# Deepening of the Government Bond Market

Subhash Karmakar*

## Introduction

India is one of the emerging economies in the world with an ever-growing Bond Market. The size of the Bond Market as on December 2022 stood around $1.8 trillion out of which the size of Government Securities market was around $1.2 trillion and $0.6 trillion as Corporate Bond Market.

If we recall the events of Global Financial Crisis 2008 and COVID-19 period, the Indian Economy has been resilient. The Bond Market in India is dominated by Government Securities and Corporate Bonds.

Deeper bond markets may help in infrastructure growth, accelerate economic growth and help in the upliftment of millions from poverty.

The Reserve Bank of India (RBI) has defined "Government Security" (G-sec) as security created and issued by the Government for the purpose of raising a public loan or any other purpose as notified by the Government in the Official Gazette and having one of the following forms.

a) a Government Promissory Note (GPN) payable to or to the order of a certain person; or

b) a bearer bond payable to a bearer; or

c) a stock; or

d) a bond held in a Bond Ledger Account (BLA).

The bond market, particularly, the Government Bond Market has been expanding due to the fact that Financial Institutions in India have to maintain certain amount of Government Securities as per their statutory requirements. The Government Bond Market is mainly monitored by the Government Securities Act, 2006 and Government Securities Regulations 2007 and the Government Securities are mainly regulated through RBI. Investors are attracted towards G-Sec due to their safety, good return and liquidity.

The Corporate Bonds, on the other hand, are debt obligations, where the investors are investing in Company which is issuing the bond. The Company in turn pays interest at stated rates.

The Government, SEBI and RBI has been active to increase the Corporate Bond market in India.

The Government Bond market is increasing its volume since the last ten years and if we take a closer look there is 13.60% Compound Annual Growth Rate (CAGR) in the bond market in India. The importance of G-Sec also lies in the fact that domestic debt market accounts for about 74% of the GDP.

As per data released by Clearing Corporation of India, the outstanding Government securities stands at Rs.133.786 lakh crores as on March 2022.

So, from the data and facts it is evident that the role of Government bonds has been important for the overall growth of the economy and in near future, they are going to be very vital depending upon the attractive returns.

In this paper, we shall discuss the importance of Government Bonds, their relationship with growth of the economy as well as their maturity and ownership pattern, so that the bond market growth characteristics are captured. Section 2 deals with the Government Bonds, their maturity patterns and Yield at various maturities, Section 3 discusses the

*Senior Manager and Faculty, Bank of India.

Stability of Bond Yields and its importance, Section 4 deals with the role of Bonds in growth of GDP and changes in their ownership pattern over the last 5 years and Section 5 is Conclusion.

## Government Bonds in India

Bonds are the instruments through which investors invest their money by providing loan to an enterprise for a definite period with a definite interest rate.

According to Reserve Bank of India "A Government Security (G-Sec) is a tradeable instrument issued by the Central Government or the State Governments. It acknowledges the Government's debt obligation. Such securities are short-term (usually called treasury bills, with original maturity of less than one year) or long-term (usually called Government bonds or dated securities with original maturity of one year or more). In India, the Central Government issues both, treasury bills and bonds or dated securities while the State Governments issue only bonds or dated securities, which are called the State Development Loans (SDLs). G-Secs carry, practically, no risk of default and hence, are called risk-free gilt-edged instruments."[1]

In order to meet the temporary liquidity mismatch, Government of India issues Treasury Bills (T-Bills) which are having a maturity of less than 365 days, generally, maturity of 91 days, 182 days and 364 days. The T-Bills do not carry any interest rate but are issued at a discount.

But, on long-term basis, Government issues bonds or Government Securities which are having a maturity period of 5-40 years and they are carrying fixed or floating interest rates which are paid half-yearly.

The various types of bonds issued in India (As per Reserve Bank of India) are:

a) Fixed Rate Bonds: Bonds which carries a fixed rate of interest till maturity of the Bond.

b) Floating Rate Bonds: They are those bonds which do not have a fixed coupon rate or interest rate.

c) Capital Indexed Bonds: These bonds are related to the inflation index in order to protect against inflation.

d) Inflation Indexed Bonds: These are the bonds where the principal amount is protected against inflation.

e) Bonds with Call/Put Option: These are the bonds where the issuer of the Bonds can call back the bonds or the investor has the option to transfer the bonds to issuer.

f) Recapitalisation Bonds: The Government of India has issued recapitalisation bonds for some specific Public Sector Banks in 2018.

g) Sovereign Gold Bonds: These are paperless gold bonds issued by Government of India at specific intervals where face value depends on the gold rates and redemption is done after certain period at the gold rate prevailing at that time. Interest is also being paid on the face value of the bond.

