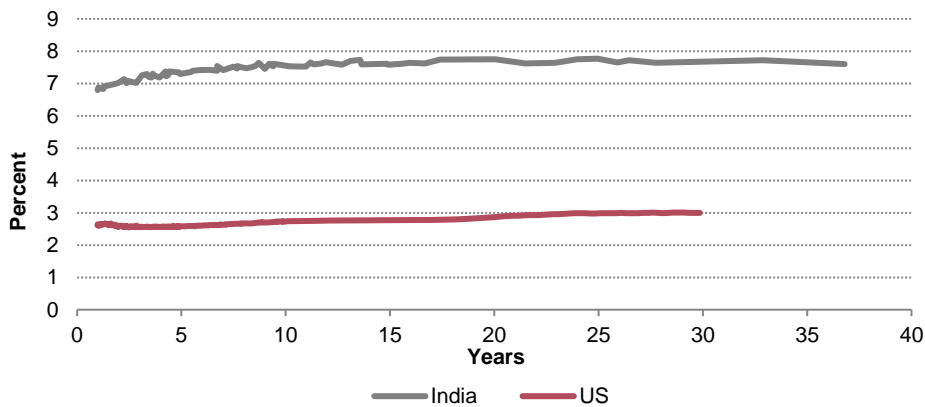
<sup>11</sup> <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/tax/Regulatory%20Alert/in-tax-regulatory-alert-revised-framework-fpi-investments-bonds-noexp.pdf>

<sup>12</sup> <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/tax/Regulatory%20Alert/in-tax-regulatory-alert-revised-framework-fpi-investments-bonds-noexp.pdf>

In addition, since 2014 overseas investors have been allowed to hedge out the currency risk of INR on domestic exchanges. Alternatively, there are offshore exchanges which trade liquid non-deliverable forwards (NDFs) in INR.<sup>13</sup> The cost is roughly the difference in short-term interest rates: for example, hedging the currency risk for one year would subtract about 4.2% in yield for a US dollar-based investor.

The Indian and US government yield curves are similarly flat, so opportunities for increasing the yield differential, at least in government bond space, are currently limited as a result.

**Chart 4. Indian and US government yield curves**



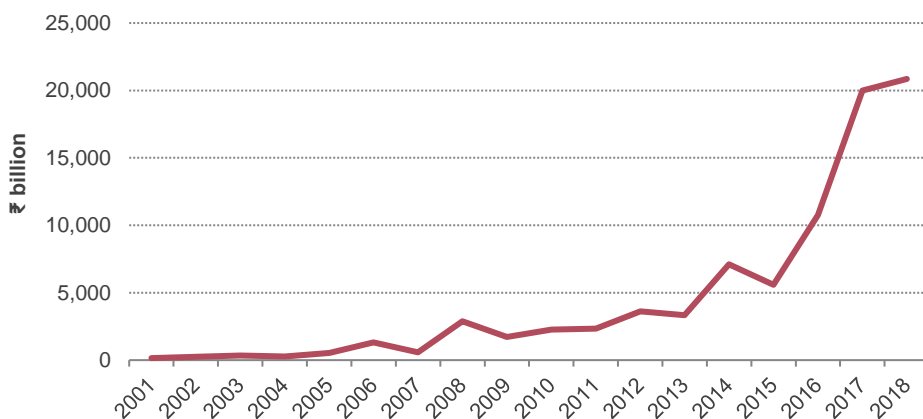
Source: FTSE Russell as of January 2019.

One-year Indian government yields are about 4.2% higher than 1-year US yields as at early January 2019. This gap has in recent weeks persisted along the curve, meaning there has been little to no pick-up in yield for a US-based investor switching from US Treasuries to currency-hedged Indian government bonds of similar maturity.

## The corporate bond market

The next largest section of the rupee-denominated debt market is the corporate bond market, which has grown substantially in recent years (Chart 5).

**Chart 5. The growth in the size of the corporate bond market since 2001**



Source: Refinitiv, September 2018.

