

## INFLATION INDEXED BONDS – ASSESSMENT AND EMERGING ISSUES

**C .S. Balasubramaniam**

Professor, Maratha Mandir's Babasaheb Gawde Institute of Management Studies,  
Mumbai, India

Email: balacs2001@yahoo.co.in

### ABSTRACT

*Reserve Bank of India (RBI) has announced launching Inflation Indexed Bonds (IIB), a financial instrument which can act as a hedge against inflation in June 2013. These bonds are an enhanced version of capital indexed bonds issued by RBI during 1997. While capital indexed bonds provide inflation protection only for the principal, the IIBs provide inflation protection for the interest payments as well. These IIBs are linked to Wholesale Price indices (WPI) which are lower than Consumer Price Indices (CPI) which reflects the retail prices of various essential goods and services. In the west, such bonds are usually linked to CPI. Theoretically, IIBs could indicate the willingness of the Government to maintain inflation at an optimal level. These IIBs are initially issued to the institutional investors and later widened to retail household investors. However, without controlling inflation at large to the consumers, these IIBs are only attempting to hide the reality of prevailing high rates of inflation. . Further, these IIBs would hardly succeed in broadening the bond market to get past the infancy phase in the economy.*

*This research paper is organized as follows: The first part introduces the concept of IIB .The second part discusses the IIB as issued by RBI and its linkage to the Wholesale Price Index (WPI) in contrast to the practice of linking the IIB to the Consumer Price Index (CPI) in the West and the related issues . The paper concludes with the observations significant to the government, financial market agencies, investors and the ultimate consumers.*

**Keywords:** Inflation indexed bonds, Capital indexed bonds, Wholesale Price indices, Consumer Price Indices, Monetary policy.

### INTRODUCTION

Inflation Indexed bonds are primarily financial instruments that attempt to protect the bonds' purchasing power by tying the interest and the principal to an index of price changes prevailing in the economy. Indexed bonds include two types of compensation, a real rate of return plus a compensation for the erosion of purchasing power. Traditional nominal bonds

include only a single nominal component of return which is fixed at the time of purchase. The return on a nominal bond implicitly comprises expected or required real rate of return, plus an estimate of inflation over the life of the bond. Treasury bonds are not safe in real terms; and because short-term real interest rates vary over time, Treasury bills are not safe assets for long-term investors. Inflation indexed bonds fill this gap by offering a truly riskless long-term investment (Campbell and Shiller 1997; Campbell and Viceira 2001, 2002; Brennan and Xia 2002; Campbell, Chan, and Viceira 2003; Wachter 2003). The U.K. government first issued inflation-indexed bonds in the early 1980s, and the U.S. government followed suit by introducing Treasury inflation-protected securities (TIPS) in 1997. Inflation-indexed government bonds are also available in many other countries, including Canada, France and Japan. These bonds are now widely accepted financial instruments.

Currently, long-term inflation-indexed yields in the United Kingdom may be depressed by strong demand from U.K. pension funds. The volatility of TIPS yields in the fall of 2008 appears to have resulted in part from the unwinding of large institutional positions after the failure of the investment bank Lehman Brothers in September 2008. These institutional influences on yields can be leading from liquidity, market segmentation, or demand and supply effects.

In the following discussion, an attempt is made by question and answers to understand the concept, design and operations of the IIBs:

### **How does such bond operate & how does the interest is calculated?**

The principal amount is linked to the inflation rate so that any increase or decrease in the inflation rate automatically results in an adjustment in the principal. Most debt products such as fixed deposits (FDs) or regular bonds provide returns that are not protected against inflation. If a bank FD pays an interest rate of 9% per annum and inflation averages 9.5% that year, the investor loses money in real terms. This is because the real rate of return of the FD in this case would be -0.46%.

**Example:** For example, if a 10-year bond has a face value of Rs 1,000 and the annual coupon rate is 10%, the investor will get Rs 100. Now, if the inflation index in the next year rises by 12%, the principal will be adjusted to the inflation rate and get raised to Rs 1,120 [ $1,000 \times (1+12\%)$ ]. So, the next year the investor will earn Rs 112 as interest, which is 12% higher than the original amount. This way the returns from the investment will be safe from the incessant march of rising prices.

