

Testing the Consistency in Rating Methodology: A Study of Rating Agencies in India

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Abstract

The credit rating agencies evaluate the intrinsic worth of a company and assign ranks to the companies accordingly. These agencies have become important in view of the increasing number of companies going to the public for funds and also due to government stipulating that corporate bodies wanting to raise funds from the market should have their debt instrument rated. These agencies provide unbiased assessment of credit worthiness of the companies issuing debt instruments and thus restore the confidence in the capital market. The main objective of the paper is to assess the consistency in rating methodology of rating agencies by taking companies belonging to different rating (between group) classes as sample. It has been revealed in the study that there has been inconsistency in the methodology adopted by all the four rating agencies while assigning different rating grades.

Keywords: Credit Rating, Credit rating agencies, Consistency, Solvency ratios, Profitability ratios.

JEL Classification: G10, G24.

1. Introduction

The expansion of financial markets and ever increasing number of financial instruments provide both borrowers and investors with large number of funding and investing options. As the number of companies borrowing directly from the capital market increases and as the industrial environment becomes more and more competitive and demanding, it is difficult for investors to make a right choice among the multiplicity of instruments and fund raisers particularly where all the borrowers have a good name and reputation. Further, the growing number of cases of defaults and frauds in payment of interest and repayment of principal sum borrowed has increased the importance of credit rating. Therefore, investors feel a growing need for an independent and credible agency which judges impartially, the credit quality of debt obligations of different companies and assists investors, individuals and institutions in making investment decisions (Singh, 1996). Thus, Credit Rating Agencies fulfil this need of investors as the main purpose of credit rating is to provide investors with comparable information on credit risk based on standard rating scales regardless of the specifics of the companies. According to Roman Kraussl, Professor of Economics at University of Crete, "The historical logic underlying the existence of credit rating agencies has clearly resided within the basic problems of financial markets: Asymmetric information. Credit Rating agencies supply market participants with a system of relative creditworthiness of all bond issues by incorporating all the components of default risk into a single code: The credit rating" (Jutur, 2005).

The credit rating agencies evaluate the intrinsic worth of a company and assign ranks to the companies accordingly. These agencies have become important in view of the increasing number of companies going to the public for funds and also due to government stipulating that corporate bodies wanting to raise funds from the market should have their debt instrument rated. The main objective of these agencies is to restore the confidence in the capital market and to provide unbiased assessment of credit worthiness of the companies issuing debt instruments. Credit Rating Agencies are essentially corporations with specialized functions, namely, assessment of the likelihood of the timely payments by an issuer on a financial obligation (known as 'credit rating').

Further, the following developments also contributed to emergence of credit rating industry all over the world.

- The increasing role of capital and money markets consequent to disintermediation;
- Increased securitization of borrowing and lending consequent to disintermediation;
- Globalization of credit market;
- Continuing growth of information technology;
- Growth of confidence in the efficiency of the open market mechanism;
- Withdrawal of Government safety nets and the trend towards privatization (Arora, 2003).

In India, the rating activities started with the incorporation of the Credit Rating Information Services of India Ltd. (CRISIL) in 1987. The second rating agency Investment Information and Credit Rating Agency of India Ltd. (ICRA) was incorporated in 1991. The other rating agencies including Credit Analysis and Research Ltd. (CARE) as well as Onicra Credit Rating Agency of India Ltd., were incorporated in 1993. Further Duff and Phelps Credit Rating (India) Private Ltd. (DCR) was established in 1996, which is presently known as Fitch Ratings India Private Ltd. One more rating agency SME Rating Agency of India Limited (SMERA) was established in 2005. A new rating agency, Brickwork Ratings (BWR) which is based in Bangalore was incorporated in 2007. Five rating agencies including CRISIL, ICRA, CARE, Fitch and Brickwork Ratings have been recognized by SEBI.

2. Objective of the Paper

The main objective of the paper is to assess the consistency in rating methodology of rating agencies by verifying

some of the common factors which determine the bond ratings. Consistency in rating methodology of each rating agency is assessed by taking companies belonging to different rating (between group) classes as sample.