This market is very different from that of government-issued debt. The corporate bond market consists of over 12,000 bonds, of which some 9,300 have a maturity above one year and an average amount outstanding of INR 3.7 billion (USD 53

Government backing for the use of corporate bonds as a means of Indian companies raising capital is expected to see the market expand further in the next few years.

<sup>13</sup> <https://www.livemint.com/Money/FBOXJIZNO1I2SAiPYfBDDO/RBI-allows-foreign-investors-to-hedge-currency-risk.html>

million). In comparison, the FTSE SBI Government Bond Index contains 70 bonds, with an average amount outstanding of just over INR 720 billion (USD 10.3 billion) per bond.

The median issue amount of the corporate bond market is about INR 500 million (USD 7.1 million). It is dominated by issuers from the financial services industry, which accounts for close to 75% of the market by value. Moreover, the majority – all but around 400 of the 9,300 – are privately placed.<sup>14</sup> Consequently, the prospect of a broad foray into the Indian corporate bond market has been somewhat unappealing for a foreign investor given the current make-up and concentration of the corporate bond market.

In addition, the RBI has placed restrictions on foreign holdings of corporate bonds, although as with the government market, these have relaxed over time. Regulations enacted at the beginning of May 2018 stated that:

- bonds must have a minimum maturity of one year at purchase;
- bonds held below one-year maturity must make up less than 20% of the corporate bond portfolio;
- no single security should make up more than 20% of the portfolio;
- investors are not allowed to hold more than 50% of any issue.<sup>15</sup>

However, these lower barriers were removed completely by the RBI in September 2018 in a bid to counteract the effects of several negative factors impacting the Indian economy.<sup>16</sup>

## Default and rating agencies

During 2018, the INR has fallen dramatically as a result of a stronger US dollar and fears of the knock-on effect of higher oil prices on the economy. India imports 80% of its oil, and domestic taxes are high at almost 100% on petrol and 60-70% on diesel.<sup>17</sup> In the year to the start of October, the rupee fell by almost 14% against the dollar, while India's Real Effective Exchange Rate, as published by the RBI, fell by 8.7% in the year to the end of September.<sup>18</sup>

There was further turbulence in financial markets in September 2018 triggered by the default of the Infrastructure Lending & Financial Services group (IL&FS), one of India's largest infrastructure financing and operation conglomerates. And all the above occurred against a backdrop of generally nervous emerging markets due to fears of contagion from upheavals in Turkey and Argentina. The collapse of IL&FS has not reflected well on some of India's domestic credit rating agencies.

There are currently six agencies registered with the country's financial regulator SEBI (the Securities and Exchange Board of India). These are CRISIL, ICRA, CARE, India Ratings and Research, Brickwork Ratings and SMERA. CRISIL is majority-owned by Standard & Poor's, ICRA by Moody's, while India Ratings is a wholly-owned subsidiary of Fitch Group. CARE and Brickwork are independent agencies, as is SMERA, which focuses exclusively on rating micro, small and

The Indian corporate bond market is smaller than the government market but consists of considerably more bonds. Issue sizes are therefore generally much smaller, and liquidity is further impacted by most issues being privately placed.

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<sup>14</sup> Refinitiv, as of January 2019

<sup>15</sup> <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/tax/Regulatory%20Alert/in-tax-regulatory-alert-revised-framework-fpi-investments-bonds-noexp.pdf>

<sup>16</sup> <https://economictimes.indiatimes.com/markets/stocks/news/how-governments-5-cad-fixes-will-impact-markets/articleshow/65814757.cms>

<sup>17</sup> <https://www.bloomberg.com/opinion/articles/2018-09-10/the-rupee-is-one-of-asia-s-worst-performing-currencies-this-year>

<sup>18</sup> [https://www.rbi.org.in/scripts/BS\\_ViewBulletin.aspx?Id=17862](https://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=17862)

medium-sized enterprises. Despite a sharply increased debt burden IL&FS was rated as AAA by CARE, ICRA and India Ratings at least until August 2018.<sup>19</sup>

