Impact of Rating Changes on Stock Prices

DrVandana Gupta
Associate Professor
Fore School of Management, New Delhi

Abstract
The objective of this study is to analyze whether the credit rating downgrades of debt instruments of banks has an impact on the market price of its stocks. The methodology adopted is an "event study methodology" where the author had analyzed the returns of the stock 45 days before and after the rating change announcement; in addition to that "average abnormal returns" (difference between actual return and market model returns) determined aims to provide a clearer picture regarding the impact of rating change announcement. The research findings of the study reveal that the returns of the banking stocks were impacted by the release of rating downgrade information. The stocks showed significant negative returns after the announcement when in fact the market showed increased positive returns, clearly showing the impact. Also the count of average abnormal returns days showed an increased count of negative returns days during and after the announcement.

Keywords: *credit rating, banks, abnormal return, announcement.*

I. 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 obligations. 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.

A. Factors Impacting Market Price Of Stocks

An investor investing in stock market, needs to understand macroeconomic factors and requires credible/ trustable sources of information, to decide on the stocks which offers maximum returns at a given level of risk. Some of the factors which impact the prices of stocks are as follows –

B. *Stock's Demand & Supply (Investor's Sentiments)*
      This is the most important factor that impacts stock prices. Higher the demand of the stock due to its high growth potential (as perceived by the investor) and lower the availability will cause the price of the stock to shoot up and vice versa. Depending on whether investor perceives market is going to be bull or bearish it will cause a change in the MPS.

C. *Company Specific Factors*
      Some of the company specific factors that impact MPS are as follows -
- News releases on earnings and profits, and future estimated earnings
- Announcement of dividends
- Introduction of a new product or a product recall
- Securing a new large contract
- Employee layoffs
- Anticipated takeover or merger

D. *Economic Factors* -
1) *Inflation*- In general, when inflation is on the rise, it leads to higher consumer prices. That's because rising inflation erodes the purchasing power of what an investor earns on your investment. This often slows sales and reduces profits. These changes will tend to bring down stock prices down.
2) *Interest rate* - If a company borrows money to expand and improve its business, higher interest rates will affect the cost of its debt. This can reduce company profits and the dividends it pays shareholders. As a result, its share price may drop. And, in times of higher interest rates, investments that pay interest tend to be more attractive to investors than stocks.
3) *Economic outlook* - If it looks like the economy is going to expand, stock prices may rise. Investors may buy more stocks thinking they will see future profits and higher stock prices. If the economic outlook is uncertain, investors may reduce their buying or start selling.
      Credit ratings of the issuer & its debt instruments can also impact the MPS. Credit rating agencies assign credit ratings to bond issuers and to specific bonds. A credit rating can provide information about an issuer's ability to make interest payments and repay the principal on a bond. In general, the higher the credit rating, the more likely the issuer will be able to meet its payment obligations – at least in the opinion of the rating agency. In this project I aim to find the empirical evidence for the above said statements.

      It is against this backdrop that this study investigates whether rating revision announcements by rating agencies contain useable information to market participants. The objectives of the research are
- To determine whether the relation holds i.e. recent credit rating change (upgrade or downgrade) announcements has an impact on the MPS for a bank in India.

II. LITERATURE REVIEW
      Recent literature has examined this question1, in particular whether, and to what extent, bond rating upgrades or downgrades can be significant in signaling vital information for market participants.

      Matolcsy and Lianto (1995) investigated the impact of rating revision announcements in Australia. Based on rating change announcements by Standard & Poor's (S&P) for the period 1982 to 1991, and using weekly stock price data, they found that only bond rating downgrades (and not bond rating upgrades) hold additional information content. Further, a UK study by Barron et al. (1997) examined the impact of (i) long and short-term ratings changes, (ii) new ratings, and (iii) CreditWatch changes on the stock prices from 1984 to 1992. They reported a significant reaction during bond downgrade announcements. These findings seem to indicate a private information effect. Romero and Fernandez (2006) investigated the Spanish capital markets and reported a significant negative excess return during bond upgrades but no excess reaction during bond downgrade announcements.

