

Capital Market Efficiency-Indian Corporate Debt Securities



Management

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ABSTRACT

A credit rating agency also called a ratings service. It is a company that assigns credit ratings which rate a debtor's ability to pay back debt by making timely interest payments and principal. The data obtained from the existing literature and review. The required information obtained from the hand book statistics of the year of 2013. The research period varied from the year 2004-2005 to 2-12-2013. The main objective of the paper is to test where there is a significant difference between the variables of ratings of corporate debt securities. The SPSS16.0 version was used to analyze the data. The techniques of paired samples statistics, paired samples correlations, paired samples test were applied to derive the results. The study observed that there was significant differences between two variables of corporate debt securities, except in the case of highest safety number to the high safety (AA) number. The study also came out with the there was a significant difference between the total investment grade amount to the non investment grade amount, but there was no significant difference between the total investment grade number to the non-investment grade number.

Introduction:

A credit rating agency also called a ratings service. It is a company that assigns credit ratings which rate a debtor's ability to pay back debt by making timely interest payments and principal. An agency may rate the creditworthiness of issuers of debt obligations, of debt instruments and in some cases, of the servicers of the underlying debt but not of individual consumers. The debt instruments evaluated by CRAs include government bonds corporate bonds CDs municipal bonds preferred stock, and collateralized securities, such as mortgage-backed securities and collateralized debt obligations. Credit rating is a highly concentrated industry, with the two largest CRAs—Moody's Investors Service and Standard & Poor's (S&P)—controlling 80 per cent of the global market share, and the "Big Three" credit rating agencies—Moody's, S&P, and Fitch Ratings—controlling approximately 95 per cent of the ratings business.

Review of Literature: David J Denis Vassil T Mihov (October 2003) found that the primary determinant of the debt source was the credit quality of the issuer. Firms with the highest credit quality borrow from public sources, firms with medium credit quality borrow from banks, and firms with the lowest credit quality borrow from non-bank private lenders. Non-bank private debt thus plays a unique role in accommodating the financing needs of firms with low credit quality. In addition, the choice of debt source was (weakly) influenced by managerial discretion. Ronald C. Anderson, Sattar A. Mansi, David M. Reeb.

(2003) We investigate the impact of founding family ownership structure on the agency cost of debt. We find that founding family ownership is common in large, publicly traded firms and is related, both statistically and economically, to a lower cost of debt financing. Our results are consistent with the idea that founding family firms have incentive structures that result in fewer agency conflicts between equity and debt claimants and they suggested that bond holders view founding family ownership as an organizational structure that better protects their interests. Amar Gande, Manju Puri, Anthony Saunders. (1999) pointed out the competitive effects of commercial bank entry into the corporate debt underwriting market, particularly with respect to underwriter spreads, ex-ante yields, and market concentration. They found that underwriter spreads and ex-ante yields declined significantly with bank entry, consistent with the market becoming more competitive. This effect was strongest among the lower-rated and smaller debt issues of which banks had underwritten a relatively greater share. The early evidence also indicated that bank entry had tended to decrease market concentration. Kooyul Jung, Yong-Cheol Kim René M. Stulz (1996) examined the ability of the pecking-order model, the agency model, and the timing model to explain firms' decisions whether to issue debt or equity, the stock price reaction to their decisions and their actions afterward and they found strong support for the agency model and they insisted that firms often depart from the pecking order because of agency considerations and did not support for the timing model.

	Highest safety (AAA)		High safety (AA)		Adequate safety (A)		Moderate safety (BBB)		Non-Investment Grade		Total	
	No.	Amount (crore)	No.	Amount (crore)	No.	Amount (crore)	No.	Amount (crore)	No.	Amount (crore)	No.	Amount (crore)
1	2	3	4	5	6	7	8	9	10	11	12	13
2004-05	278	1,59,788	110	48,602	58	8,191	35	4,139	9	688	490	2,18,707
2005-06	261	2,79,968	147	62,316	45	28,957	21	1,200	4	144	478	3,82,585
2006-07	312	2,66,863	144	53,766	53	5,905	33	9,014	2	75	544	3,35,623
2007-08	335	4,54,164	257	1,20,199	167	35,661	63	9,478	27	1,603	849	6,21,105
2008-09	307	5,23,589	349	1,38,471	298	53,204	526	52,372	396	24,220	1,879	7,91,891
2009-10	275	5,03,347	321	1,41,089	249	42,121	691	29,550	1,507	45,942	3,043	7,62,050
2010-11	244	5,11,583	267	1,82,584	249	90,445	579	69,283	1,843	42,704	3,199	9,07,685
2011-12	256	5,36,245	380	2,38,381	267	88,534	710	53,140	2,793	56,239	4,440	8,63,548
2012-13	204	7,98,560	449	2,46,970	313	86,799	648	47,193	2,558	54,090	4,172	12,33,613