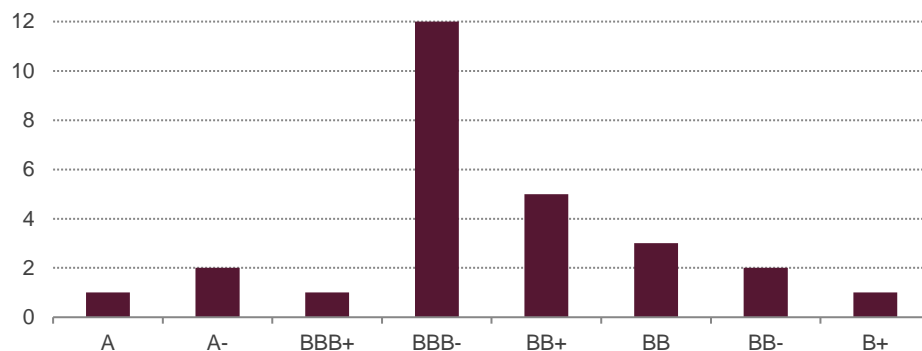
Concerns over the state of the country's banks and the extent of their non-performing loans led India's Finance Minister to announce in his 2018 February Union Budget Speech that greater use should be made of the domestic bond market by firms seeking capital. As a result, SEBI has asked listed companies with outstanding borrowings of over INR 1 billion and a domestic rating of AA or above to raise a minimum of 25% of their borrowing needs after April 2019 via the corporate bond market.<sup>20</sup> According to the rating agency CRISIL, this could amount to INR 400 - 500 billion (about USD 5.5 - 7 billion) of additional corporate bond issuance over the next five years.<sup>21</sup> Even prior to this announcement there was a burgeoning trend of firms preferring to raise capital through bond issuance rather than bank loans. Issuance has grown from just INR 15 million in 2001 to almost INR 21 billion in the first nine months of 2018.<sup>22</sup>

The long-term sovereign rating of India is Baa2/BBB-/BBB- according to Moody's, Standard & Poor's and Fitch respectively. The rating has been remarkably stable in recent years. Moody's upgrade of India from Baa3 to Baa2 in November 2017 was the first change from any of the three agencies since 2007.<sup>23 24</sup>

Given this "ceiling" it is not surprising that there are very few primarily Indian corporations which have a higher rating. Of the 27 firms rated by Standard & Poor's, only Tata Consultancy Services, Infosys, Wipro and Reliance Industries have ratings above that of India. Apart from Reliance, none of these has yet raised capital through the domestic bond market.<sup>25</sup>

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**Chart 6. Number of Indian issuers by credit rating**



Source: S&P Global Market Intelligence as at October 2018.

In a sign that non-corporate entities may also be looking towards raising more funds through debt markets, Kerala has become the first of India's twenty-nine states to be publicly rated, being assigned a BB rating by Standard & Poor's in September 2018.<sup>26</sup>

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<sup>19</sup> <https://www.livemint.com/Companies/kDBrz7DB4Ti4Pz2TdxG85N/How-credit-rating-agencies-missed-the-ILFS-crisis.html>

<sup>20</sup> [https://www.sebi.gov.in/reports/reports/jul-2018/consultation-paper-for-designing-a-framework-for-enhanced-market-borrowings-by-large-corporates\\_39641.html](https://www.sebi.gov.in/reports/reports/jul-2018/consultation-paper-for-designing-a-framework-for-enhanced-market-borrowings-by-large-corporates_39641.html)

<sup>21</sup> <https://www.crisil.com/en/home/newsroom/>

[press-releases/2018/09/rs-40000-50000-crore-additional-corporate-bond-issuances-likely-over-the-next-five-fiscals-after-SEBI-move.html](https://www.crisil.com/en/home/newsroom/press-releases/2018/09/rs-40000-50000-crore-additional-corporate-bond-issuances-likely-over-the-next-five-fiscals-after-SEBI-move.html)