      Hui Li and Visaltanachoti (2006) attempted to explore the issue regarding value of credit rating announcements. Market capitalization and liquidity (no of outstanding shares) were some of the important factor that were focused upon while analyzing the impact of credit rating announcement. Hasnizaet al. (2011) analysed the stock market impact of corporate bond rating changes from the UK and Australian stock markets using event study methodology. Using daily data from 1997 to 2006 theyfound a significant announcement affect to downgrades both in the UK and Australia markets. "ChandrashekarandMallikarjunappa (2013) analyzed the impact of bond rating on the stock returns of the Indian companies. The findings were that there is statistically insignificant abnormal return associated with the bond down grades. This implied that the bond upgrades and downgrades do not convey any important information to the market.Archana and Jayanna (2015) did similar study on rating impact on stock prices. Their findings corroborated that while downgrades provide new information reflected in abnormal returns, upgrades do not provide any new information and thus show no significant change.

III. RESEARCH METHODOLOGY

The research design was divided in to the following stages:

- Information on ratings of bond instruments of the Indian banking sector was taken for 13 years (2001 – 2014) by using various databases like "Prowess" and "Capitaline". Also for the same period daily, weekly and monthly MPS (market price of share) was collected for the various stocks in banking sector. The data source used for this was the stock exchange website.
- The second part of the design was to find out instances when a credit rating change has been announced by the credit rating agency. For this also, the rating changes were taken from Prowess CMIE database. The author analyzed the impact of rating change information on the MPS, by calculating change in returns for a period of 45 days before and after rating change announcement (immediate impact) and change in monthly return.
- In the next step we calculated AAR (average abnormal return) i.e. the difference between the actual return and the market model and the count of

The table below shows the movements.

negative AAR, to determine the impact of credit rating downgrade announcement.

In the first stage we analyzed the data for 13 years of banking debt instruments to find out the instances when there had been cases of rating downgrade or upgrade. In all 3 banks were identified during the above mentioned period in which their debt instruments were downgraded due to numerous reasons which will be discussed. The various events regarding credit rating announcements were as follows –

1) No credit rating upgrades announcements for the given period.
2) 3 banks faced credit rating downgrade/ watch list of debt instruments due to weak financial performance and other factors
3) Analysis of the average monthly returns of the 5 banks and the market returns of the period was done to find out whether any change in average monthly returns was observed for a time period of 2 months from the day of announcement of rating downgrade.

Table 1: Details on Rating History

Company Name	Date	Grade	Agency	Instrument	Rating	Status	Amount
Punjab & Sind Bank	26-Nov-13	High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	3000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	2000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	1750
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	4000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	1000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	1500
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	400
	30-Dec-13	High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	5000
	13-Jan-14	High Safety	CARE	Debentures / Bonds / notes / bills	CARE AA	Downgraded	8750
Indian Overseas Bank	10-Oct-13	High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	25400
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	7800
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	26323
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	8000
	27-Nov-13	High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	2500
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	3000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	5000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	3000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	2900
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA	Downgraded	10000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	5000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	6553
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	5100
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	9670
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	2000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	2000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	800
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	3000
	23-Jan-14	High Safety	CARE	Debentures / Bonds / notes / bills	CARE AA	Downgraded	10500
Central Bank Of India	04-Oct-13	High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	23000
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	5000
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	6000
	26-Nov-13	Adequate Safety	ICRA	Debentures / Bonds / notes / bills	A+	Downgraded	10000
		Adequate Safety	ICRA	Debentures / Bonds / notes / bills	A+	Downgraded	5000
		Adequate Safety	ICRA	Debentures / Bonds / notes / bills	A+	Downgraded	5000
		Adequate Safety	ICRA	Debentures / Bonds / notes / bills	A+	Downgraded	2850
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	2700
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	7000
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	5700
		High Safety	ICRA	Debentures / Bonds / notes / bills	AA-	Downgraded	10000
	30-Dec-13	Adequate Safety	CARE	Debentures / Bonds / notes / bills	CARE A+	Downgraded	22850
		High Safety	CARE	Debentures / Bonds / notes / bills	CARE AA-	Downgraded	14373
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA-	Downgraded	5000
		High Safety	CRISIL	Debentures / Bonds / notes / bills	AA	Downgraded	5000

