

A Study of Indian Financial Stability and Debt Market

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ABSTRACT

This study presents an empirical evidence of the primary debt market in India. Bond markets rarely fulfill the alternate role to bank financing in India. The benefits of bond markets include diversifying credit risks across the economy by providing an alternative to conventional bank lending. Bond markets supply long-term funds for the growth of the infrastructure or other sectors to fulfill long-term investment needs. It can also lower funding costs of the firm by liquidity premium on secondary market. They provide diversity in financial products with flexibility to meet the specific needs of investors and borrowers. Timing of an issue and the conditions of the economy including the triggers in other markets could impact the activity in the whole sale debt market. Issues that satisfy the needs of investor segments could improve participation. We attempt to test few hypotheses; whether bond issuance and factors in other markets could be positively correlated, whether the presence of good issuers (good papers) improve participation, etc using data from the whole sale debt market, whether the limits on government borrowings could improve the trades in the wholesale debt market, etc.

Keywords: *Debt Issue, Maturity, Market factors, Financial Stability, Financial Decisions*

I. Introduction

Bond markets provide the benefits of diversifying credit risks across the economy as an alternative to conventional bank lending. Bond markets help supply long-term funds for the growth of the infrastructure or other sectors to fulfill long-term investment needs. Similarly as the costs of equity, it can also lower the funding costs of the firm due to a liquidity premium in the secondary market. Hence, bonds provide diversity in financial products with the flexibility to meet the specific needs of investors and borrowers. They also help wide range of financial instruments available in the system, an increase in the efficiency of the financial system as domestic bond markets allocate capital in the economy by reducing exposure to external foreign exchange risks and financial crises and the execution of monetary policy.

II. Literature Review

The research on debt market has focused more on pure government/public sector debt rather than private sector/corporate debt. Primary debt market in India includes Issuers such as large private sector corporate, public sector, financial institutions, banks and medium and small companies. Instruments include partly convertible debentures (PCDs), fully convertible debentures (FCDs), deep discount bonds (DDBs), zero coupon bonds (ZCBs), bonds with warrants, floating rate notes (FRNs) / bonds and secured premium notes (SPNs), where the coupon rates depend on tenure and credit rating.

The determinants of government debt market activity are macroeconomic stability and political factors (Persson and Tabellini 1999, Reinhart et al 2003, and Claessens et al 2007). The research on private sector/corporate debt usage have focused on the conditions in which firms prefer debt to bank financing versus equity and finally bankruptcy costs in presence of increasing levels of debt, lowering of their credit rating and rising coupon rates on new debt. It included identifying the determinants of a company's capital structure to understand companies' reluctance to issue debt and equity or mix. Aguilar et al (2006) found that firm size influenced its participation in the bond market and only large firms participate in the bond market, and that the debt market was concentrated with short

term debt as compared to long term debt. Harris and Raviv (1991) provide evidence that leverage increased with fixed assets, non-debt tax shields, investment opportunities and firm size, and increases with volatility, the probability of bankruptcy, profitability and the uniqueness of the product (Leal and Carvalhal-da-Silva 2006). Fernández et al (2006) postulate that the value of a firm is not empirically independent of its financing policy and, therefore, the conditions for the Modigliani-Miller theorem were not satisfied. Capital structure for firms in general have been investigated by various authors (viz., Fisher et al, Bradley et al, Brennan et al, Ferri et al etc). The relationship of debt ratio was inversely related with past profitability is also confirmed by Rajan and Zingales (1995) and Titman and Wessels (1998). Shyam-Sunder and Myers (1999) tested the theory over the period 1971-1989 on a sample of 157 firms. and confirmed the time-series explanatory power. Bontempi (2002), based on a sample of Italian firms, divided companies into trade off and pecking order types; there is not a perfect model that can be used for all the firms. Similar conclusions are supported by Ghosh and Cai (1999), Franz and Goyal (2003). Ennis and Male (2005) suggest that company's size could be used as a negative indicator of probability of default and therefore as a proxy for risk. Rajang and Zingales (1995) firm size was positively correlated with leverage, Fama and French (2002) argue that, because of their level of diversification, larger firms were expected to have less volatile earnings induces a higher leverage ratio. Harris and Raviv (1991), discovered that leverage increases with firm size and also Dessi and Robertson (2003) using both a static model and a dynamic model had similar results. For earlier work on the corporate debt market in India, see Mohan (2000), Thorat (2000, 2002), Leonardo (2000) and Patil (2004). Whether the debt market can function as source of financing needs to be examined. The question of classifying good papers has also not been examined in the literature. The next section proposes a method of analysis.