<sup>22</sup> Refinitiv, as of November 2018

<sup>23</sup> <https://www.reuters.com/article/us-india-ratings-s-p/sp-affirms-indias-rating-at-bbb-minus-with-stable-outlook-idUSKBN1DO1DE>

<sup>24</sup> [https://www.business-standard.com/article/current-affairs/fitch-refuses-to-upgrade-india-s-credit-ratings-for-the-12th-year-in-a-row-118042700783\\_1.html](https://www.business-standard.com/article/current-affairs/fitch-refuses-to-upgrade-india-s-credit-ratings-for-the-12th-year-in-a-row-118042700783_1.html)

<sup>25</sup> Moody's, Standard & Poor's and Refinitiv, as of November 2018

<sup>26</sup> <https://timesofindia.indiatimes.com/city/kochi/sp-assigns-bb-rating-to-kerala/articleshow/65879923.cms>

## Non-corporate credit markets

Do bonds issued by states, territories, municipalities, agencies and supranationals offer an alternative to investing in pure sovereign issues, with fewer accessibility hurdles than the corporate bond market?

The total size of this market is about INR 34 trillion (c. USD 479 billion) comprising some 3,700 securities. 3,300 bonds of these bonds, totaling some INR 30 trillion, are issues with more than a year to maturity. Of these, the median issue size is INR 6.6 billion (c. USD 94 million). As of January 2019, only five issues have an amount outstanding of INR 100 billion or more (c. USD 1.4 billion).<sup>27</sup> Consequently, given the small size of the securities, it is unlikely that foreign investors will regard non-corporate credits as a significantly richer and more practical source of alpha-generation opportunities than corporate bonds.

Lastly, Masala bonds are denominated in Indian rupees but issued outside of the domestic Indian market. Since their launch in 2013, they have grown in popularity, so much so that the SEBI temporarily suspended their issuance by domestic issuers in 2017 as foreign holdings of INR debt had exceeded 92% of their threshold of INR 2.4 trillion.<sup>28</sup> This restriction has now been lifted in further efforts to strengthen the currency.<sup>29</sup>

As with the corporate bond market issues by states, provinces, municipalities and domestic and foreign agencies are generally of small size.

**Chart 7. Debt issuance by Indian States**

State	Outstanding	No. of issues	Ave size
Maharashtra	2,587,004,970	137	18,883,248
Tamil Nadu	2,494,557,980	173	14,419,410
West Bengal	2,372,087,250	158	15,013,210
Uttar Pradesh	2,178,823,200	143	15,236,526
Andhra Pradesh	1,963,095,080	168	11,685,090
Gujarat	1,709,782,200	140	12,212,730
Karnataka	1,388,687,600	173	8,027,096
Rajasthan	1,468,662,700	86	17,077,473
Kerala	1,274,911,600	126	10,118,346
Haryana	1,090,076,552	116	9,397,212
Punjab	1,034,860,100	178	5,813,821
Madhya Pradesh	970,310,900	71	13,666,351
Telangana	874,809,500	73	11,983,692
Bihar	746,454,200	56	13,329,539
Jharkhand	346,441,300	57	6,077,918
Uttarakhand	315,348,600	72	4,379,842
Jammu & Kashmir	339,662,100	80	4,245,776
Chhattisgarh	289,154,000	45	6,425,644
Assam	289,038,200	40	7,225,955
Orrisa	305,699,900	36	8,491,664
Himanchal Pradesh	235,091,000	62	3,791,790
Goa	124,010,000	77	1,610,519
Nagaland	80,547,300	56	1,438,345
Pondicherry	64,049,400	39	1,642,292
Tripura	57,808,300	34	1,700,244
Meghalaya	53,854,300	62	868,618
Manipur	43,572,200	39	1,117,236
Sikkim	40,510,100	29	1,396,900
Arunachal Pradesh	36,346,000	23	1,580,261
Mizoram	22,882,700	33	693,415

Source: Refinitiv as of January 2019.

