Impact of Credit Rating Changes on Stock prices in India – A Study of banking Sector

Dr. Tripti Tripathi, Assistant Professor, Amity Business School, Amity University, Madhya Pradesh

Abstract

A credit rating compresses a large variety of information that needs to be known about the creditworthiness of the issuer of bonds and certain other financial instruments. Credit rating agencies provide the borrower's ability to repay the debt obligation (creditworthiness)information to investors thereby serving as information intermediary between lenders andborrowers. The information contained in the credit rating is debated worldwide. One school of thought believes that change in credit rating does not carry any new information to the market. The other school of people believes that change in credit ratings do carry valuable information which is observed in the abnormal returns of the stock prices. In general, there is considerable evidence that downgraded rating announcements provide new information seen through statistically significant abnormal returns, while the upgraded rating announcements do not provide any new information and is already embedded in the stock prices. In this paper, we examine whether rating change announcements signal new information to Indian stock market in general and banking sector in particular using event study methodology

Key Words: *Credit rating changes, Abnormal Returns, Event Studies*

Introduction

Credit ratings are opinions about credit risk published by a rating agency. They express opinions about the ability and willingness of an issuer, such as a corporation, state or city government, to meet its financial obligations in accordance with the terms of those ligations. Recent financial performance for a company decides its credit rating. A good credit rating is important from the perspective of issuers, investors and regulators. A high rating can reduce the cost of debt for the company raising debt. To the investors, it determines the degree of protection granted while it ensures that the companies meet all due diligence requirements as desired by regulatory bodies. It builds trust in the market for the player and in many ways decides the future business it will generate. The process of rating an organization is a complex process. It is carried out by accredited organizations global as well as national.

These days, banks in India are turning their focus to improving their financial performance, servicing clients and improving their technology infrastructure, as these are some of the important factors taken into consideration by credit rating agencies. Since rating announcements are published, and the subsequent revisions, i.e. upgrades and downgrades are also published, there is a strong probability that market reactions may be positive or negative after these announcements. Rating organizations evaluate the credit worthiness of an issuer with respect to debt instruments or its general ability to pay back debt over the specified period of time. The rating given is ordinal in nature and represents a graded structure or creditworthiness. The effectiveness of the debt rating system is a debated subject. This issue became clearer during the subprime crisis of 2007, which revealed the system's flaws when highly-rated structured securities were suddenly revealed to be of very questionable value. The loans supporting these structured securities were made to marginally qualified borrowers and were often backed by very inadequate collateral, yet did not result in significant downgrades from ratings agencies. Limitations of role of rating agencies was highlighted in being more reactive than proactive, playing dual role of rating and advisory, among others. However, ratings agencies are a vital part of the securities (debt) market. Their ratings greatly influence the fixed income markets; markets react, often dramatically, to the increased or decreased likelihood of default when a rating changes. Additionally, for the debt-issuing company, a high rating may translate into millions of dollars in savings in interest payments and registration fees. It is against this backdrop that this study tries to establish if rating changes impact the stock prices. The Indian credit rating industry has evolved over a period of time. Indian credit rating industry mainly comprises of CRISIL, ICRA, CARE, FITCH and BRICKS Ratings. CRISIL is the largest credit rating agency in India, with a market share of greater than 60%. It is a full service rating agency offering its

services in manufacturing, service, financial and SME sectors. SMERA is the rating agency exclusively established for rating of SMEs.

2. LITERATURE REVIEW

2.1 Literature on the Impact of credit rating changes on stock prices in Indian Context

Rao and Sreejith (2013) examined the impact of credit ratings by all five credit rating agencies (CRISIL, ICRA, CARE, Fitch and Brickwork) on equity returns in India during the period 1st January, 1999 to 31st March, 2013. The authors employ event study methodology. Abnormal returns were computed using Mean Adjusted Model, Market Adjusted Model and
Conditional Risk Adjusted Model (Standard Market Model) and yielded similar results. T test
is used to test the significance of the abnormal returns. The study revealed that downgrades had a considerable negative impact and upgrades had negligible positive impact.