III. Methodology

The framework of understanding the various components impacting the corporate debt market includes three principal issues such as the firm's willingness to supply bonds, the firm's willingness to invest in bonds and households willing to invest in bonds.

$$\text{Bond} = \beta_0 + \beta_1(\text{Firm's Characteristics}) + \beta_2(\text{Market Characteristics}) + \varepsilon \quad \text{Eqn 1}$$

The dependent variable, is the total amount of bonds issued by the firm. The possible determinants of the dependent variable used in (Stewart A. et al, 2009) model include; Firm characteristics such as , fixed assets to total assets, leverage Size, Tobin's Q (indicator of firms' investment opportunities), Growth and ROA, (operating income to total assets). The market characteristics such as volatility in stock prices, DebtSize (corporate bond market as the share of public debt market), Equity Ratio, CapGDP (Market capitalization to the GDP), etc. We propose to include the following issue characteristics to the Model in Equation 1 such as Coupon rate, Maturity, Rating, Issuer Group, Interest rates in other markets, etc. The other operational variables included in the model which are used to assess the conditions of the bond market are, Total Bonds (Rupees crore),Rs/US Dollar Average, FDI (Rs Crore), FPI (Rs Crore), GDP at Factor Cost (Rupees crore), GDP growth, Per Capita GNP at factor cost (Rupees), Per Capita GNP Growth, Splashed Growth rate of Industrial Production, Annual Average of BSE, Annual Average of NIFTY, Average Gold Price Mumbai (Rupees per 10gms), Average Repo Rate, Inflation, etc.

IV. Results and Discussion

Table 1, 2, 3, 4 provide the distribution of debt issues from 1999 to 2010 and provide a picture of the depth and quality of activity in the bond market. Table 1 provides the distribution of issues by rating such as Investment Grade, Speculative Grade and Default Grade, etc. A large share of issues are rated "A" and above. Across the issuer groups, the share of private corporate with rating "A" and above is lower and so also the state corporations. Table 1 provides the distribution of the rating of corporate debt issues in 2010 that includes over 340 unique issuers comprising across seven major groups of issuers such as Banks, Federal FIs, Private Banks, Statutory Corporation Bonds, State FIs, Private Corporate and Public Sector Corporates. Over 80% of the issues have been rated "AAA" and "AA" which portrays the presence of Investment Grade Issues in the market. However, the rating distribution may vary across the groups of issuers such as State FIs or Private Corporates, where the share of investment grade may be lower. In general, Federal corporations have been rated higher than state corporations. Table 2 provides the intensity of issues and the average maturity distribution within the period 1999 to 2010. It can be seen that both the

number of issues and the average maturity (in months) does not follow an increasing trend over the period which depicts the lack of interest of issuers to rely on the debt market as an alternate channel to bank lending. This could also be due to a seasonal cap on the Money market imposed by the Reserve Bank of India which also manages the borrowings of the central government. Table 3 provides the composition of issues by issuer groups and it demonstrates that consistently Banks, FIs and public sector corporate have dominated the whole sale debt market within this period. This could mean few other groups of issuers such as Private Banks or Corporates may be accessing the external commercial borrowings (ECBs) to meet their funding needs. Poor Quality Papers and inadequate liquidity with little enthusiasm investors.

Table 1: Rating Distribution of Corporate Debt Issues (2010)

Current Rating	Frequency	Percent (%)
AAA	490	48.56
AA	394	39.05
A	99	9.81
B	3	0.3
BBB	25	2.48
Total	1011	100.00

Source: NSE Whole Sale Debt Market Archives (1999-2010)

Table 2: Intensity and Maturity of Corporate Debt Issues (1999-2010)

Year	Total Number of Issues	Average Maturity (Months)
1999	9,516	79.2
2000	7,168	65.0
2001	15,983	57.3
2002	24,082	66.4
2003	26,128	80.3
2004	13,274	89.0
2005	16,440	88.4
2006	20,758	108.8
2007	17,250	102.6
2008	17,275	83.9
2009	12,093	84.3
2010	13,136	83.4

Source: NSE Whole Sale Debt Market Archives (1999-2010)

Table 3: Intensity of Debt Issues by Issuer Groups

Year	Bank	FI	Private_Corporate	Private_FI	Public_Sector_Corporate	Pvt Bank	State_FI	Statutory	Total
1999	3,058	2,619	1,819	143	1,288	138		442	9,516