<sup>27</sup> Refinitiv, as of January 2019

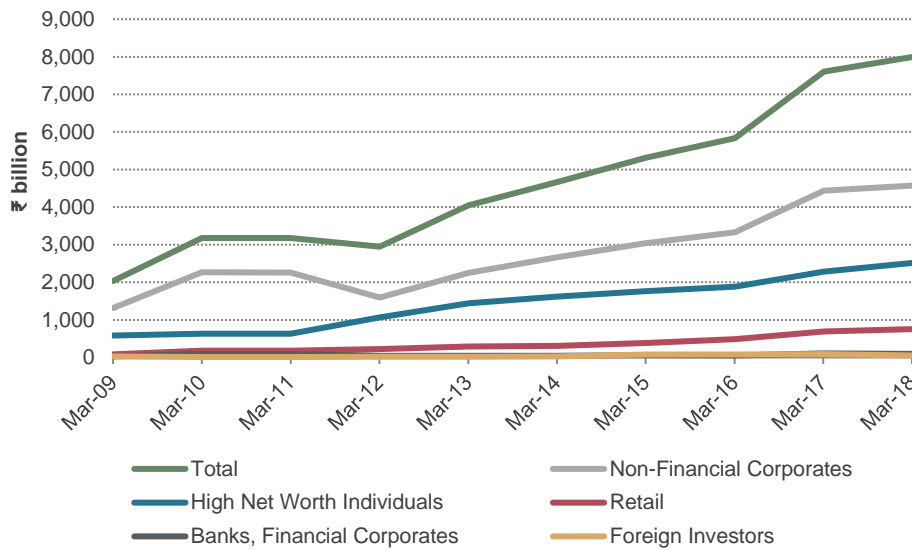
<sup>28</sup> <https://www.ft.com/content/596c9406-6e25-11e7-bfeb-33fe0c5b7eaa>

<sup>29</sup> <https://economictimes.indiatimes.com/markets/stocks/news/bankers-do-not-see-quick-relief-from-withholding-tax-cut-on-masala-bonds/articleshow/65850315.cms>

## The growth in mutual funds

The use of mutual funds as a vehicle to provide ready access to a diverse portfolio of Indian debt has grown steadily in recent years, although not among foreign investors.

**Chart 8. Growth in mutual funds' domestic debt holdings by investor type**



Mutual funds' holdings in INR debt securities have grown rapidly in size in recent years, but almost exclusively through domestic investments.

Source: Association of Mutual Funds in India as at October 2018.

The investor community is formed almost entirely of domestic banks and other corporations, so-called "high net worth" individuals, each investing at least half-a-million rupees, and other retail clients. Of the 8 trillion rupees-worth of assets under management as of March 2018, less than 1% was held on behalf of foreign investors.<sup>30</sup>

## Conclusion

Except for government-issued securities, there are significant obstacles for foreign investors hoping to invest in a diverse and liquid portfolio of domestic Indian securities. However, the auspices are positive as barriers to market-entry fall. There is a clear trend to the Indian authorities wishing to attract greater foreign investment, although the pace of this process stutters according to the prevailing economic winds.

The implementation and revision of limits on foreign investment that occurred in 2018 are not suggestive of a measured progression, and continued uncertainty around regulations could dampen investors' enthusiasm in the near term.