### **Calculation Formula:**

$$\text{Index Ratio} = \frac{\text{WPI on Adjustment date}}{\text{WPI on Issue date}}$$

And the adjusted interest payment will be calculated as:

$$(\text{Index ratio} \times \text{Principal}) \times \text{Coupon rate}$$

On maturity, the investor gets back the higher of the adjusted principal or the face value.

### **What is the tenure of the Bond?**

These bonds come with a 10-year tenure and fixed coupon or interest rate.

## **What is the mode of payment of interest?**

Inflation-indexed bonds pay a periodic coupon that is equal to the product of the inflation index and the nominal coupon rate. Periodic coupon payments are paid on the adjusted principal.

## **What are the tax benefits?**

These bonds will not receive any special tax benefits and existing income tax rates will be applicable beyond the prescribed limit.

## **Is there an option to exit before the term ends?**

The instrument will be traded like any other government security, thus giving investors a chance to exit their investments.

## **Will it be really beneficial investment?**

Since the rate of return is based on wholesale inflation and not as per the higher consumer price inflation, investors will receive negative returns on their investment. Although inflation-indexed bonds prove beneficial during times of high inflation, they underperform when the economy goes through a deflationary phase and prices actually come down. In such a situation, the Inflation Index Bond will give lower than the coupon rate because the principal would get adjusted below Rs 1,000 (as per the stated example above). However, this is only a theoretical risk. A decline in wholesale prices is not even a remote possibility in India.

Another drawback of these bonds is that they have been indexed to the WPI and not the Consumer Price Index (CPI). For most investors in bonds, the CPI is the more relevant index. Consumer prices matter to them in day-today life than wholesale prices.

## **What you need to check before investing?**

Before investing, see the initial coupon rate on the bond. A coupon close to the prevalent bank fixed deposit rate would be the best bet. Economists have long advocated for the creation of inflation-indexed bonds, mainly based on the premise that indexed bonds are beneficial substitutes for nominal assets, whose payoffs are contaminated by inflation volatility, however, it can be demonstrated that borrowers would be even worse off with the introduction of indexed bonds, as this situation causes equilibrium interest rates of nominal securities to increase when agents have precautionary saving motives, i.e., if the third derivative of the utility function is positive. In an economy without indexed bonds, agents face income uncertainty from fluctuations in real payoffs of nominal securities. The income risks from nominal securities prompt agents to have a demand for precautionary savings, which drives up the equilibrium price of nominal securities? However, the introduction of indexed bonds relaxes the precautionary savings demand for nominal securities in two ways: it decreases income risks as agents trade in indexed bonds (risk-free asset) and also can be a substitute for nominal securities for the purpose of precautionary savings. The decrease in demand for nominal securities, by innovation on indexed bonds, results in a decrease in the equilibrium price of nominal securities (equivalently, an increase in a return of the securities). While inflation indexed Treasury bonds could provide many benefits, these benefits could be partially offset by some limitations arising from the design and issuance of

the bonds. Some of the limitations are small and would not have much effect on the benefits. Others are more serious, but their effects could be minimized if addressed properly during the design and issuance of indexed bonds. Limitations related to indexing. The previous discussion of the benefits was based on the assumption that there is a single, immediately available, and perfect measure of inflation. In reality, there are many inflation indexes, and none meets the ideal conditions. Different indexes are better measures of inflation for different sectors of society. For example, an index that measures the inflation rate facing investors most accurately might not be a good measure of the inflation rate relevant to the Treasury. Moreover, they all have some measurement bias. Finally, because none of the indexes are immediately available, a lagged index must be used. While the lack of a single, ideal index might reduce some of the benefits, the overall effect would be small. Limitations are due to the choice of the inflation index. If the Treasury issues indexed bonds, the benefits to investors, the Treasury, and policymakers would vary with the index actually used. The choices include the implicit and fixed-weight GDP price deflators, the producer price index (PPI), the consumer price index (CPI), and the consumer price index excluding food and energy (the core CPI). Inflation indexed Treasury bonds would be a valuable innovation in U.S. financial markets, providing benefits to investors, the Treasury, and policymakers. Not only could they protect both investors and issuers from inflation risk, but they could also save the Treasury interest expense on its debt. Moreover, combined with nominal bonds, indexed bonds would provide policymakers with additional information on real interest rates and inflation expectations.

