

# Inflation Indexed Bonds- A Perspective



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***“Let the treasury promise to pay not \$ 1000 but a sum that will have the same purchasing power as \$ 1000 had when the security was issued. Let it pay as interest each year not a fixed number of dollars but that number adjusted for any rise in prices”***

The above words said by noble laureate Milton Friedman, aptly describe the crux of

the topic under discussion. An Inflation Indexed Bond is designed to protect the purchasing power of an investor's savings by indexing the interest and principal payments to rise in prices. If prices go up, so do the payments from an indexed bond and hence the holders of such bonds aren't hurt by inflation.

## A Brief History

The practice of linking interest payments on debentures to price indices is relatively old. As early as 1742, in the United States, Massachusetts (then known as the Massachusetts Bay Colony) issued money market securities that were linked to the price of silver on the London Stock Exchange. In more recent times, inflation-linked bonds were first issued in the international capital markets by Israel in 1955.

Among the major industrialized nations, the United Kingdom was the first to supplement its government bond issue program with inflation-linked bonds in 1981. This was followed by Australia in 1985, Canada in 1991, Sweden in 1994, the United States in 1997 (which created treasury inflation protected securities, or TIPS), France in 1998, Italy in 2003, Japan in 2004 (in spite of its deflationary environment), and Germany in 2006. India had issued an inflation indexed bond in 1997, but the major drawback in the same was that coupon payments were not protected from inflation

In recent years, the market for such inflation linked bonds or linker market as it is commonly known has also grown sharply in the emerging markets (particularly in Brazil, Mexico, Turkey and South Africa). In addition, there are several issues of inflation-linked bonds by private issuers, though governments are by far the largest issuers of these securities.

The global market value of inflation-linked government bonds was approximately \$2.0 trillion in 2012. As per market estimates the United States was the largest issuer with \$866 billion, followed by the United Kingdom

with £338 billion (\$514 billion), France with €177 billion (\$230 billion), Italy with €100 billion (\$130 billion) and Germany €45 billion (about \$58 billion).

In the Indian context, the first Inflation Indexed Bonds were issued in 1997 by the Government of India in the name of Capital Indexed Bonds, but in these cases only principal was protected from inflation and not the interest component. In June 2013, the Government of India again started the issue of Inflation Indexed Bonds (IIB), where protection has been provided for both interest and principal. The IIBs also protect the capital even in case of a deflationary scenario capital is protected. As of now, of these issues 80% is reserved for institutional players and for the balance 20% retail can participate. Going forward from October 2013, the government intends to issue an exclusive series of these bonds for retail participants. In India Larsen & Toubro Ltd. issued an Inflation Indexed Bond, the first by an Indian corporate.

## Conventional bond and Inflation indexed bond

**Conventional Bonds:** Conventional bonds promise fixed rupee payments of interest and principal. The real value, or purchasing power, of a bond's payment is how many goods and services it can buy. However, real values of future rupee payments are not known when a conventional bond is issued because future inflation is unknown. Therefore, both the purchaser and the issuer of a conventional bond face inflation risk, the risk of unanticipated changes in the purchasing power of the nominal payments promised by the bond.

Consider purchasing for Rs. 10,000 a one-year bond that pays back your principal investment plus a nominal return of 5 percent. This bond will pay Rs. 10,500 at the end of one year. The real value of the Rs. 10,500 received in one year depends on what happens to prices. Suppose you expect inflation to be 3 percent over the year. While the nominal payment will be Rs. 10,500 at the end of a year, you expect that it will cost Rs. 10,300 then to buy what Rs. 10,000 buys at the start of the year. Thus, you expect to have Rs. 200 of extra purchasing power at the end of the year, a 1.94 percent (200 divided by 10300) real increase in purchasing power.

Let us consider another example, where in inflation is at 8.00 percent. In this case the nominal payment on the bond will be Rs. 10,500 at the end of the year. But it will cost you Rs. 10,800 to buy what Rs. 10,000 buys at the start of the year. Thus in this case your purchasing power has decreased, a negative 2.77 percent (300 divided by 10800)

However, suppose inflation turns out to be 5 percent. In this case, the bond generates a zero real return because goods and services that could be obtained with Rs. 10,000 at the start of the year end up costing Rs. 10,500 at the end of the year. The higher inflation rate

eliminates your expected real return. The beneficiary is whoever issued the bond, since the issuer ends up paying a nominal amount whose purchasing power is eroded by unexpectedly high inflation. But if inflation turns out to be unexpectedly low, your real return rises. If inflation is 1 percent, your real return will be Rs. 400, or 3.96 percent.

In general, when inflation is higher than expected, bondholders suffer unanticipated losses of purchasing power. Conversely, when inflation turns out to be lower than expected, bondholders receive unanticipated gains of purchasing power. In such cases, those who issue nominal debt lose, since the real cost of paying off conventional nominal debt rises when inflation unexpectedly falls.

**Inflation-Indexed Bonds:** With inflation indexed bond, the real rate of return is known in advance, and the nominal return varies with the rate of inflation realized over the life of the bond. Hence, neither the purchaser nor the issuer faces a risk that an unanticipated increase or decrease in inflation will erode or boost the purchasing power of the bond's payments.