Chandrashekar and Mallikarjunappa (2013) studies the impact of bond rating on Indian stock market for the period 1998 to 2005. The results show statistically insignificant abnormal return associated with the bond down grades, small but insignificant positive abnormal returns for upgrades and concludes that bond upgrades and downgrades do not convey any importantinformation to the market.

Chandrashekar and Mallikarjunappa (2013) examines the reaction of stock returns to the
initial bond rating and concludes that returns associated with the rating events are insignificant, unlike the prior studies which showed stock prices react negatively to the announcement of downgrades of bond ratings, while weaker positive excess bond and stock returns are found for upgrades.

Lal and Mitra (2011) examines the effects of rating changes announcements on share prices in India using event study methodology during the time period 1 April 2002 to 31 March 2008. The study found that rating upgrade or downgrade does not come as a surprise to the investors so as to impact the pricing significantly. But at the same time investors react moderately for upgrades and downgrades are received more negatively by investors with significant negative abnormal returns.

Rao and Ramachandra (2004) evaluate the response of stock prices and volumes to bond rating changes in Indian capital market. They found that stock price incorporates the factors that lead to rating revisions. They also report that upgrades are received cautiously by the investors with no significant abnormal returns where as downgrades are perceived as bad news by investors with significant negative abnormal returns

Barron, M.J., Clare, A.D, and Thomas, S.H. (1997) examines the impact of new credit ratings, credit rating changes and Credit Watch announcements during the period 1984 to 1992 on UK common stock returns. We find significant negative excess returns around the date of a downgrade and positive returns close to the date of a positive CreditWatch announcement. New ratings, whether short or long-term, have no significant impact on returns. Creighton, Gower and Richards (2007) study the response of bond yield spreads and equity prices to credit rating changes in the Australian financial markets between January 1990 and July 2003. The empirical evidence reveals that bond spreads appear to widen in response to ratings downgrades and contract with upgrades and equity prices tend to fall on days of downgrades and rise on days of upgrades.

Choy, E. Y. W, Gray, S. F, and Ragunathan, V. (2006) examines the impact of rating changes done by two agencies Moody‟s and S&P on the Australian stock market between 1989 and 2003. The results indicated a significant and negative impact for downgrades that are anticipated and unanticipated, and an insignificant impact for upgrades.

Abner and Andrea investigates the Latin American stock price reaction for a rating change or Credit Watch announcement. The authors employ event study methodology to analyze stock market reaction to rating change news in four major Latin American economies: Argentina, Brazil, Chile and Mexico. The results show similar results to those previously observed in the literature, where in the impact is quite significant for rating downgrades but less relevant for rating upgrades and Credit Watches. Cross section regressions indicate absolute change in the number of notches for downgrades is a significant variable that best explains the impact rating changes announcements have on stock prices in these countries.

Jorion and Zhang (2007) examined the impact of rating changes on senior unsecured corporate bonds of US issued during 1996 Jan to 2002 May. The results support the previous findings that the downgrades have a greater impact than upgrades. Their results also showed that the downgrades of speculative grade bonds increase the default probability and cost of capital to company, while downgrades on investment grade bonds create ripple like fluctuations in default probability and cost of capital. Therefore downgrades in speculative issues more heavily impact

OBJECTIVES AND HYPOTHESIS OF THE STUDY

1.To study the impact of credit rating changes (Upgrades and Downgrades) on the bank‟s
stock prices.

2. To investigate whether there are any significant abnormal returns (whether positive or negative) related to the credit rating change announcements.