While complications arising from the actual design and issuance of indexed bonds could limit these benefits, the limitations are not sufficient to completely offset the benefits. The choice of the inflation index and the measurement bias of the index would have little effect on the benefits, and the effect of the indexation lags could be minimized by issuing indexed bonds with monthly coupon payments. Although the current tax code would not allow indexed bonds to be completely free of inflation risk, the inflation risk associated with indexed bonds would still be much less than for nominal bonds. The tax code, however, might slightly reduce the quality of information extracted from the bonds, but only if the tax treatment effectively restricts the demand for the bonds to a narrow sector of investors. Finally, the Treasury could design indexed bonds to maximize market liquidity, which would minimize the loss of savings due to the liquidity premium. On balance, the conclusion reached here is that inflation indexed Treasury bonds could be a valuable addition to the spectrum of Treasury debt instruments.

### **Relationship between Cost of living, Price indices and IIB**

The timing of the Inflation linked bonds by RBI clearly favors the government as inflation has already been showing signs of easing in the last six months. Expectations are that wholesale price index (WPI) inflation will soften further from the current level of 4.89 per cent recorded in April 2013, which is already a 41-month low. In fact, the Reserve Bank of India had come out with a technical paper on launching of inflation indexed bonds way back in 2010, but it refrained from actually launching the scheme because inflationary expectations were on the higher side. The second important aspect of these bonds is the adjustment of principal as well as interest payment with the WPI. Under the scheme, the principal amount of these 10-year bonds will be adjusted against inflation and periodic

coupon payments will be made on the adjusted principal. At maturity, the adjusted principal or the face value whichever is higher will be paid.

In reality, the consumer price index (CPI) - not the WPI - represents the real inflationary pressure on households. There is wide divergence between the WPI and the CPI in India. While WPI has fallen to 4.89 per cent in April, the CPI is still high at 9.39 per cent. Many countries use CPI as a benchmark for linking payments on inflation-index bonds. Linking the principal to the WPI is actually not a good deal for small investors. To prove this point further, a comparison of WPI vis a vis CPI for different categories of the population is presented here:

Month	(per cent)							
	WPI		CPI-IW		CPI-AL		CPI-RL	
	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12
April	10.88	9.74	13.33	9.41	14.96	9.11	14.96	9.11
May	10.48	9.56	13.91	8.72	13.68	9.63	13.68	9.63
June	10.25	9.51	13.73	8.62	13.02	9.32	13.02	9.14
July	9.98	9.36	11.25	8.43	11.02	9.03	11.24	9.03
Aug.	8.87	9.78	9.88	8.99	9.65	9.52	9.66	9.71
Sept.	8.98	10.00	9.82	10.06	9.13	9.43	9.34	9.25
Oct.	9.08	9.87	9.70	9.39	8.43	9.36	8.45	9.73
Nov.	8.20	9.46	8.33	9.34	7.14	8.95	6.95	9.14
Dec.	9.45	7.47 P	9.47	6.49	7.99	6.37	8.01	6.72
Jan.	9.47	6.55 P	9.30	5.32	8.67	4.92	8.69	5.27
Feb.	9.54		8.82		8.55		8.55	
Mar.	9.68		8.82		9.14		8.96	
<b>Average</b>	<b>9.56</b>		<b>10.45</b>		<b>10.00</b>		<b>10.01</b>	

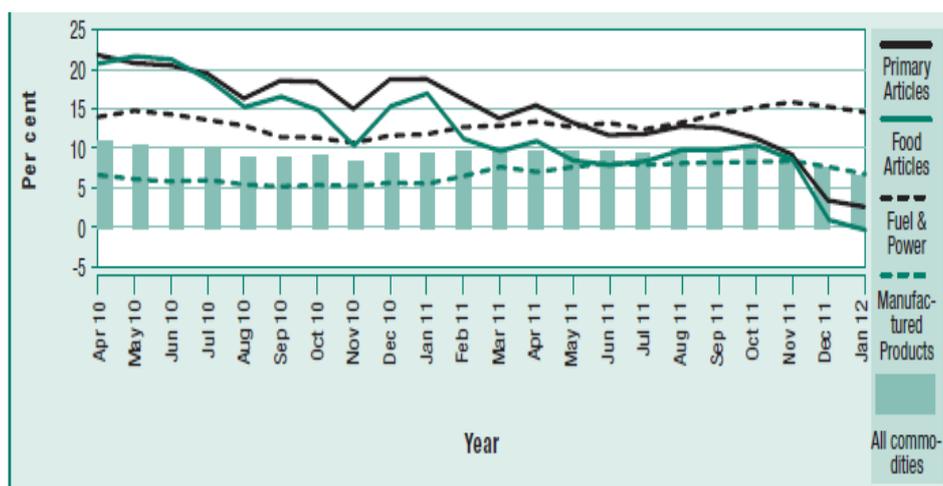
Source : The Office of the Economic Adviser (OEA), Department of Industrial Policy and Promotion (DIPP).