Input Table: Ratings of Corporate Debt Securities In terms of Number and Amount from the Year 2004-05 to 2012-13.

Source: SEBI Hand Book –Statistics-2013.

Out Put Table :1 Descriptive Statistics Between Ratings of Corporate Debt Securities.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Highest Safety no	2.7467E2	9	39.62323	13.20774
	High Safety(AA) No	2.6933E2	9	117.13347	39.04449
Pair 2	Adequate Safety(A) No	1.8878E2	9	110.35033	36.78344
	Moderate Safety(BBB) No	3.6733E2	9	317.35666	105.78555
Pair 3	Non Investment Grade-No	1.0154E3	9	1166.69459	388.89820
	Total Number	2.1174E3	9	1618.81238	539.60413
Pair 4	Highest Safety (AAA) Amount	4.4823E5	9	1.89621E5	63206.92464
	High Safety(AA) Amount	1.3693E5	9	75058.58421	25019.52807
Pair 5	Adequate Safety Amount(Crore)	4.8873E4	9	33310.55749	11103.51916
	Moderate Safety(BBB) Amount	3.0626E4	9	25601.13070	8533.71023
Pair 6	Non Investment Grade Amount	2.5078E4	9	24880.27504	8293.42501
	Total Amount (Crore)	6.7965E5	9	3.22990E5	1.07663E5
Pair 7	Highest Safety (AAA) Amount	4.4823E5	9	1.89621E5	63206.92464
	Moderate Safety(BBB) Amount	3.0626E4	9	25601.13070	8533.71023
Pair 8	Adequate Safety Amount(Crore)	4.8873E4	9	33310.55749	11103.51916
	Highest Safety (AAA) Amount	4.4823E5	9	1.89621E5	63206.92464
Pair 9	High Safety(AA) No	2.6933E2	9	117.13347	39.04449
	Non Investment Grade Amount	2.5078E4	9	24880.27504	8293.42501
Pair 10	Moderate Safety(BBB) No	3.6733E2	9	317.35666	105.78555
	Highest Safety no	2.7467E2	9	39.62323	13.20774

Source: SPSS

This table reveals that paired samples statistics the highest safety was favorable than the high safety within the pair 1, in pair 2 moderate safety (BBB) favorable than adequate safety (A) and the total number better than the non-investment grade in pair 3, highest safety amount (AAA) was better than the high safety (AA) amount in a pair 4, but in pair 5, adequate safety amount better than the moderate safety amount. The pair 6 discloses that the total amount was better than the non investment grade

amount. The pair 7 disclosed that the highest safety (AAA) amount favorable than moderate safety (BBB) amount, within the pair 8, the adequate safety amount better than the highest safety amount, the pair 9 discloses that the high safety (AA) number was better than the non investment grade amount. The pair 10 disclosed that the moderate safety (BBB) was better than the highest safety .

Table 2: Strength of Relationship Between Ratings of Corporate Debt Securities(In terms of Number and Amount)

	Name of the Ratings	N	Correlation	Sig.
Pair 1	Highest Safety no & High Safety(AA) No	9	-.441	.235
Pair 2	Adequate Safety(A) No & Moderate Safety(BBB) No	9	.916	.001
Pair 3	Non Investment Grade-No & Total Number	9	.985	.000
Pair 4	Highest Safety (AAA) Amount & High Safety(AA) Amount	9	.911	.001
Pair 5	Adequate Safety Amount(Crore) & Moderate Safety(BBB) Amount	9	.896	.001
Pair 6	Non Investment Grade Amount & Total Amount (Crore)	9	.872	.002
Pair 7	Highest Safety (AAA) Amount & Moderate Safety(BBB) Amount	9	.727	.027
Pair 8	Adequate Safety Amount(Crore) & Highest Safety (AAA) Amount	9	.835	.005
Pair 9	High Safety(AA) No & Non Investment Grade Amount	9	.857	.003
Pair 10	Moderate Safety(BBB) No & Highest Safety no	9	-.544	.130