HYPOTHESIS

H0: Credit rating announcements has no impact on bank‟s stock prices
Credit rating announcements has an impact on bank‟s stock prices
H0: There is no significant abnormal return associated with credit rating announcements
CAARt = 0
There is significant abnormal return associated with credit rating announcements
CAARt ≠ 0

SAMPLE AND DATA
The rating changes by CRISIL, CARE, ICRA, FITCH, BRICKWORKS, SMERA are extracted from 2007 to 201 7April using Ace equity database. Our initial sample consisted of 28 events (17 upgrades and 11 downgrades). The sample was checked for other major events (such as merger or acquisition, divestment, buyback of shares, stock split etc) during the period, if found, the event is said to be contaminated. After applying the above criteria, the final sample consisted of 26 events (15 upgrades and 11 downgrades). Daily stock prices are taken from BSE historical prices and Yahoo finance portals for each of the event from day – 280 to + 30. The Benchmark Index considered for the study is BSE SENSEX.

METHODOLOGY
The methodology used here is event study. The basic idea is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the price fluctuation of the market as a whole. (Ronald and Bernard 1995).

Event Window

The literature about market reaction to rating announcement does not have a consensus in the event window definition. Dichev and Piotroski (2001) check different event windows: 0 (date of the announcement) to 3 months, to 6 months, to 1 year, to 2 years and to 3 years after the announcement. Jorion and Zhang (2007) checked the event window of 1 year before to 1 year after the announcement. Ee (2008) tested different windows: 1 day before to 1 day after, 3 days before to 3 days after, 50 days before to 26 days before, 25 days before to one day before. (Abner de Pinho & Andrea Maria, 2013). However, the choice of the window is arbitrary and "should not be too long, because it would be encompassing other events, generating biases, nor too small, because it would be failing to fully capture the abnormality in prices" (Camargos & Barbosa, 2003).

Similarly, Brown and Warner (1985) uses eleven day event period (– 5 to + 5) to analyse daily stock returns. Wansley. J. w., Lane. W. R and Yang H. C., (1987) and Dodd Peter (1980) used – 50 to +50 event period to examine the effect of merger announcement on stock return. Chandrashekhar R and Mallikarjunappa T (2013) use 61 day event period (-30 to + 30), Vaithanomsat (2001) uses -10 to + 10, Sehgal (2013) uses -20 to + 20, Goh and Ederington(1999) uses -60 to + 60, Lal and Mitra (2011) uses - 30 days to + 30 days.

In this study, we have used 61 day event window, 30 days before (-30) and thirty days after (+30) the date of rating change announcement (0).

Calculating expected returns and Abnormal returns
Market adjusted model developed and suggested by Sharpe (1963) is used to calculate the expected return. The prior studies use extensively the market model to determine the expected return on specific asset, given the return on market and the two parameters of the market model (alpha and beta of the security). Market model is based on the fact that the most important factor affecting stock returns is market factor and it is captured in the market model in the form of the parameters. The market model for calculating expected return is given by the following regression equation:
$E(Rjt) = \alpha j + \beta j\ Rm$
Where,
E (Rjt) is the expected return on security j,
αj is intercept. (Mean return over the period not explained by the market).
Rm is the expected market return,

βj is the slope of the regression

Daily returns/actual returns are calculated as below:-
Rjt = ln (Pjt/ Pij-1)
Where
Rjt is the daily return on security „j" on day „t".
Pit is the daily adjusted price of the security „i" at the end of period„t".
Pit-1 is the daily adjusted price of the security „i" at the end of period„t-1".
Rmt = ln(I.t/ I t-1)
Where,
Rmt is the daily return on market index on day „t". I.t and I t-1 is the closing index value on day „t" and „t-1" , respectively.
The abnormal return is the difference between the actual return on day t and the expected return i.e.,
ARjt = Rjt - E(Rjt)
Where,
ARjt is the abnormal return
Abnormal returns represents that part of the return which is not predicted and is, therefore, an estimate of the change in firms share price on that day which is caused by the announcement of credit rating.
Abnormal returns are averaged across firms to produce AARt for day „t" using the following formula,

$$AAR_{jt} = \sum_{j=1}^{N} \frac{AR_{jt}}{N}$$

Where, N is the number of firms in the sample. Finally we calculate the cumulative average abnormal return (CAAR) for the event period. The cumulative average abnormal return represents the average total effect of the event across all firms. Where,

$$CAAR_t = \sum_{t=-30}^{+30} AAR_t$$

Parametric Significance test

Parametric t-statistic is used to examine the statistical significance of AARs and CAARs. It is tested at 5 percent level of significance and appropriate degree of freedom. It is given by