The three banks identified were:

A. *Punjab & Sind Bank*

The revision in rating was due to sustained pressure on core profitability of the bank, its worsening asset quality and inability to increase its income levels to absorb higher credit costs. Also core profitability is unlikely to improve given the difficult task of improving interest margins or fee based income in the

given operating environment. P&SB's asset quality continued to be under pressure with its gross NPA% increasing to 4.12% as at September 30, 2013 from 2.96% as at March 31, 2013. NPA generation rate of the bank increased to 3.7% in H1 FY 2014 as against 2.4% for FY 2013 and its solvency ratio (Net NPA/ Net Worth) deteriorated to 41.4% from 30.03% over March-September 2013. Net NPA% for the bank remains relatively high at 2.98% as on September 30,

2013. All these reasons led to the downgrade of credit ratings of debt securities.

B. Indian Overseas Bank

The revisions in the ratings were done to reflect IOB's deteriorating asset quality and the sustained pressure on its profitability. IOB's Gross NPAs had increased to about 4.65% in September 2013 from about 4.02% in March 2013. This, along with weaker internal capital generations during 2012-13 and in H1 2013-14 has resulted in the decline in the solvency ratio to about 39% in September 2013 from about 33% and 18% in March 2013 and March 2012 respectively. IOB's profitability continued to be under pressure with the return on average assets falling to about 0.20% for half year ended September 2013 from about 0.25% for 2012-13 and 0.53% in 2011-12. IOB's asset quality continued to slip further in H1 2013-14 following the deterioration during 2012-13 when the gross NPA% declined from 2.75% in March 2012 to 4.02% in March 2013.

C. Central Bank of India

CRISIL downgraded the Tier-I and Tier-II bonds of Central Bank of India to 'AA' from 'AA+' on expected weakening of credit profile on the sustained deterioration in asset quality and earnings. The bank's asset quality was forecasted to remain weak over the medium term, given the challenging macroeconomic environment ahead and the bank's large exposure to vulnerable sectors such as infrastructure (particularly to power sector), construction, and iron and steel. Central Bank also had a weak earnings profile, marked by low interest margins and high provisioning costs. The bank's return on assets ratio remained significantly lower than that of its peers at around 0.03 per cent (annualised) .The bank's profitability was to continue to be adversely impacted by an increase in provisioning costs because of the asset quality challenges. Additionally, the bank's net interest margins were likely to remain under pressure over the next few quarters because of high borrowing costs.

IV. EMPIRICAL FINDINGS

In the first step beta was calculated for the 3 banking companies. Calculation of beta was done using monthly data of each respective company for the past 3 years, before the announcement of the downgrade. ERjt is the expected return on stock according to market model.

First stage

- For P&S BE (Rjt) = y = 3x - 0.026, where 3 is the Beta, -0.026 (-2.6%) is the monthly return in case the market return is zero.

1) For Indian Overseas Bank E (Rjt) = y = 2.0596006076x + 0.0124973833, where 2.0596 is the value of beta, .012 (1.2%) is the monthly return in case the market return is zero.

2) For Central Bank E (Rjt) = y = 1.559x - 0.03, where 1.599 is the Beta, -0.03 (-3%) is the monthly return in case the market return is zero.

Second stage

Calculation of AR (Abnormal returns

For each stock abnormal return can be calculated as follows –

AR = Rjt – E (Rjt)

Where AR is the abnormal returns

Rjt = Return on stock on a particular day

ERjt = Expected return on stock acc to market model

I.e. ERjt = C + β Rm, obtained by linear regression between market returns & stock returns.