Note : P : Provisional; CPI : Consumer Price Index; IW : Industrial Workers; AL : Agriculture Labour; RL : Rural Labour

**Source:** Economic Survey 2012 (Government of India)

**Fig 1.** Annual Inflation as per Different Price Indices

Further the recent data of WPI for major groups also shows that the prices of all major categories of goods are somewhat distorted and not relenting rather than one of stability in prices as depicted in Fig: 2



**Source:** Economic Survey 2012 (Government of India)

**Fig 2.** Year-on-year inflation for major groups in WPI

Thus benchmarking the current issue of bonds to WPI is not a welcome move, particularly when the inflation is not coming down for all classes of the Indian population in the economy. Further to expect that retail investors would invest their hard earned money in these bonds is not tenable with the prevailing rates of inflation, when the prices of essential goods of consumption is remaining high in all the states of the economy. Food inflation remains to be high during 2012-13 based on WPI itself. If CPI data is used, inflation is still higher at double digit in the last quarters of 2012-13. Prices of vegetables are volatile and there is severe mismatch between demand and supply. Thus the poor and middle classes are spending substantial part of their income on essential goods and services for the last 4 years. To expect that these poor and middle classes would be having investible surplus to be used for purchasing the inflation linked bonds is not **tenable and valid**.

RBI would use of the 'auction method' for determining the coupon rate for the inflation-indexed bonds. So the first tranche of Rs 1,000-2,000 crore bonds slated for June 4 is not for retail investors. They will have to wait till October 2013 to apply for the inflation index bonds. By that time, inflation will definitely have reached a comfort zone for the RBI, the government and households as well. “Final WPI with four months lag will be used, i.e. Sept 2012 and Oct 2012 final WPI will be used as reference WPI for 1st Feb 2013 and 1st March 2013, respectively. The reference WPI for dates between 1st Feb and 1st March 2013 will be computed through interpolation,” India’s current account deficit widened to a record 6.7% of gross domestic product (GDP) in the quarter ended December mainly due to the nation’s hunger for gold. Both the governments as well as the RBI are concerned over the rising gold imports as its putting pressure on Current Account Deficit (CAD), which widened to historic high of 6.7 per cent in third quarter of 2012-13. Gold and silver imports last month shot up 138 per cent, year-on-year, to USD 7.5 billion. Announcement of the bonds to discourage investments in gold is the second major move by RBI in the last three days. On Monday May, 13, 2013, it had placed restrictions on banks to import gold. Giving details of the for first series of IIBs, RBI said while the coupon rate (interest rate) will remain fixed, the

principal amount invested in the bonds will be linked to inflation based on Wholesale Price Index (WPI). "Thus these bonds provide inflation protection to both principal and coupon payment. At maturity, the adjusted principal or the face value, whichever is higher, will be paid. The first tranche will be introduced on June 4 and will be for Rs 1,000-Rs 2,000 crore. The IIBs will initially have a tenure of 10 years and total issuance for 2013-14 would be Rs 12,000-Rs 15,000 crore.

Institutional investors mostly act as the common brokers in investing in the bonds. The bond market is narrow and mostly comprises of institutional investors (commercial banks insurance companies, pension fund and mutual fund institutions) in Indian economy. They act very much like the common brokers and invest a major part of their funds in equity markets rather than in the bond markets. The inflation linked bonds have not been very popular as investment products due to pricing issues and lack of investor education /awareness. Historically there has been a disparity between wholesale Price Inflation and Consumer Price inflation and what matters to the common man is the retail inflation. To that extent, it does not mitigate the inflation risk .The WPI inflation for April came at 4.89 % ,the lowest in 41 months but the consumer price inflation ,is still above 9 % .The year on year average method which is used for calculating these figures does not reveal the real impact of inflation on the poor and middle classes .