The t Test Statistic for AARs
The statistic is given by t = AARt/ σAARt (Standard error of AAR)
Where AAR =average abnormal return,
σAARt = standard error of average abnormal return.
The standard error is calculated by using following formula.
SE = σ/√n
Where, S.E = standard error, σ = standard deviation, n = number of observation.

The t Test Statistic for CAARs
The statistic is given by
t = CAARt/ σCAARt (Standard error of CAAR)
SE = σ/√n
Where, S.E = standard error, σ = standard deviation, n = number of observation

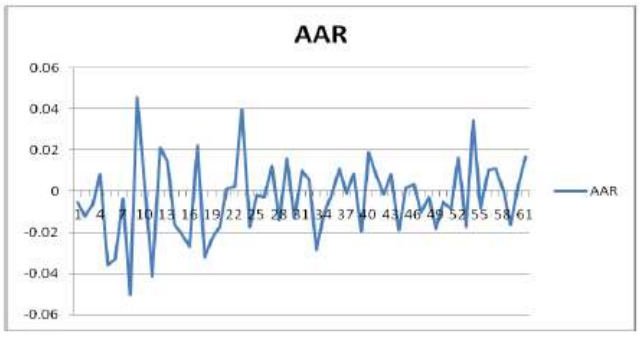
DATA ANALYSIS & INTERPRETATION

Table 1: AARs, CAARs and t statistic for rating upgrades.

Day	AAR	t test	CAAR	t test	Day	AAR	t test	CAAR	t test
-30	-0.00116	-0.13022	-0.00116	-0.13022	0	0.007598	1.6004	0.000342	0.012948
-29	-0.00769	-1.17911	-0.00884	-0.9592	1	0.000789	0.149771	0.001132	0.037956
-28	0.008605	1.794643	-0.00024	-0.02871	2	-0.00076	-0.13023	0.000376	0.011298
-27	-0.00419	-0.894	-0.00443	-0.47243	3	-0.0096	-1.17981	-0.00923	-0.19441
-26	-0.00207	-0.74639	-0.0065	-1.04641	4	-0.00971	-1.71431	-0.01894	-0.56513
-25	-0.0052	-0.78839	-0.0117	-0.72459	5	0.005482	0.782339	-0.01345	-0.31998
-24	0.011542	1.719687	-0.00016	-0.00909	6	-0.00147	-0.26701	-0.01492	-0.4459
-23	-0.00129	-0.27246	-0.00145	-0.10842	7	0.005288	1.470538	-0.00963	-0.4346
-22	-0.00101	-0.19369	-0.00246	-0.15684	8	-0.0041	-1.26892	-0.01373	-0.68069
-21	-0.00097	-0.19015	-0.00343	-0.21296	9	0.002704	0.48051	-0.01103	-0.30996
-20	0.002599	0.697304	-0.00083	-0.0671	10	0.005716	1.248837	-0.00531	-0.18136
-19	0.002514	0.690424	0.001684	0.133551	11	-0.00095	-0.27272	-0.00626	-0.2785
-18	-0.01053	-2.55713*	-0.00885	-0.59581	12	-0.00352	-0.70508	-0.00978	-0.29873
-17	-0.00373	-1.15838	-0.01258	-1.04483	13	7.87E-05	0.014621	-0.0097	-0.27184
-16	-0.00789	-1.90725	-0.02047	-1.27728	14	0.007091	1.764542	-0.00261	-0.0969
-15	0.004599	0.993831	-0.01587	-0.85729	15	0.00424	1.182245	0.001628	0.066917
-14	0.002115	0.441391	-0.01375	-0.6961	16	0.010767	1.970031	0.012395	0.330797
-13	-0.00659	-1.7048	-0.02035	-1.23989	17	0.007286	1.046958	0.01968	0.408202
-12	0.006136	0.733617	-0.01421	-0.38972	18	0.005211	0.819012	0.024891	0.558887
-11	-0.00401	-0.55328	-0.01822	-0.56213	19	-0.00142	-0.42699	0.023473	0.999209
-10	0.001141	0.289417	-0.01708	-0.94568	20	-0.00065	-0.08142	0.022821	0.399006
-9	-0.00063	-0.28239	-0.01771	-1.69135	21	1.39E-05	0.003484	0.022835	0.791815
-8	-0.009	-1.87702	-0.0267	-1.16189	22	0.004835	0.866632	0.02767	0.681229
-7	-0.00025	-0.05391	-0.02696	-1.16783	23	-0.00744	-2.0013	0.020226	0.739947
-6	0.00704	0.876389	-0.01992	-0.4959	24	-0.00072	-0.16013	0.019505	0.584542
-5	-0.00176	-0.40699	-0.02168	-0.98303	25	-0.00299	-0.57841	0.016511	0.426188
-4	0.010247	1.519938	-0.01143	-0.32631	26	0.00323	0.797115	0.01974	0.645309
-3	-0.00136	-0.29764	-0.0128	-0.52761	27	0.00407	0.696005	0.02381	0.534703
-2	-0.00301	-0.61729	-0.01581	-0.60176	28	0.001002	0.27592	0.024812	0.889168
-1	0.00855	1.71934	-0.00726	-0.26639	29	-0.00442	-1.35707	0.020395	0.80895
					30	0.000842	0.221555	0.021237	0.715453