Where C is the intercept on X axis and Rm is the market return on a particular day

Here we have taken data of 45 days before and 45 days after the announcement of the rating downgrade for our analysis. We have also calculated AAR which is the average of AR of the event in order to find whether there is any similarity in the results.

i.e. Average Abnormal returns = Average (AR1+ AR2+AR3)

Cumulative AAR = AAR(previous) + AAR(present)

1) Before the rating downgrade period –

Table 2: Calculation of AAR for before the downgrade period

Day	AR(Central bank)	AR(IOB)	AR(P&S)	Average	CAAR
T-1	0.016403344	-0.032204805	0.041222635	0.008473724	0.634589462
T-2	0.049748504	0.039343079	-0.013631208	0.025153459	0.626115738
T-3	0.028497301	-0.001437004	0.011162406	0.012740901	0.60096228
T-4	0.068846198	-0.009129552	0.062452223	0.040722956	0.588221378
T-5	0.043288848	-0.002758364	0.058476919	0.033002468	0.547498422
T-6	-0.036015169	0.028988646	0.028906709	0.007293395	0.514495955
T-7	0.01755376	0.024372475	-0.001007348	0.013639629	0.507202559
T-8	0.002501576	0.067604312	0.009217143	0.02644101	0.49356293
T-9	-0.011485594	-0.119144971	0.014442362	-0.038729401	0.46712192
T-10	-0.009411972	-0.037600764	0.014990354	-0.010674127	0.505851321
T-11	-0.020979889	-0.022155775	0.014437533	-0.009566044	0.516525448
T-12	0.059048239	-0.002605736	0.02352835	0.026656951	0.526091492
T-13	0.00375836	-0.014958987	-0.004040982	-0.005080536	0.499434541
T-14	-0.001506367	-0.017663568	0.034564017	0.00513136	0.504515077
T-15	0.002239713	-0.043145676	0.152249921	0.037114653	0.499383717
T-16	0.004113461	-0.012096234	0.052336567	0.014784598	0.462269064
T-17	0.100393192	-0.031750027	0.062994429	0.043879198	0.447484466
T-18	0.048601956	-0.080008162	0.059367037	0.009320277	0.403605268
T-19	0.040471847	-0.046818543	0.003895391	-0.000817102	0.394284991
T-20	-0.005080415	0.079753127	-0.013310817	0.020453965	0.395102092
T-21	0.039880137	-0.063800104	0.016961904	-0.002319355	0.374648127
T-22	0.126169593	0.015899658	0.013878218	0.05198249	0.376967482
T-23	0.030727878	-0.050724482	0.045987254	0.00866355	0.324984992
T-24	-0.007091359	-0.015714922	0.044620782	0.007271501	0.316321442
T-25	-0.000541656	0.07067566	0.043074616	0.037736206	0.309049942
T-26	0.052260464	0.047189752	0.038708335	0.04605285	0.271313735
T-27	0.0632708	-0.016540224	-0.034373937	0.00411888	0.225260885
T-28	0.03571385	-0.0998062	0.029955905	-0.011378815	0.221142005
T-29	0.056887473	0.0562376	0.012775924	0.041966999	0.23252082
T-30	0.021686412	0.004636246	0.040547723	0.022290127	0.190553821
T-31	0.011499856	0.035255104	-0.001095529	0.01521981	0.168263694
T-32	0.021720441	0.070622407	0.039569333	0.043970727	0.153043884
T-33	0.024428567	-0.061128054	-0.013934413	-0.016877967	0.109073157
T-34	0.013059736	-0.043245219	0.013859821	-0.005441887	0.125951124
T-35	0.05442209	0.002789241	0.042764459	0.033325263	0.131393011
T-36	-0.014478219	0.004341995	0.023909854	0.00459121	0.098067747
T-37	0.030005767	-0.030309088	-0.02451033	-0.008271217	0.093476537
T-38	0.008247716	0.001696165	0.010988417	0.006977433	0.101747754
T-39	0.046819926	-0.020179842	0.077674918	0.034771667	0.094770322
T-40	0.030005767	-0.065830717	0.046169232	0.003448094	0.059998654
T-41	0.030005767	-0.012497383	0.046169232	0.008754192	0.05655056
T-42	0.055414115	-0.003939926	0.046169232	0.025737095	0.047796369
T-43	0.043805215	-0.003939926	0.046169232	0.026265651	0.022059274
T-44	0.011052698	-0.003939926	0.046169232	-0.004439815	-0.004206377
T-45	0.000233438	-0.003939926	0.046169232	0.000233438	0.000233438