The major players in the Government Bond market includes the Commercial banks including Nationalised Banks, Insurance companies and the Primary dealers. Other participants include co-operative banks, regional rural banks, mutual funds, provident and pension funds. Foreign Portfolio Investors (FPIs) are allowed to participate in the G-Secs market within the quantitative limits prescribed from time to time. Corporates also buy/sell the G-Secs to manage their overall portfolio.

According to the latest report "India's central bank plans to allow lending and borrowing of Government bonds as it seeks to deepen the nation's $1 trillion debt market and this will provide alternate avenues for the investors.''[2]

From the table 1, the Yield growth of the Indian Government Bond Market is evident.

From the table 1, the yield has only dropped during the COVID-19 period around 31.12.2020.

[1] https://www.rbi.org.in/commonman/English/scripts/faqs.aspx?id=711#1
[2] Source: Bloomberg, February 8, 2023.

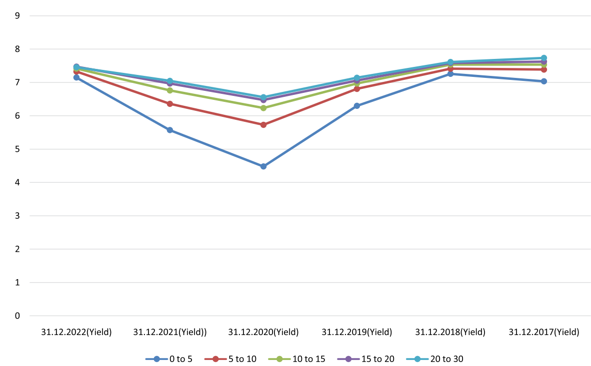
**Table 1: Yield (%) of Various Bonds at Different Maturity Periods across Years**

| Maturity Profile(In Years) | 31.12.2022(Yield) | 31.12.2021(Yield) | 31.12.2020(Yield) | 31.12.2019(Yield) | 31.12.2018(Yield) | 31.12.2017(Yield) |
|---|---|---|---|---|---|---|
| 0 to 5 | 7.1492 | 5.57 | 4.4797 | 6.2989 | 7.2581 | 7.0342 |
| 5 to 10 | 7.327 | 6.36 | 5.7309 | 6.8066 | 7.413 | 7.3888 |
| 10 to 15 | 7.4176 | 6.76 | 6.2337 | 6.9671 | 7.5344 | 7.5334 |
| 15 to 20 | 7.4736 | 6.97 | 6.4737 | 7.0573 | 7.584 | 7.6273 |
| 20 to 30 | 7.4584 | 7.05 | 6.5587 | 7.1418 | 7.6125 | 7.7371 |

*Source: Clearing Corporation of India Limited (CCIL)*

It is also observed that the yields are higher at higher maturity levels (Beyond 10 years) thus, complementing the fact that outstanding securities are higher at maturity levels of more than 10 years. The details can be depicted in the following graph.

**Figure 1: Yield Chart at Various Periods**




The yield on the Indian 10-year Government bond rose to 7.36%, in February 2022, after inflation in India accelerated more than expected in January, while the Reserve Bank of India raised interest rates by the expected 25bps to 6.5% and maintained a hawkish stance leaving the door open for further increase. Market participants had mostly bet on a final borrowing costs hike in the current tightening cycle. The central bank also kept its stance unchanged on the withdrawal of accommodation and said it would allow banks to borrow and lend Government bonds to increase liquidity in the market. Early in the month, the Government presented its Union Budget for the 2023-24 financial year, setting borrowing at INR 15.43 trillion, below broad estimates of INR 16 trillion.[3]

**So, it is important to set a benchmark for pricing of assets and the Government Bond Market with liquid securities can provide such a Benchmark pricing so that hedging against the interest risk may be done.**

Considering the yield of various countries related to bonds of 10-Year maturity, it is also observed that the Yield in India has been higher as compared to other countries, making it one of the attractive investing options. In the following table, the Yields of 10-year maturity of various countries have been depicted.