*indicates significant @ 5 percent

Chart1: Average Abnormal Returns of event window for upgrades



AARs are negative for 19 days and positive for 11 days before the Announcement of the event and negative for 15 days after the announcement and positive for 16 days after the Announcement of the event. During the whole event period for upgrades, AARs are negative for 34 days and positive for 27 days. AARs are significant for

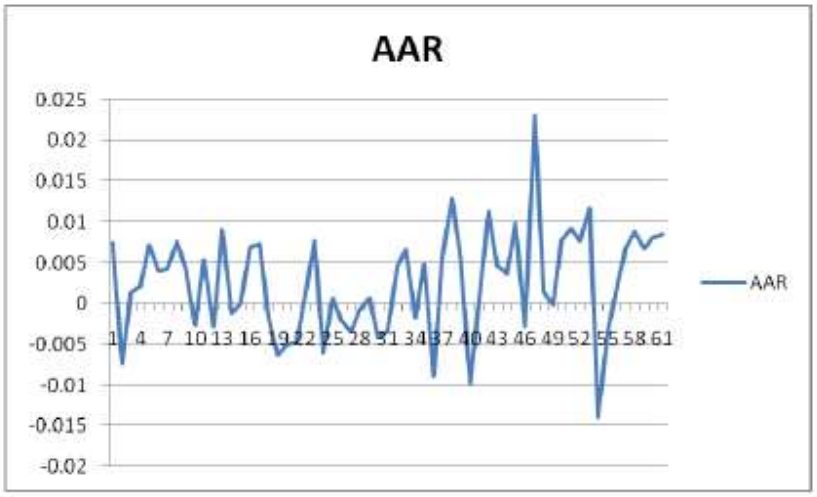
only 1 day before the event in the event window. This shows that the stock movement persists even after the change in credit rating signaling that credit rating upgrade has not increased the bank"s stock price.