2) During the rating downgrade period –

Calculation of AAR for during the downgrade period

Table 3: Calculation of AAR for during the downgrade period

Day	AR(Central bank)	AR(IOB)	AR(P&S)	Average	CAAR
T	0.03081138	-0.047281512	0.047338854	0.010289574	0.979748302
T	0.016365164	-0.012894591	-0.034115	-0.010214809	0.969458728
T	0.026900563	-0.035417317	0.014889138	0.002124128	0.979673537
T	0.04878046	0.014145405	0.02151523	0.028147032	0.977549409
T	0.028429255	0.002212823	0.027615158	0.019419078	0.949402377
T	0.005009696	-0.05283836	0.026071339	-0.007252442	0.929983299
T	0.058312417	0.001450889	0.030741974	0.030168427	0.937235741
T	0.0152798	-0.038446767	0.031327111	0.002720048	0.907067314
T	0.02364187	-0.026167491	0.066350204	0.021274861	0.904347266
T	0.038217999	-0.012943344	0.039392352	0.021555669	0.883072405
T	0.032850319	-0.040920618	0.022073245	0.004667648	0.861516736
T	0.042234685	-0.01592304	0.033174188	0.019828611	0.856849088
T	0.021678988	0.0158713	0.019386388	0.018978892	0.837020477
T	0.029451122	-0.017786601	-0.008995097	0.000889808	0.818041585
T	-0.005881362	-0.004533359	0.032395926	0.007327068	0.817151777
T	0.007589718	-0.003665451	0.045721052	0.01654844	0.809824709
T	0.025398157	-0.038225426	-0.024410486	-0.012412585	0.793276269
T	0.045678301	0.005050654	0.034274993	0.028334649	0.805688854
T	0.046669887	-0.021202192	0.003595622	0.009687772	0.777354204
T	0.015369963	-0.022412381	0.035183924	0.009380502	0.767666432
T	0.0066847	-0.005828898	0.025065552	0.008640452	0.75828593
T	0.02891289	0.01845355	0.044950291	0.030772244	0.749645478
T	0.038091206	-0.049405578	0.059767307	0.016150978	0.718873235
T	0.046537599	0.001435315	0.02787975	0.025284221	0.702722256
T	-0.008536082	-0.017882001	0.012220734	-0.00473245	0.677438035
T	0.021398943	0.01730442	-0.012466352	0.008745671	0.682170484
T	0.074182265	-0.031388574	0.027047798	0.023280497	0.673424814
T	0.036723562	0.051791815	-0.013420711	0.025031555	0.650144317
T	0.018517523	-0.017511047	0.051469457	0.017491978	0.625112762
T	-0.008255724	-0.01155194	0.020243673	0.000145337	0.607620785
T	0.012297297	-0.035475847	0.035175349	0.003998933	0.607475448
T	0.038614109	-0.054709311	0.000801857	-0.005097782	0.603476515
T	0.045915633	-0.026058637	0.013666554	0.011174517	0.608574297
T	0.05175648	-0.059218379	0.012196474	0.001578191	0.59739978

