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A Study on Impact of Liquidity on Returns of Four Government Bonds in the Context of Indian Bond Market

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***Abstract* - A well-developed capital market consists of equity and bond market. A sound bond market with a significant role played by the Government bond market segment is considered to be important for an efficient capital market and raising for developmental ventures. Bonds are issued and sold to the public for funds. Bonds are interest bearing debt certificates. This study is conducted in order to analyze the impact of liquidity on return of government securities in the context of Indian bond market.**
***Keywords*: Bond Market, Bond, Bond Yield, Liquidity Amihud Mendelson Model, Linear Regression.**

I. INTRODUCTION

The Indian financial system is changing fast, marked by strong economic growth, more robust markets, and considerably greater efficiency. While the government and corporate bond markets have grown in size, they remain illiquid. The bond market, in addition, restricts participants and is largely arbitrage-driven.

To meet the needs of its firms and investors, the bond market must therefore evolve. The bond market in India has diversified to a large extent and that is a huge contributor to the stable growth of the economy. The debt market in India consists of mainly two categories the government securities or the G-Sec markets comprising central government and state government securities, and the corporate bond market.

In order to finance its fiscal deficit, the government floats fixed income instruments and borrows money by issuing G-Sec that are sovereign securities issued by the Reserve Bank of India (RBI) on behalf of the Government of India.

II. STATEMENT OF THE PROBLEM

The study is conducted to analyze the relationship between the two variables that is liquidity and its impact on the returns of selected government bonds. Liquidity is only variable that have to be studied here irrespective of many other factors affecting the returns of government bonds which could be the part of the model to better understand the returns. This study has been done in order to gain further insight and assessing the results.

III. SIGNIFICANCE OF THE STUDY

The significance of the study is that there are very less number of work done on this area. So as to verify the association among liquidity and bond return in Indian context in order to create awareness about different characteristics of bond market. An investor can reach to better decision by analyzing various factors affecting the return and liquidity of the bond. By knowing these factors investor may opt or not for the same.

IV. OBJECTIVES OF THE STUDY

1. To analyze the relationship between bond yield and liquidity of selected government bonds.

2. To measure the average yield in the last four years and to assess Amihud's price impact factor of liquidity on the of selected government bonds.

V. RESEARCH DESIGN

This study is based on the market data relating to four government bonds collected from NSE for the period of 4 years (2013-16). A clear analysis has been made with the help of analytical tools, graphs and tables which provide useful and meaningful information.

Mean, standard deviation, coefficient of variation, Regression analyses were done to identify the relationship between return and liquidity in this study.

VI. SCOPE OF THE STUDY

The scope is limited to the period from 2013 to 2016 of four government bonds collected from NSE.

VII. DATA ANALYSIS AND INTERPRETATION

TABLE I GOVERNMENT BOND 7.46%

Date	Security Type	Security Name	Issue Name	Traded Value	Low Price/ Rate	High Price/ Rate	LTP
29-Apr-13	GS	CG2017	7.46%	20	99.52	99.52	99.52
22-May-13	GS	CG2017	7.46%	10	100.3797	100.3797	100.3797
5-Sep-13	GS	CG2017	7.46%	5	95.5799	95.5799	95.5799
10-Sep-13	GS	CG2017	7.46%	5	95.527	95.527	95.527
20-Nov-13	GS	CG2017	7.46%	10	96.6855	96.6855	96.6855
3-Mar-14	GS	CG2017	7.46%	5	96.051	96.051	96.051
5-Sep-14	GS	CG2017	7.46%	10	97.4538	97.4538	97.4538
7-Nov-14	GS	CG2017	7.46%	25	98.2123	98.2123	98.2123
26-Nov-14	GS	CG2017	7.46%	25	98.3	98.3	98.3
10-Dec-14	GS	CG2017	7.46%	25	98.783	98.783	98.783

TABLE II 7.49%

Date	Security Type	Security Name	Issue Name	Traded Value	Low Price/ Rate	High Price/ Rate	LTP
25-Feb-13	GS	CG2017	7.49%	100	98.734	98.734	98.734
6-Mar-13	GS	CG2017	7.49%	10	98.68	98.68	98.68
12-Mar-13	GS	CG2017	7.49%	95	98.5109	98.5109	98.5109
13-Mar-13	GS	CG2017	7.49%	5	98.6	98.6	98.6
21-Mar-13	GS	CG2017	7.49%	15	98.5	98.5211	98.5211
22-Mar-13	GS	CG2017	7.49%	5	98.4	98.4	98.4
9-Apr-13	GS	CG2017	7.49%	75	98.845	99.08	99.08
17-Apr-13	GS	CG2017	7.49%	25	99.2551	99.2551	99.2551
21-Jun-13	GS	CG2017	7.49%	40	99.46	99.46	99.46
28-Jun-13	GS	CG2017	7.49%	5	99.2	99.2	99.2