3. Methodology and Data Collection

The paper is based on the secondary data. It is a study of four old SEBI recognized rating agencies including CRISIL, ICRA, CARE and FITCH. The time period of the study is from April 2001 to March 2006. Bond rating methodology has been analyzed corresponding to eight variables, viz. four liquidity as well as solvency ratios and four profitability ratios. The short-term liquidity ratios considered are Current ratio and Quick ratio whereas long-term solvency ratios include Debt-equity ratio and Interest Coverage ratio. Further the profitability ratios selected include Return on Capital Employed, Return on Net Worth, Profit after tax/Total Income (PAT/TI), and Profit before depreciation, interest and tax/Total Income (PBDITA/TI). These financial ratios are selected as these are commonly used by all the credit rating agencies and some of the previous studies also support these ratios. All the above given liquidity ratios are expressed in times whereas all the given profitability ratios are expressed in percentage terms. So for the sake of simplicity, separate unit with each ratio has not been shown in the paper.

The data regarding various rating grades has been collected from the reports of the rating agencies including various issues of CRISIL Rating Scan, ICRA Rating Profile and CARE Rating View, websites of these rating agencies and PROWESS database of CMIE. Further, the data relating to various financial ratios relating to the given period has also been collected from PROWESS database of CMIE.

The bond rating consistency is assessed by taking eight financial ratios for four rating grades, viz. AAA, AA, A and BBB. These rating categories have been chosen in light of the fact that majority of rated companies fall under these rating classes. One-fourth of the total number of manufacturing and trading companies whose debentures and bonds are rated by each rating agency during the time period 2001-02 to 2005-06 are taken as sample. So, 25 per cent of the companies selected for each agency include 60 for CRISIL, 36 for ICRA, 28 for CARE and 20 for FITCH. Companies selected for each rating agency are further divided into four equal groups, viz. AAA, AA, A and BBB.

The consistency in bond rating methodology of each agency is assessed by taking the companies belonging to different rating groups as sample. As the key financial ratios of companies belonging to different rating classes (between group) should be different from each other, it implies that between-group sample variances should be maximum. This between-group consistency is, thus, checked out by comparing different rating grades, viz. AAA, AA, A and BBB for each agency for all financial ratios. F values using Analysis of Variance (ANOVA) have been calculated for the purpose. Tukey’s HSD Post Hoc Test was also applied to make multiple comparisons in case if the F value came to be significant.

All the agencies use similar basic symbols from AAA to D to rate long-term bonds and debentures, but in order to differentiate their symbols from one another, the agencies use various prefixes/ suffixes. In the present study only the basic symbols have been used for the sake of simplicity. All calculations are done with the help of Statistical Package for Social Sciences (SPSS) version 16.

A brief description of all the above given statistical tools and the formulas is given as under:

(1) Analysis of Variance (ANOVA)

To compare more than two means at a time, analysis of variance (ANOVA) was carried out. The process of the analysis is given hereunder:

Source of variation	d.f.	T.S.S.	M.S.S.	F-ratio
Categories	n-1=a	S1	S1/a=x	x y
Error	b-a=c	S2	S2/c=y	
Total	N-1=b			

where, n = No. of categories to be compared
 $N = n \times Y$

Y = No. of data points

T.S.S. = Total Sum of Squares

M.S.S. = Mean Sum of Squares (TSS/d.f.)

d.f. = Degree of Freedom.

(2) Tukey’s HSD Post Hoc Test

This test was applied to make multiple comparisons in case if the F-ratio came to be significant. This test is basically applied where the N is unequal.

4. Results and Discussion

The analysis bring to fore the following results:

4.1 Comparison of Current Ratio of Different Rating Classes of All Agencies

The comparison of current ratios of companies which were assigned AAA, AA, A and BBB by all the four agencies is shown in Table 1. It is clear from the table that F-value is not significant for all the four rating agencies.