Table 2: AARs, CAARs and t statistic for credit rating downgrades

Day	AAR	t test	CAAR	t test	Day	AAR	t test	CAAR	t test
-30	0.007371	1.10301	0.007371	1.10301	0	-0.00341	-0.63734	0.024320	0.816405
-29	-0.00743	-1.43513	-0.000057	-0.00777	1	0.004477	0.54866	0.028797	0.623843
-28	0.001309	0.178382	0.001252	0.098516	2	0.006608	0.766212	0.035405	0.714682
-27	0.002162	0.372931	0.003414	0.294436	3	-0.00169	-0.3048	0.033712	1.041235
-26	0.007109	1.403499	0.010523	0.929113	4	0.004743	1.02063	0.038456	1.398639
-25	0.004022	0.623228	0.014546	0.920109	5	-0.00892	-2.30774*	0.029536	1.273648
-24	0.004271	0.677194	0.018816	1.127693	6	0.005696	0.446679	0.035232	0.454197
-23	0.007569	0.449	0.026386	0.553365	7	0.01279	2.399302*	0.048022	1.461405
-22	0.004291	1.198876	0.030677	2.85698*	8	0.005422	1.026493	0.053444	1.620313
-21	-0.00261	-0.2752	0.028063	0.934184	9	-0.00989	-3.13104*	0.043555	2.180503
-20	0.005305	0.71167	0.033368	1.349618	10	0.000307	0.049237	0.043862	1.099019
-19	-0.00274	-0.34318	0.030625	1.10617	11	0.011224	1.644103	0.055086	1.245118
-18	0.009003	2.916079*	0.039628	3.559879*	12	0.004631	0.804902	0.059717	1.58277
-17	-0.0012	-0.3402	0.038430	2.916423*	13	0.003687	0.843539	0.063404	2.186725
-16	-1.9E-05	-0.00239	0.038411	1.245185	14	0.009733	1.101058	0.073137	1.233325
-15	0.006896	1.077831	0.045307	1.770385	15	-0.00285	-0.70025	0.070285	2.543903*
-14	0.007272	1.151789	0.052579	2.019905	16	0.023037	2.543552*	0.093322	1.502945
-13	-0.00169	-0.49522	0.050886	3.508829*	17	0.001488	0.397051	0.094811	3.650575*
-12	-0.00633	-1.55021	0.044555	2.503061*	18	-0.00021	-0.0318	0.094602	2.058096
-11	-0.00499	-0.78673	0.039564	1.394509	19	0.007859	2.001617	0.102461	3.690513*
-10	-0.00479	-1.49792	0.034774	2.372901*	20	0.009119	0.60408	0.111580	1.035048
-9	0.000647	0.089772	0.035420	1.048592	21	0.007622	1.678229	0.119201	3.639793*
-8	0.007636	0.451711	0.043057	0.531069	22	0.01163	0.800108	0.130831	1.236361
-7	-0.00611	-1.4101	0.036945	1.739846	23	-0.01392	-2.35562	0.116906	2.691269*
-6	0.000648	0.097437	0.037593	1.130795	24	-0.00339	-0.49977	0.113511	2.253192*
-5	-0.00209	-0.37015	0.035505	1.234338	25	0.001706	0.154156	0.115217	1.39148
-4	-0.0035	-1.02401	0.032003	1.800987	26	0.006826	0.465756	0.122043	1.102959
-3	-0.00083	-0.10568	0.031174	0.751474	27	0.00867	1.574842	0.130714	3.117464*
-2	0.000621	0.118526	0.031795	1.12725	28	0.006792	0.889067	0.137506	2.343324*
-1	-0.00407	-1.15592	0.027730	1.439605	29	0.008096	0.730796	0.145602	1.696697
					30	0.008452	1.240672	0.154054	2.895402*

*indicates significant @ 5 percent

Average Abnormal Returns of event window for downgrades



AARs are negative for 14 days and positive for 16 days before the Announcement of the event and negative for 8 days after the announcement and positive for 23 days after the Announcement of the event. During the whole

event period for downgrades, AARs are negative for 22 days and positive for 39 days. AARs are positive for majority of the days in the event window and statistically insignificant for majority of the days (56 of 61 days). Hence, we accept the null hypothesis which states that change in credit rating has no impact on bank‟s stock prices. Also, abnormal returns are found which are statistically insignificant.