2000	1,613	1,254	971	358	1,049	198	736	701	7,168
2001	2,856	2,957	2,024	120	4,228	141	3,273	177	15,983
2002	2,521	8,604	3,642	675	6,509	445	1,540	116	24,082
2003	6,523	6,859	2,834	616	7,255	424	1,398	89	26,128
2004	3,502	2,428	1,391	508	4,389	661	66	329	13,274
2005	5,005	3,959	774	905	3,261	655	496	1,151	16,440
2006	7,345	4,170	521	2,578	4,706	1,071	160	207	20,758
2007	2,454	6,213	1,234	4,232	2,059	770		109	17,250
2008	2,264	5,170	1,791	2,727	1,675	86		638	17,275
2009	2,172	3,211	1,949	1,929	899	25	32	323	12,093
2010	651	3,778	2,135	2,143	1,977		60	214	13,136

Source: NSE Whole Sale Debt Market Archives (1999-2010)

The money market limits are included in the form of Combined Total Liabilities of the Centre & States (Rs Crores) and Total Liquidity (Rs Crore). In this analysis we assume that the firm's financials are given and hence we estimate the intensity of bond issues, average coupon rate and the average maturity in three independent regression models. The data used in this study included monthly debt updates archive files of the WDM segment of NSE for the period A January 1999 to December 2010. Table 5 provides the sample profile of the data used in the model.

Table 4: Descriptive Statistics of the Whole Sale Debt Market (1999-2010)

Variable	Mean	Std	Minimum	Maximum
No of Times Issued	191.3	407.3	1.0	5376.0
Avg_Coupon	8.5	3.5	0.0	16.0
Avg_Maturity	79.4	42.6	2.0	240.0
Total_Bonds_Rupees_crore_	19928.1	16991.6	4845.5	53608.0
Rs_US_Dollar_Average	45.8	1.9	40.2	48.4
FDI_Rs_Crore_	75382.0	65142.7	9338.0	179059.0
FPI_Rs_Crore_	47568.8	63335.0	-63618.0	153516.0
GDP_at_Factor_Cost_Rupees_crore	3297899.8	932880.0	2222314.9	4877842.0
GDP_growth	7.0	1.9	3.8	9.6
Per_Capita_GNP_at_factor_cost_R	29520.3	6713.7	22038.0	40765.0
Per_Capita_GNP_Growth	5.3	2.0	2.2	8.2
Splashed_Growth_rate_of_Industri	6.8	3.4	2.5	15.2
Annual_Avg_of_BSE	4651.7	3044.3	1587.7	9840.2
Annual_Avg_of_NIFTY	2711.4	1675.8	1036.1	5583.5
Gold_price_Mumbai_Rupees_per_10g	8993.2	5183.9	4393.6	19227.1
_Combined_Total_Liabilities_of_t	73.2	5.3	64.9	81.1

WPI_Inflation_	0.0	0.1	-0.5	0.1
Total_Liquidity_Rs_Crore__	11947053.0	7137789.7	4284638.0	24790612.0
Avg_Repo_rate	7.1	1.1	5.1	8.8
Indices_of_Real_Effective_Exchan	100.0	3.1	95.3	108.6

The rising maturity of Bonds is explained by rising borrowing costs in the market (Discount as the difference between Average Repo Rate and Average Coupon Rate). GDP_Growth (%), REER and the Combined_Total_Liabilities_of_the Federal & States, are positively related with Maturity. This could refer to the asset liability structure of issuers in order to fulfill the need to match the structure of their existing or potential assets with a planned liability from the debt market.

V. Conclusion & Policy Implications

This paper assessed the bond market in India by briefly describing its structure and functioning, as well as employing to identify factors that influence the demand and supply of bonds actually influence firms' demand and supply of bonds. This study intended to explain the intensity of debt issues for Indian firms given the conditions of the economy and also identified the capacity of the firms to raise cheaper funds or to lengthen the maturity of their bond issues for given financials. Our findings have been in consonance with previous finding in the literature. The credit rating is the most significant factor to the investors when they select bond investment. It helps the investors assess the credit risk of the bond and thus require an appropriate risk premium. The bond market is affected by the movement in other security markets. To compete for the limited funds of the institutional investors, bond markets must be able to provide investors certain facilities to promote higher investments in bonds. RBI Credit Policy 2009 confirmed that the government borrowing programs could crowd out the opportunity of investment in debt markets in 2009. Questions such as do macroeconomic variables impact firms' use of bond financing versus bank financing, and why do firms use bank financing over bond financing could also be answered. Investors with diverse expectations are a pre condition for the debt market.

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