**Table 2: 10-Year Maturity Bond Yields of Different Countries as on December 2022**

| Country | Yield (in %) | YoY growth (in %) |
|---|---|---|
| Brazil | 13.36 | 2.17 |
| Russia | 11.02 | 1.39 |
| Turkey | 10.99 | -9.92 |
| South Africa | 9.98 | 0.88 |
| Mexico | 9.00 | 1.22 |
| India | 7.35 | 0.67 |
| New Zealand | 4.37 | 1.55 |
| Italy | 4.32 | 2.41 |
| Greece | 4.24 | 1.58 |
| United States | 3.78 | 1.81 |
| Australia | 3.76 | 1.60 |
| Spain | 3.52 | 2.23 |
| United Kingdom | 3.49 | 1.96 |
| South Korea | 3.44 | 0.73 |
| Portugal | 3.37 | 2.22 |
| Canada | 3.26 | 1.30 |
| France | 2.94 | 2.19 |
| Netherlands | 2.76 | 2.32 |
| Germany | 2.46 | 2.23 |
| Switzerland | 1.39 | 1.08 |
| Japan | 0.50 | 0.28 |

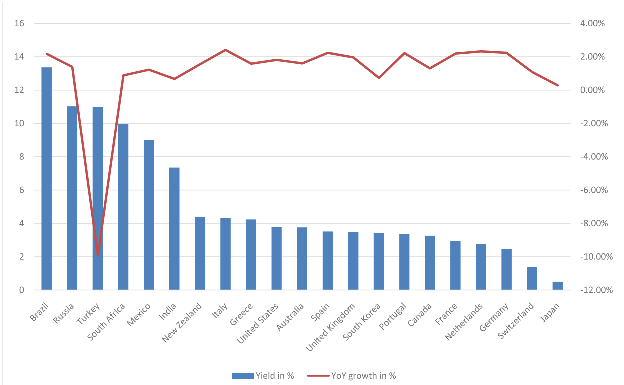
*Source: Trading Economics*

3 Source: https://tradingeconomics.com/india/government-bond-yield

From the table 2, it is seen that India is having a moderate as well as attractive yield as compared to other countries.

The results can be depicted in the following graph.

**Figure 2: Yields of 10 years Maturity bonds of Different Countries**



From the above facts, it is observed that the yields are more or less moderate as well as no negative growth is observed in yearly perspective.

In the coming sections, we shall find out the stability of the bond yields in India.

## Stability of Bond Yields and Its importance

From the above sections, it has been clear that the Government Bonds are going to play a vital role in the development of the economy.

But, in order to gain insights, first of all we shall look into the Bond yields of 10-year maturity. In order to do this, we analyse the data for the period of 2006-2022.[4]

Accordingly, in order to find the stability of the bond yields, we again classify the data in to the following periods:

a) The Global Financial Crisis period: January 2008-December 2008

b) The COVID-19 period: January 2020-December 2020

c) The overall period: January 2006-December 2022

The daily fall in the Yields (in %) have been captured and the fall in the daily yields have been classified into following groups:

a) Above 5% fall in Yield

b) 4.99%-4.00% fall in Yield

c) 3.99%-3.00% fall in Yield

d) 2.99%-2.00% fall in Yield

e) 1.99%-1.00% fall in Yield

Thereafter, the probabilities of these fall in Yields have been worked out based on the number of observations. The stress periods have been included in the study where we have considered the Global Financial Crisis Period as well as the COVID-19 pandemic phase in order to find out the effects of these stress periods. The Yields of 10-year maturity bonds have been considered due to their importance as well as outstanding volume.

**Table 3: Probability of fall in Bond Yield (Daily) of 10-Years Maturity for January 2008-December 2008**

| % fall in Bond Yield | No. of Observations (A) | Total no. of Observations (B) | P(A/B) |
|---|---|---|---|
| Above 5% | 0 | 249 | 0 |
| 4.99%-4.00% | 1 | 249 | 0.004016 |
| 3.99%-3.00% | 4 | 249 | 0.02 |
| 2.99%-2.00% | 12 | 249 | 0.05 |
| 1.99%-1.00% | 21 | 249 | 0.08 |
| Less than 1.00% | 94 | 249 | 0.38 |
| Overall Fall | 132 | 249 | 0.53 |

From the table, it is observed that the fall in yield beyond 3.00% is nominal and the overall fall is 53% considering the stress situation.