Source: SPSS

This table reveals that the paired samples correlations. There was a negative moderate relationship existed between the highest safety and high safety (AA) . There was a very strong relationship between the adequate safety (A and moderate safety (BBB) number. Within the pair 3 also the both variable of net investment grade and total number was very strongly correlated. In pair 4 also there was a very strong relationship existed between the highest safety (AAA) amount and high safety (AA) amount. In the pair 5 there was a very strong relationship existed between the adequate safety amount and moderate safety (BBB) amount. The pair 6 also depicted that the there was a very strong relationship existed between the non investment grade

amount to total amount there was a moderate relationship existed between the highest safety (AAA) amount to moderate safety (BBB) amount, with in the pair 7. The pair 8 consists of very strong relationship, in the same may there was very strong relationship existed between the adequate safety amount and highest safety (AAA) amount. Pair 9 represents that the there was a very strong relationship existed between the variables of high safety (AA) number and non investment grade amount, but there was a moderate negatively correlated between the variables of moderate safety (BBB) number and highest safety number. Finally, it can be concluded that all the pairs positively

Table 3 Distribution of Paired Samples Test Regarding Test of Variance in Terms of Number and Amount

	Name of Ratings	Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Highest Safety no - High Safety(AA) No	5.33333	139.23092	46.41031	-101.68903	112.35569	.115	8	.911
Pair 2	Adequate Safety(A) No - Moderate Safety(BBB) No	-1.78556E2	220.82352	73.60784	-348.29554	-8.81557	-2.426	8	.041
Pair 3	Non Investment Grade-No - Total Number	-1.10200E3	511.25410	170.41803	-1494.98469	-709.01531	-6.466	8	.000
Pair 4	Highest Safety (AAA) Amount - High Safety(AA) Amount	3.11303E5	1.25126E5	41708.64085	2.15123E5	4.07484E5	7.464	8	.000
Pair 5	Adequate Safety Amount(Crore) - Moderate Safety(BBB) Amount	1.82470E4	15391.08783	5130.36261	6416.36261	30077.63739	3.557	8	.007
Pair 6	Non Investment Grade Amount - Total Amount (Crore)	-6.54567E5	3.01536E5	1.00512E5	-8.86348E5	-4.22786E5	-6.512	8	.000
Pair 7	Highest Safety (AAA) Amount - Moderate Safety(BBB) Amount	4.17609E5	1.71918E5	57306.05561	2.85461E5	5.49757E5	7.287	8	.000
Pair 8	Adequate Safety Amount(Crore) - Highest Safety (AAA) Amount	-3.99362E5	1.62861E5	54286.89521	-5.24547E5	-2.74176E5	-7.357	8	.000
Pair 9	High Safety(AA) No - Non Investment Grade Amount	-2.48090E4	24779.92195	8259.97398	-43856.53416	-5761.46584	-3.004	8	.017
Pair 10	Moderate Safety(BBB) No - Highest Safety no	9.26667E1	340.52973	113.50991	-169.08766	354.42099	.816	8	.438

correlated except pair 1 and pair 10.

Source: SPSS

Paired Samples Test: This table explains that the whether there was a significant difference between the variables with in the pair.

Hypothesis 1:

Null Hypothesis (Ho): There is no significant difference between the highest safety no, and high safety (AA) No.

Alternative Hypothesis (Ha): There is significant difference between the highest safety number, and high safety (AA) Number.

Analysis: The value of t was 0.115, df=8, p=0.911, hence it can be concluded that the proposed null hypothesis was accepted and concluded that there was no significant difference between the highest safety number and high safety (AA) number.

Pair 2:

Null Hypothesis (Ho): There is no significant difference between the adequate safety (A) number, to moderate safety (BBB) .

Alternative Hypothesis (Ha): There is significant difference between the adequate safety (A) number to moderate safety (BBB) Number.