Table 1. Mean Values of Current Ratio of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	1.2847	1.4378	1.2757	1.3840
AA	1.7860	1.1400	1.9729	1.2920
A	1.4533	1.2600	3.8057	1.3320
BBB	1.5667	1.5467	1.5529	1.4640
F-value	1.585 ns	0.883 ns	0.755 ns	0.140 ns
Combination	Significance of Mean Difference: Tukey’s HSD			
AAA vs AA	-0.5013	0.2978	-0.6972	0.0920
AAA vs A	-0.1686	0.1778	-2.5300	0.0520
AAA vs BBB	-0.2820	-0.1089	-0.2772	-0.0800
AA vs A	0.3327	-0.1200	-1.8328	-0.0400
AA vs BBB	0.2193	-0.4067	0.4200	-0.1720
A vs BBB	-0.1134	-0.2867	2.2528	-0.1320

It means that the companies which have been assigned different rating grades viz. AAA, AA, A and ‘BBB’ by all the four rating agencies may not have different current ratios. It highlights the inconsistency in rating methodology of all the four rating agencies individually as companies which fall under different rating grades do not have different current ratios over the period of study.

4.2 Comparison of Quick Ratio of Different Rating Classes of all the Agencies

The values of the quick ratio of the companies which have been assigned different rating grades by CRISIL, ICRA, CARE and FITCH are shown in Table 2.

Table 2. Mean Values of Quick Ratio of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	0.7160	0.6456	0.7571	0.7320
AA	0.9460	0.5300	1.1000	0.6580
A	0.7673	0.5844	3.0729	0.5460
BBB	0.7933	0.7522	0.6114	0.7580
F-value	0.659 ns	0.667 ns	0.929 ns	0.500 ns
Combination	Significance of Mean Difference: Tukey's HSD			
AAA vs AA	-0.2300	0.1156	-0.3429	0.0740
AAA vs A	-0.0513	0.0612	-2.3158	0.1860
AAA vs BBB	-0.0773	-0.1066	0.1457	-0.0260
AA vs A	0.1787	-0.0544	-1.9729	0.1120
AA vs BBB	0.1527	-0.2222	0.4886	-0.1000
A vs BBB	-0.0260	-0.1678	2.4615	-0.2120

The analysis given in the table depicts that all the agencies do not have significant F-value, i.e., there is no significant difference in the mean values of quick ratio of companies which have been assigned AAA, AA, A and BBB rating grades by all these agencies during the period of study. Thus, methodology adopted by all the agencies in this case also was not consistent.

4.3 Comparison of Debt-Equity Ratio of Different Rating Classes of all the Agencies

Table 3, shows the comparison of Debt-equity ratio of AAA, AA, A and BBB rated companies of each agency. The insignificant F-values in all the cases depict that there is no significant difference between the values of debt-equity ratio of all the companies. It means that during the period of study, despite different rating symbols Debt-equity ratio is not significantly different for different companies. Thus, the four rating agencies, viz. CRISIL, ICRA, CARE and FITCH did not have consistency in their rating methodology.

Table 3. Mean Values of Debt-Equity Ratio of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	0.2733	1.7700	2.3143	1.7480
AA	0.7873	0.6778	0.8671	1.1920
A	0.6840	1.1589	1.1814	1.4820

Rating	CRISIL	ICRA	CARE	FITCH
BBB	1.1373	1.4278	1.6871	49.2620
F-value	0.877 ns	0.576 ns	0.383 ns	0.974 ns
Combination	Significance of Mean Difference: Tukey's HSD			
AAA vs AA	-0.5140	1.0922	1.4472	0.5560
AAA vs A	-0.4107	0.6111	1.1329	0.2660
AAA vs BBB	-0.8640	0.3422	0.6272	-47.5140
AA vs A	0.1033	-0.4811	-0.3143	-0.2900
AA vs BBB	-0.3500	-0.7500	-0.8200	-48.0700
A vs BBB	-0.4533	-0.2689	-0.5057	-47.7800

4.4 Comparison of Interest Coverage Ratio of Different Rating Classes of all the Agencies

The F-values relating to interest coverage ratio of various companies which were assigned different rating grades by all the four rating agencies are shown in Table 4. The insignificant ratios of CRISIL, ICRA and FITCH highlight that these agencies consider similar interest coverage ratio while assigning AAA, AA, A and BBB rating grades to different companies over the study period. This means that their rating methodology was not consistent.