TABLE III 7.99%

Date	Security Type	Security Name	Issue Name	Traded Value	Low Price/ Rate	High Price/ Rate	LTP
3-Jan-13	GS	CG2017	7.99%	10	99.99	99.99	99.99
9-Jan-13	GS	CG2017	7.99%	5	100.18	100.18	100.18
17-Jan-13	GS	CG2017	7.99%	35	100.33	100.33	100.33
22-Feb-13	GS	CG2017	7.99%	100	100.495	100.495	100.495
7-Mar-13	GS	CG2017	7.99%	420	100.34	100.39	100.36
15-Mar-13	GS	CG2017	7.99%	15	100.46	100.46	100.46
19-Mar-13	GS	CG2017	7.99%	15	100.31	100.31	100.31
20-Mar-13	GS	CG2017	7.99%	100	100.18	100.18	100.18
21-Mar-13	GS	CG2017	7.99%	50	100.18	100.18	100.18

TABLE IV 8.07%

Date	Security Type	Security Name	Issue Name	Traded Value	Low Price/Rate	High Price/Rate	LTP
2-Jan-13	GS	CG2017	8.07%	10	100.46	100.46	100.46
18-Jan-13	GS	CG2017	8.07%	60	100.84	100.84	100.84
21-Jan-13	GS	CG2017	8.07%	25	100.5682	100.5682	100.5682
22-Jan-13	GS	CG2017	8.07%	35	100.6096	100.6096	100.6096
30-Jan-13	GS	CG2017	8.07%	100	100.65	100.65	100.65
6-Feb-13	GS	CG2017	8.07%	200	100.3574	100.3574	100.3574
18-Feb-13	GS	CG2017	8.07%	100	100.5	100.5	100.5
20-Feb-13	GS	CG2017	8.07%	125	100.65	100.65	100.65
22-Feb-13	GS	CG2017	8.07%	100	100.735	100.778	100.778
14-Mar-13	GS	CG2017	8.07%	50	100.569	100.569	100.569
15-Mar-13	GS	CG2017	8.07%	20	100.715	100.715	100.715

A. Return Has Been Calculated In Here by the Following Formula

Return= P_1-P_0 / P_0
Liquidity is calculated by ABS return/value traded *10^7

TABLE V 7.46% BOND

Date	Return	Illiquidity
29-Apr-13	0	0
22-May-13	0.008638465	0.086384646
5-Sep-13	0.047816441	0.956328819
10-Sep-13	0.000553464	0.011069273
20-Nov-13	0.012127461	0.121274613
3-Mar-14	0	0
5-Sep-14	0.014604741	0.146047412
7-Nov-14	0.007783175	0.031132701
26-Nov-14	0.000892964	0.003571854
10-Dec-14	0.00491353	0.01965412

TABLE VI 7.49% BOND

Date	Absolute Return	Amihud Illiquidity
25-Feb-13	0	0.00E+00
6-Mar-13	0.000546924	0.005469241
12-Mar-13	0.00171362	0.00180381
13-Mar-13	0.000904468	0.018089369
21-Mar-13	0.000800203	0.005334686
22-Mar-13	0.001229178	0.024583566
9-Apr-13	0.006910569	0.009214092
17-Apr-13	0.001767259	0.007069035
21-Jun-13	0.002064378	0.005160944
28-Jun-13	0.002614116	0.052282325

B. Regression Analysis

Regression analysis can be analyzed to know about the relationship between liquidity and return and to know the significance of return and illiquidity.

TABLE VII 7.46% BOND

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.002	.001		2.646	.014
	Amihud Illiquidity	.051	.004	.925	12.162	.000
a. Dependent Variable: Absolute Return						

TABLE VIII 7.49% BOND

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.002	.001		4.033	.000
	AmihudIlliquidity	.024	.011	.234	2.260	.026
a. Dependent Variable: AbsoluteReturn						

TABLE IX 7.99% BOND

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.002	.000		4.313	.000
	AmihudIlliquidity	.070	.012	.551	5.948	.000
a. Dependent Variable: AbsoluteReturn						

TABLE X 8.07% BOND

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.002	.000		4.001	.000
	AmihudIlliquidity	.109	.019	.512	5.690	.000
a. Dependent Variable: Absolute Return						

It means illiquidity decreases, the return of bond increases. The higher beta coefficient of 7.46% bond compared to other three government bonds shows that the illiquidity has more impact on 7.46% bond than others.

VIII. FINDINGS OF THE STUDY

1. The Indian corporate bond market is in a developing stage.
2. The relationship between return and illiquidity is significant as per Amihud illiquidity measure so here the relationship between return and liquidity is also significant for all the four government bonds.
3. 7.46% bonds are more volatile and inconsistent as compared to other bonds.
4. Coefficient of variation is more for 7.99% bond (0.6016) that of 7.49% bond have (0.5430) so 7.49% Bonds are more stable.
5. Illiquidity and return shows a positive relationship that is lower the return higher the illiquidity. This means there is a negative relationship between return and liquidity.
6. An investor aiming for a stable return should opt for 7.49% bonds over others.
7. The bond market still has to improve and thus it needs more growth like that of the stock market.
8. Range of return of bonds is more for 7.46% which shows more variation. Thus 7.49% is more stable and it is having only less range compared to other government bonds.

IX. CONCLUSION

From this study we can reach to a conclusion that both the bonds are having significant relationship with return and liquidity and thus there exist a positive relationship between return and liquidity. For an investor to choose among these bonds he may opt for 7.49% bond over 7.46%, 7.99%, 8.07%bonds because they are volatile and is inconsistent compared to the other. 7.49% security here shows more consistency and stability than others. So for regular and high return investor can choose that security rather than others.

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