Analysis: the value of t was -2.426, df=8, p=0.041, and concluded that the assumed null hypothesis was rejected and inferred that there was a significant difference between the adequate safety (A) number to moderate safety (BBB) number.

Pair 3:

Null Hypothesis (Ho): There is no significant difference between the non investment grade number to the total number.

Alternative Hypothesis (Ha): There is a significant difference between the non investment grade number to the total number

Analysis: The value of t was -6.466,df=8 p=0.000, hence, it can be concluded that, the assumed null hypothesis was not accepted, there fore it was concluded that there was no significant difference between the non investment grade number to the total number.

Hypothesis 4:

Null Hypothesis (Ho): There is no significant difference between the highest safety (AAA) amount to the high safety (AA) amount.

Analysis: The value of t was 7.464, df=8, p=0.000, hence it can be concluded that the proposed null hypothesis was not accepted, it concluded that there was a significant difference between the highest safety (AAA) amount to the high safety (AA) amount.

Hypothesis 5:

Null Hypothesis (Ho): There is no significant difference between the adequate safety amount to the moderate safety (BBB) amount.

Alternative Hypothesis (Ha): There is a significant difference between the adequate safety amount to the moderate safety (BBB) amount.

Analysis: The value of t was 3.557, df=8, P=0.000, and indicates

that the assumed null hypothesis was not accepted and concluded that there was a significant difference between the adequate safety amount to the moderate safety (BBB) amount.

Hypothesis 6:

Null Hypothesis (Ho): There is no significant difference between the non-investment grade to the total amount.

Alternative Hypothesis (Ha): There is a significant difference between the non-investment grade to the total amount.

Analysis: The value of t was -6.512, df=8, P=0.000, and came to the conclusion that the proposed null hypothesis was rejected and concluded that there was a significant difference between the non-investment grade to the total investment.

Hypothesis 7:

Null Hypothesis (Ho): There is no significant difference between the highest safety (AAA) amount to the moderate safety (BBB) amount.

Alternative Hypothesis (Ha): There is significant difference between the highest safety (AAA) amount to the moderate safety (BBB) amount.

Analysis: The value of t was 7.287, df=8, P=0.000, hence, it was observed that the assumed null hypothesis was rejected and concluded that there was a significant difference between the highest safety (AAA) amount to the moderate safety (BBB) amount.

Hypothesis 8:

Null Hypothesis (Ho): There is no significant difference between the adequate safety (AAA) amount to the highest safety (AAA) amount.

Alternative Hypothesis (Ha): There is significant difference between the adequate safety amount to the highest safety (AAA) amount.

Analysis: The value of t was -7.357, df=8, P=0.000, and concluded that the proposed null hypothesis was rejected and concluded that there was a significant difference between the adequate safety amount to the highest safety (AAA) amount.

Hypothesis 9:

Null Hypothesis (Ho): There is no significant difference between the high safety (AA) number to the non investments grade amount.

Alternative Hypothesis (Ha): There is a significant difference between the highest safety (AA) number to the non investment grade amount.

Analysis: The value of t was -3.004, df=8, p=0.017, and null hypothesis was rejected, and concluded that there is a significant difference between the high safety (AA) number to the non

investment grade amount.

Hypothesis 10:

Null Hypothesis (Ho): There is no significant difference between the moderate safety (BBB) number to the highest safety number.

Alternative Hypothesis (Ha): There is a significant difference between the moderate safety (BBB) number to the highest safety number.

Analysis: The table reflects that the value of t was 0.816, df=8, P=0.438, where it came to that the proposed null hypothesis was accepted and concluded that there was no significant difference between the moderate safety (BBB) number to the highest safety number.

Finally it can be concluded that there was a significant difference between the two variables of all pairs except the pair 1 and pair 10.

Table 4: Distribution of Paired Samples Statistics of the Ratings of Corporate Securities

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Investment Grade NO	1.1020E3	9	511.25410	170.41803
	Non Investment Grade-No	1.0154E3	9	1166.69459	388.89820
Pair 2	Total Investment Grade Amount	6.5457E5	9	3.01536E5	1.00512E5
	Non Investment Grade Amount	2.5078E4	9	24880.27504	8293.42501

Source: SPSS

This table reveals that the paired samples statistics projected that the total investment grade number was better than the non investment grade number and the total investment amount better than the non-investment grade amount.