Suppose you are offered a one-year bond that costs Rs. 10,000 today and that promises a real return of 1.94 percent, which was the real return you expected in the earlier example. The bond promises that, after a year, you will be able to obtain 1.94 percent more goods and services. If inflation turns out to be 3 percent, the face value of the bond will rise to Rs. 10,300, and the bond will pay interest equal to 1.94 percent of Rs. 10,300, or Rs. 200. But if inflation turns out to be 5 percent, the face value of the bond will rise to Rs. 10,500, and the interest payment will be Rs. 204. In either case, you will be able to buy 1.94 percent more goods and services after a year.

#### Issuers of Inflation Indexed Bonds

The primary issuers of inflation-linked bonds are governments and a few large corporations. The reasons behind this are manifold, but it is done at least in part to lower the cost of funding. Investors are willing to accept a lower coupon on these bonds as a compensation for the real returns provided by them and governments end up reducing their borrowing costs by guaranteeing investors real returns. Issuing inflation-linked bonds can be shown to smooth the cash flows of a government. Inflation-linked bonds provide informational advantages to governments and central banks by demonstrating a market-driven, observable, measure of inflation expectations. On occasion, this can be distorted by institutional factors, but implied inflation expectations are a useful tool for policy makers.

Issuance of inflation-linked bonds can also be seen as a means of reaching out to the widest range of investors possible, while also diversifying the liability profile of the government or a corporate.

On the private sector issuers' front, it will more

beneficial to companies whose receivables are dependent on inflation, for example, in case of a toll road project, where toll collections increase/decrease with inflation, such companies can explore issuance of Inflation Indexed Bonds. Another example could be of utility service companies, like water and power suppliers.

#### A few technical points that need to be considered while issuing Inflation Indexed Bonds

A vital attribute of any inflation indexed bond is the index ratio for characterizing price trends since the issuance of the bond. This index is calculated by the issuer on a daily basis. An important factor for the index ratio calculation is which inflation index is selected. For government bonds in the United States, for example, the consumer price index (CPI) is used, while the United Kingdom uses the retail price index (RPI).

In India WPI (Wholesale Price Index) inflation will be used index ratio calculation purposes. Index ratio will be calculated by dividing the reference WPI on the settlement date with the reference WPI on the issue date, the formula is as under:

$$\text{Index Ratio} = \frac{\text{Ref WPI (set date)}}{\text{Ref WPI (issue date)}}$$

Final monthly WPI will be used as reference WPI for 1st day of the calendar month. The reference WPI for intermittent days, i.e. dates between 1st days of the two consecutive months will be computed through interpolation.

For interpolation, two months final WPI should be available throughout the month. As final WPI is available with a lag of about two and half months (e.g. final WPI February 2013 will be released in mid-May 2013), two months final WPI could be available only with a lag of four months.

In view of above, the four months lag has been chosen for final WPI to be considered as reference WPI for 1st day of the calendar month. For example, December 2012 final WPI will be taken as reference WPI for 1st of May 2013 and January 2013 final WPI will be taken as reference WPI for 1st of June 2013.

Calculation of daily reference WPI through interpolation is as under:

$$\text{Ref WPI (set date)} = \text{Ref WPI}(M) + \frac{(t-1)}{D} * ((\text{Ref WPI}(M+1) - \text{Ref WPI}(M)))$$

Ref WPI(M) = Ref WPI for the first day of the calendar month in which Date falls, Ref WPI(M+1) = Ref WPI for the first day of the calendar month following the settlement date, D = Number of days in month (e.g. 31 days in August), and t = settlement date (e.g. August 6).

#### Benefits of in Inflation Indexed Bonds

- Inflation Indexed Bonds can be a good source of diversification for one's investment portfolio as they provide real returns and not the returns in the conventional sense. Moreover, there is no other

product available as a perfect hedge against inflation. Also in case of deflationary environment, the capital can be protected for the investors.

- New products can be designed to suit specific needs and risk profiles of investors. An example can be a product specifically for HNIs, which promise to provide real returns over inflation. Another case in point could be that of insurance companies & pension funds who try to provide returns over a long gestation period (20 to 30 years). These companies can build products linked to returns from Inflation Indexed Bonds and thus provide real returns to investors.
- Banks can also explore to raise long term deposits linked to inflation index for 5-10 years for the retail segment.
- With launch of inflation indexed bonds we can induce investors to invest their wealth in a financial

instrument rather than invested in real assets like gold which will be very help for country like ours which is finding ways and means to reduce our current account deficit.

#### **Drawbacks of inflation index bonds in Indian context**

Inflation linked bonds in India are linked to Wholesale price index as of now , but from a retail investors point of view it would be better to link it to consumer price index as they are directly affected by consumer prices. Another major drawback from retail investors point of view is complexity of the product as it would be difficult to understand inflation indexation to individuals who are used to investing in plain vanilla fixed deposit. The situation could change if inflation-linked bonds garner popularity and an active market for the same develops.

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#### **References**

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