Table 4. Mean Values of Interest Coverage Ratio of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	60.6933	64.5889	1.0200	50.0700
AA	6.4893	27.2411	5.7614	4.1320
A	1.4320	5.2500	2.4143	2.6900
BBB	2.0873	0.4944	1.7786	4.1000
F-value	1.913 ns	0.922 ns	3.623**	0.978 ns
Combination	Significance of Mean Difference: Tukey's HSD			
AAA vs AA	54.2040	37.3478	-4.7414**	45.9380
AAA vs A	59.2613	59.3389	-1.3943	47.3800
AAA vs BBB	58.6060	64.0945	-0.7586	45.9700
AA vs A	5.0573	21.9911	3.3471	1.4420
AA vs BBB	4.4020	26.7467	3.9828	0.0320
A vs BBB	-0.6553	4.7556	0.6357	-1.4100

**Significant at 5 per cent level.

CARE was the only agency which has a significant F-value which means that CARE considered different interest coverage ratios for assigning different rating grades but this difference is more significant for AAA and

AA groups as highlighted by significant value of Tukey's HSD.

4.5 Comparison of Return on Capital Employed of Different Rating Classes of all the Agencies

The F-values relating to return on capital employed of various companies which were assigned different rating grades by all the four rating agencies are shown in Table 5.

Table 5. Mean Values of Return on Capital Employed of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	14.8193	16.4167	-17.7043	12.4300
AA	10.7640	15.8056	14.6771	12.4240
A	2.5913	2.6467	5.4043	7.7900
BBB	4.0927	-0.7056	5.4400	12.2200
F-value	2.426 ns	2.314 ns	1.445 ns	0.137 ns
Combination	Significance of Mean Difference: Tukey's HSD			
AAA vs AA	4.0553	0.6111	-32.3814	0.0060
AAA vs A	12.2280	13.7700	-23.1086	4.6400
AAA vs BBB	10.7266	17.1223	-23.1443	0.2100
AA vs A	8.1727	13.1589	9.2728	4.6340
AA vs BBB	6.6713	16.5112	9.2371	0.2040
A vs BBB	-1.5014	3.3523	-0.0357	-4.4300

The fact that there is no significant difference in the mean values of return on capital employed of different AAA, AA, A and BBB rated companies is highlighted by the insignificant F-value in case of all the agencies. Thus, similar return on capital employed was considered by all the agencies while assigning different rating grades over the study period.

4.6 Comparison of Return on Net Worth of Different Rating Classes of all the Agencies

The comparison of return on net worth of various companies with different rating grades is represented in Table 6.

Table 6. Mean Values of Return on Net Worth of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	16.3320	27.5756	25.9129	12.6640
AA	14.5860	17.1200	14.5743	21.0780
A	15.1893	4.8411	8.0714	12.3600
BBB	8.7193	-0.4467	11.1057	18.3100
F-value	0.223 ns	4.821***	0.541 ns	0.359 ns
Combination	Significance of Mean Difference: Tukey's HSD			
AAA vs AA	1.7460	10.4556	11.3386	-8.4140
AAA vs A	1.1427	22.7345***	17.8415	0.3040
AAA vs BBB	7.6127	28.0223***	14.8072	-5.6460
AA vs A	-0.6033	12.2789	6.5029	8.7180
AA vs BBB	5.8667	17.5667	3.4686	2.7680
A vs BBB	6.4700	5.2878	-3.0343	-5.9500

***Significant at 1 per cent level.

The F-values of return on net worth are not significant in the case of CRISIL, CARE and FITCH, which means these agencies considered similar return on net worth while assigning different rating grades. However, the F-value in the case of ICRA is significant highlighting that the agency did not take into consideration the similar return on net worth while assigning different rating grades during the period of study. This difference is significant for AAA vs A and AAA vs BBB groups as shown by the significant values of Tukey's HSD. This depicts that different return on net worth was considered while assigning AAA and A rating and also AAA and BBB grade ratings by ICRA.