Table 5: Distribution of Paired Samples Correlations of Ratings Assigned to Corporate Debt Securities.

		N	Correlation	Sig.
Pair 1	Total Investment Grade NO & Non Investment Grade-No	9	.837	.005
Pair 2	Total Investment Grade Amount & Non Investment Grade Amount	9	.852	.004

Source: SPSS

This table shows that the paired sample correlation, and concluded that there was a very strong relationship between the total investment grade number to the non investment grade number, and also concluded that there was a very strong relationship between the total investment grade amount to noninvestment grade amount.

Table 6: Distribution of Paired Samples Test of Ratings Assigned to Corporate Debt Securities to Test of Difference Between the Variables.

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Total Investment Grade NO - Non Investment Grade-No	8.65556E1	790.29142	263.43047	-520.91620	694.02732	.329	8	.751
Pair 2	Total Investment Grade Amount - Non Investment Grade Amount	6.29489E5	2.80649E5	93549.55591	4.13763E5	8.45214E5	6.729	8	.000

Source: SPSS

This shows that the to test whether there was a significant difference between the variables of total investemnt grade number to the non investment grade number and total investment grade amount to the non investment grade amount.

Hypothesis 1:

Null Hypothesis (Ho): There is no significant difference between the total investment grade number to the non-investment grade number.

Alternative Hypothesis (Ha): There is a significant difference between the total investment grade number to the non-investment grade number.

Analysis: This table reflected that the value of t was 6.729, df=8, P=0.751, hence it can be concluded that the proposed null hypothesis was accepted and concluded that there was no significant difference between the total investment grade number to the non investment grade number.

Hypothesis 2:

Null Hypothesis (Ho): There is no significant difference between the total investment grade amount to the non-investment grade amount.

Alternative Hypothesis (Ha): There is a significant difference between the total investment grade amount to the non-investment grade amount.

Analysis: This table reflected that the value of t was 0.329, df=8, P=0.000, hence it can be concluded that the proposed null hypothesis was not accepted and concluded that there was no significant difference between the total investment grade amount to the non investment grade amount

Findings of the Study:

1. The study concluded that there was no significant difference between the highest safety number and high safety (AA) number.
2. The study inferred that there was a significant difference between the adequate safety (A) number to moderate safety (BBB) number.
3. The study concluded that there was no significant difference between the non investment grade number to the total number.
4. The study witnessed that that there was a significant difference between the highest safety (AAA) amount to the high safety (AA) amount.

5. The study also came out with the there was a significant difference between the adequate safety amount to the moderate safety (BBB) amount.
6. The study confirmed that there was a significant difference between the non-investment grade to the total investment.
7. The study also observed that that the there was a significant difference between the highest safety (AAA) amount to the moderate safety (BBB) amount.
8. The study concluded that there was a significant difference between the adequate safety amount to the highest safety (AAA) amount.
9. The study observed that the there is a significant difference between the high safety (AA) number to the non investment grade amount
10. The study also concluded that there was no significant difference between the moderate safety (BBB) number to the highest safety number.
11. The study also came out with there was no significant difference between the total investment grade number to the non investment grade number.
12. The study observed that there was no significant difference between the total investment grade amount to the non investment grade amount

Suggestions and Conclusion: The study found that highest safety security (in terms of number) better than that of the high safety (AA) number, moderate safety (BBB) number of instruments> adequate safety number of instruments, total number>non Investment grade no, highest safety (AAA) amount> high safety (AA) amount, adequate safety amount> moderate safety, total amount >non investment grade, highest safety (AAA) amount>moderate safety (BBB) amount, adequate safety amount> highest safety amount non investment grade amount > high safety (AAA) number and the moderate safety (BBB) number> highest safety number. The study also concluded that most of the cases the variables highest safety in terms of number to high safety (AA) in terms of number and moderate safety (BBB) number and the highest safety number. The study also observed that the there was significant differences between two variables of corporate debt securities, except in the case of highest safety number to the high safety (AA) number. The study also come out with the there was a significant difference between the total investment grade amount to to the non investment grade amount, but there was no significant difference between the total investment grade number to the non-investment grade number.

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