Further it is well known that the investors who place the highest bids would get to subscribe to these bonds .Retail investors as we have seen from the above observations do not have that capacity to invest in these bonds after having substantial part of their income on essential goods and services. Retail investors may have to open SGL, or subsidiary General Ledger, accounts with primary dealers or banks to place their bids on the negotiated dealing system –order matching system, an electronic platform where bids for trading in bonds are placed. The Pricing on the coupon and principal of these inflation linked bonds would be linked to the rate of whole sale Price inflation with a lag of four months.

To expect the poor and middle classes of the economy who mainly live in rural and semi urban towns to invest in this inflation linked bonds from their surplus funds is almost impossible. The poor and middle classes in metro towns are more severely affected by the retail inflation and would not be having the surplus to invest. Further the retail investors have to approach the primary dealers /banks to invest in these inflation linked bonds .The retail investor has to bear the brokerage /transaction costs as well for investing in these bonds, if they purchase through the institutional brokers apart from the tax burden.

## CONCLUSIONS

- India's macro-economic outcomes have been observed to be erratic and highly varying since 2011. While the cost of living to the masses has not been relenting the Government of India has not been able to adopt policies nor measures to control inflation. Fiscal consolidation measures aiming to control public expenditure have not yielded satisfactory results.
- The financial markets have been swinging ups and downs along with volatility in the value of the rupee as against standard currencies. The bond markets have continued to be tight, narrow and moving with the directions of RBI and fund mobilization has not been up to the expected level. Under such circumstances, the issuance of

Inflation Indexed Bonds and linking the IIB to Whole sale Price Index seems to be rather ill timed and not reflecting the reality of the masses in the economy.

- In advanced economies with free capital flows and freer interest rate determination mechanisms, bond markets and capital markets and resource mobilizations for the industry would move in tandem. Inflation would be under control due to the measures taken by the Government to create and step up the progress and growth in the country. In emerging economies including India, with the impact of foreign debt and huge imports leading to the current account deficits in the balance of payment, the institutional resource mobilizations with new instruments such as Inflation indexed bonds would not be appropriate.

## REFERENCES

1. Budget Speech by P. Chidambaram ,Union Finance Minister Government of India February 28, 2013
2. James Mc Donnell: Worried about inflation –Consider Inflation –Indexed Bonds, Blog, December 2012-January 2013.
3. John Geanakoplos. :An Ideal Inflation Indexed Bond and Irving Fisher’s Impatience Theory of Interest with overlapping generations ,Cowles Foundation Paper no.1111 ,Yale University ,American Journal of Economics and Sociology ,2005
4. John Y. Campbell, Robert. Shiller & Luis M.Viceira : Understanding Inflation Indexed Bond Markets Brookings Papers ,Spring 2009
5. Matthias Fleckenstein : The Inflation Indexed Bond Puzzle ,JEL Classification (G12,G18,H63) , UCLA Working Papers November 2012
6. Minwook Kang: Inflation Indexed Bonds and Nominal Bonds with transaction costs :financial Innovation and Asset trading ,Cornell University September 28,2012
7. Planning Commission : The Economic Survey 2012-13 , Government of India
8. Reserve Bank of India : Communique on Inflation Indexed Bonds , May 15, 2013
9. RBI Economic Bureau : Inflation Survey of Households :2012-13 , RBI Monthly Bulletin, June 2013
10. Robert Price :The rationale and Design of Inflation Indexed Bonds , International Monetary Fund Working Paper (WP/ 97/12) January 1999
11. Shailendra Tyagi :`Gentlemen Prefer Inflation Indexed Bonds ,Open June 3, 2013
12. What is Inflation Indexed or Inflation Linked Bond? Should you invest? Soubhagya (Personal Finance), May 21, 2013
13. Yukhinobu Kitamura : Indexed Bonds and Monetary Policy :The Real Interest Rate and the expected rate of Inflation, Monetary &Economic Studies, May 1997
14. Several articles and news from Economic Times, Financial Express, Business Line, Business Standard.