4.7 Comparison of PAT/TI of Different Rating Classes of all the Agencies

The comparison of PAT/TI of companies which were assigned AAA, AA, A and BBB ratings by CRISIL, ICRA, CARE and FITCH is shown in Table 7.

It is evident from the table that F-values are not significant in the case of CARE and FITCH, whereas these are significant for CRISIL and ICRA. Significant F-value means there is significant difference in the mean values of the given ratio. Thus CRISIL and ICRA might have considered different PAT/TI ratios for assigning different rating grades during the period of study. The significant

values of Tukey’s HSD highlight that CRISIL considered different PAT/TI while assigning AAA and A rating grade as well as for AA and A rating grade whereas ICRA consider different PAT/TI while assigning AA and BBB rating grades.

Table 7. Mean Values of PAT/TI of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	8.1633	11.2789	-1.8700	7.4560
AA	8.7280	14.6633	7.7043	5.3340
A	0.6333	4.2656	7.7529	6.4600
BBB	3.8567	0.9900	6.6357	10.1460
F-value	4.473***	4.506***	0.835 ns	0.505 ns
Combination	Significance of Mean Difference: Tukey’s HSD			
AAA vs AA	-0.5647	-3.3844	-9.5743	2.1220
AAA vs A	7.5300***	7.0133	-9.6229	0.9960
AAA vs BBB	4.3066	10.2889	-8.5057	-2.6900
AA vs A	8.0947***	10.3977	-0.0486	-1.1260
AA vs BBB	4.8713	13.6733***	1.0686	-4.8120
A vs BBB	-3.2234	3.2756	1.1172	-3.6860

***Significant at 1 per cent level.

4.8 Comparison of PBDITA/TI of Different Rating Classes of all the Agencies

In Table 8, the mean values of PBDITA/TI ratio of AAA, AA, A and BBB rated companies are shown.

Table 8. Mean Values of PBDITA/TI of Different Rating Classes

Rating	CRISIL	ICRA	CARE	FITCH
AAA	20.0493	22.1156	15.9670	16.9360
AA	20.3573	31.6511	17.6630	14.7460
A	10.4513	14.8878	25.4690	18.9520
BBB	14.2867	14.8256	25.8490	36.6580
F-values	3.513**	2.071 ns	0.356 ns	2.696 ns
Combination	Significance of Mean Difference: Tukey’s HSD			
AAA vs AA	-0.3080	-9.5355	-1.6960	2.1900
AAA vs A	9.5980**	7.2278	-9.5020	-2.0160
AAA vs BBB	5.7626	7.2900	-9.8820	-19.7220

Rating	CRISIL	ICRA	CARE	FITCH
AA vs A	9.9060**	16.7633	-7.8060	-4.2060
AA vs BBB	6.0706	16.8255	-8.1860	-21.9120
A vs BBB	-3.8354	0.0622	-0.3800	-17.7060

**Significant at 5 per cent level.

The non-significant F-values in the case of ICRA, CARE and FITCH depicts that there is no significant difference between the values of PBDITA/TI of companies which were assigned different rating grades by these agencies. The F-value for CRISIL is significant which points out that the agency accounted for different PBDITA/TI while assigning different rating grades to companies. But significant Tukey’s HSD values show that CRISIL consider different PBDITA/TI ratios while assigning AAA and A rating grade as well as AA and A rating grades.

5. Conclusion

The analysis regarding consistency in rating methodology of each rating agency by taking companies belonging to different rating classes (between group) as sample reveals that there has been inconsistency in the methodology adopted by all the four rating agencies while assigning different rating grades. The key financial ratios of the sample companies belonging to different rating categories are not significantly different from each other. The only ratios which significantly differ from each other include Return on net worth and PAT/TI ratio of companies rated by ICRA, PAT/TI and PBDITA/TI ratio of companies rated by CRISIL, and Interest coverage ratio of companies rated by CARE.

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