**Table 4: Probability of fall in Bond Yield (Daily) of 10-Years Maturity for January 2020-December 2020**

| % fall in Bond Yield | No. of Observations (A) | Total no. of Observations(B) | P(A/B) |
|---|---|---|---|
| Above 5% | 0 | 245 | 0.00 |
| 4.99%-4.00% | 0 | 245 | 0.00 |
| 3.99%-3.00% | 1 | 245 | 0.00408 |
| 2.99%-2.00% | 4 | 245 | 0.02 |
| 1.99%-1.00% | 17 | 245 | 0.07 |
| Less than 1.00% | 106 | 245 | 0.43 |
| Overall Fall | 128 | 245 | 0.52 |

[4] Source: Investing.com

During the period of 2020, it is observed that again the fall beyond 3.00% is nominal and the overall fall is 52% which is more or less close to the period of 2008.

So, it is evident that during stress periods also, the fall in the yield of bonds with maturity of 10 years has been close to 50% and rest 50% accounted for the rise in yield which speaks of the stability of the yields during such occasions.

Now, we shall find out the probability of fall in the bond yield during the overall period of 2006-2022 in order to ascertain the average fall.

**Table 5: Probability of fall in Bond Yield (Daily) of 10-Years Maturity for January 2006-December 2022**

| % fall in Bond Yield | No. of Observations (A) | Total no. of Observations (B) | P(A/B) |
|---|---|---|---|
| Above 5% | 2 | 4289 | 0.0005 |
| 4.99%-4.00% | 1 | 4289 | 0.0002 |
| 3.99%-3.00% | 11 | 4289 | 0.0026 |
| 2.99%-2.00% | 48 | 4289 | 0.01 |
| 1.99%-1.00% | 173 | 4289 | 0.04 |
| Less than 1.00% | 1757 | 4289 | 0.41 |
| Overall Fall | 1992 | 4289 | 0.46 |

It is observed that any fall in Yield beyond 3% is nominal and majority of the fall in Yield is less than 1% which accounts for 41%. So, the fluctuations in the Bond Yield have been minimal which is below 1% which speaks of the yield stability over the years.

## GDP and Government Bonds and Relation to their Maturities and Ownerships

The G-securities, as observed, are one of the major contributors for fuelling the growth of the economy as well as they are having a role in the growth of country's GDP.

**Table 6: Gross Domestic Product (GDP) and Total Securities Outstanding with Maturity Pattern**

(Figures in Rupees Crore)

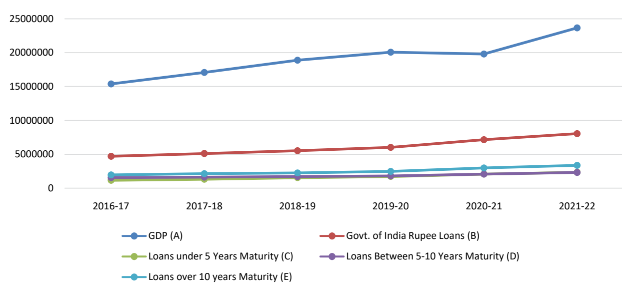
| Year (FY) | GDP (A) | Govt. of India Rupee Loans (B) | Loans under 5 Years Maturity (C) | Loans Between 5-10 Years Maturity (D) | Loans over 10 years Maturity( E) |
|---|---|---|---|---|---|
| 2016-17 | 15391669 | 4714244 | 1180431 | 1569350 | 1964398 |
| 2017-18 | 17090042 | 5124459 | 1340935 | 1646763 | 2136690 |
| 2018-19 | 18899668 | 5547726 | 1568024 | 1731423 | 2248210 |
| 2019-20 | 20074856 | 6021713 | 1744446 | 1807400 | 2469802 |
| 2020-21 | 19800914 | 7168451 | 2102066 | 2077827 | 2988493 |
| 2021-22 | 23664637 | 8059986 | 2361926 | 2322947 | 3375048 |

*Source: RBI*

The following data on GDP and Central Government of India bonds shall provide a clear cut picture of the details.

From the observations, we had to find out the relationship between GDP and Loans Outstanding. In order to find out the relationship between the two, we need to find out the Correlation Coefficient between them.