CONCLUSION

The study examines the impact of bond rating changes on bank‟s stock prices. Analysis reveals that AARs are negative and statistically insignificant for majority of the days in case of rating upgrades and AARs are positive and statistically insignificant for majority of the days for rating downgrade announcements. The study also reveals that credit rating announcements have no special information, while they summarize publicly available information and rating change announcements convey no new surprises to the market and hence, we conclude that there are no significant abnormal returns associated with rating change announcements. However, our results cannot be generalized as it based on a small sample.

REFERENCES

1. Barron. M. J, Clare. A. D. and Thomas. S. H., (1997), “The effect of bond rating changes and new ratings on UK stock returns”, Journal of Business Finance and Accounting, Vol.24, No 3 and 4, pp. 497-509.
2. Brown J. S and Warner J. B., (1985), “Using daily stock returns the case of event studies”, Journal of Financial Economics,Vol.14, pp. 3-31.
3. Camargos, M. A., & Barbosa, F. V. (2003). Estudo de evento: teoria e operacionalização. Cadernos de Pesquisa em Administração, Vol. 10(3), pp. 1-20.
4. Chandrashekar,R., & Mallikarjunappa, T. (2013). “Impact of Bond Rating on Stock Returns”. PARIPEX - INDIAN JOURNAL OF RESEARCH, Vol. 2 Issue 4, April 2013.
5. Chandrashekar,R., & Mallikarjunappa, T. (2013). “The Effect of Initial Bond Rating on Share price performance”. INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH, Vol.2 Issue 6, June 2013.
6. Choy. E, Gray. S. and Ragunathan. V., (2006) “Effect of credit rating changes on Australian stock returns”, Accounting and Finance. Vol. 46, pp. 755-769.
7. Creighton, Adam, Gower, Luke, & Richards, Anthony, (2007). “The Impact of Rating Changes in Australian Financial Markets”. Pacific-Basin Finance Journal, Vol.15, pp 1–17.
8. Dichev D. I. and Piotroski J.D., (2001), “The long-run stock returns following bond ratings changes” The Journal of Finance, Vol.56, No.1, pp.173-203.
9. DODD Peter (1980), “Merger proposals, management discretion and stockholder wealth”, Journal of Financial Economics, Vol.8, pp.105-137
10. Goh. J C and Ederington L H., (1993), “Is a bond rating bad news, good news, or no news for stockholders?”, The journal of Finance, Vol.48, No.5, pp. 2001-2008
11. Goh. J C and Ederington L H., (1999), “Cross-Sectional Variation in the Stock Market Reaction to Bond Rating Changes”. The Quarterly Review of Economics and Finance, Vol.39, pp. 101–122.
12. Hand. J R. M, Holtthausen. R W. and Leftwich R.W., (1992), “The effect of bond rating agency announcement on bond and stock prices”, The Journal of Finance, Vol.47, No.2, pp. 733-752. |
13. Holthausen, R, and Leftwich, R., (1986), “ The Effect of Common Bond Rating Changes on Common Stock Prices”. Journal of Financial Economics, Vol.17, pp. 57–89.
14. Ingram, Robert W., Leroy D. Brooks, and Ronald M. Copeland, (1983), “The Information Content of Municipal Bond Rating Changes: A Note”, The Journal of Finance Vol. 38, pp. 997-1003
15. Jorion, P, and Zhang, G., (2007), “ Information Effects of Bond Rating Changes: The Role of the Rating Prior to the Announcement”. The Journal of Fixed Income, Vol.16, pp. 45–59.
16. Jorion, P, Liu, Z, and Shi, C.,(2005). “Informational Effects of Regulation FD: Evidence from Rating Agencies”. Journal of Financial Economics, Vol.76, pp. 309–330.
17. Lal, J., and Mitra, M. (2011). “Effect of Bond Rating on Share Prices: A Study of Select Indian Companies”. Vision, Vol.15 Issue 3, pp. 231–238.
18. Li, Hui, Visaltanachoti, Nuttawat, & Kesayan, Puspakaran, (2003). “The Effects of Credit