<sup>30</sup> Association of Mutual Funds in India, as of October 2018



## FTSE SBI Government Bond Index

Chart 9. Index characteristics, December 2018

Attributes	ALL	1 – 3Y	3 – 5Y	5 – 7Y	7 – 10Y	10 – 20Y	10Y+	20Y+
Number of Constituents	70	12	13	6	13	16	26	10
MCap (INR bln)	52,792	6,593	8,006	4,919	10,253	14,798	23,021	8,223
Yield %	7.55	6.97	7.27	7.42	7.49	7.62	7.64	7.67
Modified Duration	6.25	1.59	3.33	4.64	5.89	8.07	9.11	10.96
Convexity	69.83	3.71	14.00	27.15	44.74	91.57	128.47	194.87
Ave. Maturity	10.83	1.76	3.99	6.01	8.19	13.44	18.04	26.49
Coupon %	7.89	8.02	7.79	8.09	7.77	7.78	7.89	8.08
Maturity Band Weight %								
1-3Y	12.46	99.71	0.00	0.00	0.00	0.00	0.00	0.00
3-5Y	15.13	0.00	100.00	0.00	0.00	0.00	0.00	0.00
5-7Y	9.29	0.00	0.00	100.00	0.00	0.00	0.00	0.00
7-10Y	19.37	0.00	0.00	0.00	99.31	0.00	0.00	0.00
10-20Y	27.96	0.00	0.00	0.00	0.00	100.00	64.18	0.00
20Y+	15.54	0.00	0.00	0.00	0.00	0.00	35.66	99.55
Cash	0.25	0.29	0.00	0.00	0.69	0.00	0.16	0.45
Weight of Largest Constituent (%)	2.35	13.29	12.26	20.47	12.06	7.60	4.88	13.49
Top 10 Holdings (% Index MCap)	20.47	97.92	95.39	100.00	95.28	67.36	44.69	99.55

Source: FTSE Russell as at close 9<sup>th</sup> January 2019.

## Indian Bonds in FTSE Global Bond Indexes

Besides the FTSE SBI Government Bond Index, Indian bonds are included in the following FTSE Global Bond Indexes:

Index Name	Weight in Index	Joined
FTSE WGBI Additional Markets Index	18.5%	April 2012
FTSE Asian Government Extended Bond Index	22.1%	April 2012
FTSE EMGBI Additional Markets Index	98.4%	July 2013
FTSE Asian Broad Bond Index	2.9%	October 2008

## Indian numbers

Indian Name	Indian Figure	Power notation	International Figure	Western Name
One (Ek)	1	10-0	1	One
Ten (Dus)	10	10-1	10	Ten
One Hundred (Sau)	100	10-2	100	One Hundred
One Thousand (Ek Hazaar)	1000	10-3	1000	One Thousand
Ten Thousand (Dus Hazaar)	10,000	10-4	10,000	Ten Thousand
One Lakh also One Lac (Ek Lakh)	1,00,000	10-5	100,000	Hundred Thousand
Ten Lakh (Dus Lakh)	10,00,000	10-6	1,000,000	One Million
One Crore (Ek Crore)	1,00,00,000	10-7	10,000,000	Ten Million
Ten Crore (Dus Crore)	10,00,00,000	10-8	100,000,000	Hundred Million
One Arab/Hundred Crore	1,00,00,00,000	10-9	1,000,000,000	One Billion
Ten Arab/Thousand Crore	10,00,00,00,000	10-10	10,000,000,000	Ten Billion
One Kharab/Ten Thousand Crore	1,00,00,00,00,000	10-11	100,000,000,000	Hundred Billion
Ten Kharab/Lakh Crore/Hundred Thousand Crore	10,00,00,00,00,000	10-12	1,000,000,000,000	One Trillion
One Neel/Ten Lakh Crore	1,00,00,00,00,00,000	10-13	10,000,000,000,000	Ten Trillion
Ten Neel/Hundred Lakh Crore	10,00,00,00,00,00,000	10-14	100,000,000,000,000	Hundred Trillion
One Padma	1,00,00,00,00,00,00,000	10-15	1,000,000,000,000,000	One Quadrillion
Ten Padma	10,00,00,00,00,00,00,000	10-16	10,000,000,000,000,000	Ten Quadrillion
One Shankh (Shan pronounced as in Shunt)	1,00,00,00,00,00,00,00,000	10-17	100,000,000,000,000,000	Hundred Quadrillion
Ten Shankh	10,00,00,00,00,00,00,00,000	10-18	1,000,000,000,000,000,000	One Quintillion

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