**Figure 3: Relationship between GDP and Govt. of India Rupee Loans at Different Periods**




From the figure, it is quite clear that the relationship between the growth of GDP and loans at various maturity periods are positive. Further, we derive the Correlation Coefficients between them in the table 7.

**Table 7: Correlation Coefficients between the GDP and Govt. of India Rupee Loans (FY 2016-17 to FY 2021-22)**

| Parameters | Parameters | Correlation Coefficient |
|---|---|---|
| Govt. of India Rupee Loans (B) | GDP (A) | 0.93 |
| Loans under 5 Years Maturity (C) | GDP (A) | 0.94 |
| Loans Between 5-10 Years Maturity (D) | GDP (A) | 0.92 |
| Loans over 10 years Maturity ( E) | GDP (A) | 0.92 |

From the table, it is quite clear that there is a very strong positive correlation between GDP and Loans of different maturity periods implying the vibrant role of Government Securities for GDP growth.

Now, we shall explore the ownership pattern of the Central Government Securities over the years in order to ascertain the growth in various sectors.

**Table 8: Ownership Pattern of the Government Securities over Various periods (in per cent)**

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| 1. Reserve Bank of India (own account) | 14.65 | 11.62 | 15.27 | 15.10 | 16.20 | 16.62 |
| 2. Scheduled Commercial Banks (i+ii+iii+iv) | 40.46 | 42.68 | 40.28 | 39.79 | 37.55 | 37.55 |
| i) State Bank of India | 9.12 | 8.59 | 7.64 | 6.83 | 5.48 | 5.48 |
| ii) Nationalised Banks | 13.62 | 12.35 | 10.20 | 12.82 | 14.51 | 13.11 |
| iii) Other Scheduled Commercial Banks | 16.63 | 20.67 | 21.52 | 19.41 | 16.86 | 18.19 |
| iv) Regional Rural Banks | 1.09 | 1.08 | 0.91 | 0.73 | 0.70 | 0.78 |
| 3. Co-operative Banks | 2.70 | 2.57 | 2.29 | 1.90 | 1.82 | 1.81 |
| 4. Primary Dealers | 0.16 | 0.29 | 0.31 | 0.39 | 0.27 | 0.29 |
| 5. Insurance Companies | 22.90 | 23.49 | 24.34 | 25.08 | 25.30 | 25.89 |
| 6. Financial Institutions | 0.81 | 0.90 | 1.05 | 0.53 | 1.00 | 0.94 |
| 7. Mutual Funds | 1.49 | 1.00 | 0.35 | 1.43 | 2.94 | 2.91 |
| 8. Provident Funds | 6.27 | 5.88 | 5.47 | 4.72 | 4.44 | 4.60 |
| 9. Corporates | 1.05 | 0.91 | 0.97 | 0.81 | 1.06 | 1.47 |
| 10. Foreign Portfolio Investors | 3.53 | 4.35 | 3.22 | 2.44 | 1.87 | 1.56 |
| 11. Others | 5.98 | 6.30 | 6.46 | 7.82 | 7.55 | 6.35 |
| 11.1 State Governments | 1.92 | 1.94 | 2.00 | 2.05 | 1.69 | 1.82 |

*Source : RBI*

From the table 8, it is observed that the percentage of mutual funds have increased to nearly double, though Scheduled Commercial Banks and Insurance Companies are playing an important role having the majority of the ownership. So, ample oppurtunities are lying with gilt mutual funds. Moreover, for further deepening, investment in Government Bonds may be made mandatory for Pension funds which holds a major chunk of investments.

## Conclusion

From the observations and discussions, the following points have emerged:

- The yields of the bonds are more or less stable even during stress periods mainly with variations of less than 1% on daily yields. So, the Government Bonds may be considered as a long-term as well stable source of income.We may set a benchmark regarding the Government Bond Yield so that it may act as a standard for pricing of other assets.
- If we consider the growth of GDP and growth of Government Securities, we observe that upto 10-years maturity securities and greater than 10-years maturity, Government Securities are correlated in the same way (0.92). So, bonds upto 10-years maturity may play a vital role contributing to the growth of GDP on long-term basis.
- If we observe the ownership pattern of the securities, we find that proportion of mutual funds have doubled in the last five years. So, further augmentation should be focussed on gilt mutual funds with a stable yield in order to make them more attractive. We can also increase the investment of defined contribution Pension funds for deepening of the bond market.

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