Rating Announcements on Shares in the Swedish Stock Market".
19. May, A.D., (2010)."The impact of bond rating changes on corporate bond prices: New evidence from the over-the-counter market," Journal of Banking & Finance, Elsevier, vol. 34(11), pages 2822-2836.
20. Mohindroo, A. (2008). "The Quality Of Credit Rating By ICRA And CRISIL". Doctoral Thesis, submitted to Panjab University, Chandigarh.
21. Pinches E. G. and Singleton C., (1978), "The adjustment of stock prices to bond rating changes" The Journal of Finance, Vol.33, No.1, pp. 29-44.
22. Pinho A.D and Maria A (2013). "The impact of credit rating changes in Latin American stock markets". BAR, Braz. Adm. Rev. vol.10 no.4 Rio de Janeiro Oct./Dec. 2013
23. Rao, S.V.D., & Sreejith U. (2013). "Impact of Credit Ratings (Upgrade and Downgrade) on Stock Prices in India". Proceedings of 23rd International Business Research Conference, Australia.
24. Romero. P. A and Fernandez. M. D. R., (2006), "Risk return around rating changes: New evidence from the Spanish stock market", Journal of Business Finance and Accounting, Vol.33, No 5 and 6, pp. 885-908.
25. Ronald J. G and Bernard S. B (1995)."The Law and Finance of Corporate Acquisitions", Vol.2 pp. 194-195.

26. Sehgal, Sanjay & Mathur, Shruti (2013). "Cross-Sectional Variation in Stock Price Reaction to Bond Rating Changes: Evidence from India". Asian Journal of Finance & Accounting, Vol. 5, No. 2. pp 47-74
27. Sharpe, W. F. (1963). "A Simplified Model for Portfolio Analysis". Management Science, January, pp. 227-293
28. Taib, H M., Iorio, A D ., Hallahan, T., and Bheenick, E B. (2012). "The Stock Market Impact of Corporate Bond Rating Changes: New Evidence from the UK and Australian Stock Markets". Presented at European Financial Management Association, 2012 Annual Meetings, June 27-30, 2012, Barcelona, Spain.
29. Taib, H M., Iorio, A D., Hallahan, T., and Bheenick, E B. (2012). "Corporate Bond Rating Changes and Their Impact on Stock Prices: A Comparison Study of Return Generating Models". Presented at European Financial Management Association, 2012 Annual Meetings, June 27-30, 2012, Barcelona, Spain,
30. Wakeman, L. M., (1978). "Bond rating agencies and the capital markets", working paper, University of Rochester, New York.
31. Wakeman, L. M., (1990). "The real function of bond rating agencies", The Modern Theory of Corporate Finance, 2nd ed. Edited by Smith, C. McGaw Hill, New York
32. Wansley. J. W., Lane. W. R and Yang H. C., (1987), "Gains to bidder firms in cash and securities transactions", The Financial Review, Vol.22, No. 4, pp.403-414.
33. Weinstein, M. (1977). The effect of a rating change announcement on bond price. Journal of Financial Economics, Vol.5(3), pp. 329-350.
34. White, L.J., (2001), "The Credit Rating Industry: An Industrial Organisation Analysis", paper presented at the Conference on "The Role of Credit Reporting Systems in the International Economy", The World Bank, Washington D.C., 1-2 March.
35. Zaima, J., & McCarthy, J. (1988). The impact of bond rating changes on common stocks and bonds: test of the wealth redistribution hypothesis. Financial Review, Vol. 23(4), pp. 483-498.