3) Calculation of AAR and CAAR after the downgrade period –

Table 4: Calculation of AAR for after the downgrade period

Day	AR(Central bank)	AR(IOB)	AR(P&S)	Average	CAAR
T+45	0.015387758	-0.044141599	0.024583561	-0.001390093	1.857198865
T+44	0.020894214	-0.011371521	0.035079652	0.014867448	1.858588959
T+43	0.064636716	-0.01655791	0.025550365	0.024543057	1.84372151
T+42	0.033103697	-0.029023054	0.029589632	0.011223425	1.819178453
T+41	0.05869799	-0.053687006	0.035072972	0.013361319	1.807955028
T+40	0.014626803	0.0224149	0.009086957	0.01537622	1.794593709
T+39	0.065871909	-0.006944533	0.032421841	0.030449739	1.77921749
T+38	0.000268362	-0.027399869	0.012390673	-0.004913611	1.748767751
T+37	0.031808686	-0.04193865	0.034944258	0.008271431	1.753681362
T+36	0.070182663	-0.002194762	0.022763098	0.030250333	1.745409931
T+35	0.00368273	0.022240224	-0.024744402	0.00039285	1.715159598
T+34	0.020121531	-0.023361418	0.016868307	0.004542807	1.714766747
T+33	0.015432454	-0.03425015	0.014068708	-0.001582996	1.710223941
T+32	0.027646463	-0.001541324	0.001800608	0.009301915	1.711806936
T+31	0.02574597	-0.02800185	0.039733528	0.012492549	1.702505021
T+30	0.042720996	-0.046489476	0.009385513	0.001872344	1.690012471
T+29	0.017529879	-0.003370251	-0.006613799	0.002515277	1.688140127
T+28	0.01302032	0.000446366	0.014101004	0.00918923	1.685624851
T+27	0.037482824	0.011519051	0.000461184	0.016487686	1.67643562
T+26	-0.006317262	0.017537886	0.007955707	0.00639211	1.659947934
T+25	0.025597633	-0.039791574	0.048274885	0.011360315	1.653555824
T+24	0.027182005	0.069196876	0.004845904	0.033741595	1.642195509
T+23	0.020282198	-0.027298398	0.006941464	-2.49121E-05	1.608453914
T+22	0.047163215	-0.029222665	0.01166057	0.00986704	1.608478826
T+21	0.021833469	0.023753797	0.000195445	0.015260904	1.598611787
T+20	0.017066436	-0.061852414	0.056442102	0.003885375	1.583350883
T+19	0.017066436	-0.061852414	0.004133205	0.020550104	1.579465508
T+18	0.017066436	-0.061852414	0.020542782	0.021583498	1.558915404
T+17	0.017066436	-0.061852414	0.032240771	0.037412762	1.537331906
T+16	0.017066436	-0.061852414	0.01394859	0.01394859	1.499919144
T+15	0.017066436	-0.061852414	0.023295815	0.023295815	1.485970555
T+14	0.017066436	-0.061852414	0.014066207	0.014066207	1.46267474
T+13	0.017066436	-0.061852414	0.010751131	0.010751131	1.448608533
T+12	0.017066436	-0.061852414	0.059316235	0.059316235	1.437857402
T+11	0.017066436	-0.061852414	0.037464397	0.037464397	1.378541166
T+10	0.017066436	-0.061852414	0.028592962	0.028592962	1.34107677
T+9	0.017066436	-0.061852414	0.050738138	0.050738138	1.312483808
T+8	0.017066436	-0.061852414	0.031774916	0.031774916	1.26174567
T+7	0.017066436	-0.061852414	0.032294722	0.032294722	1.229970754
T+6	0.017066436	-0.061852414	0.054356244	0.054356244	1.197676033
T+5	0.017066436	-0.061852414	0.027459349	0.027459349	1.143319788
T+4	0.017066436	-0.061852414	0.020333376	0.020333376	1.11586044
T+3	0.017066436	-0.061852414	0.040706765	0.040706765	1.095527064
T+2	0.017066436	-0.061852414	0.021722962	0.021722962	1.054820299
T+1	0.017066436	-0.061852414	0.053349035	0.053349035	1.033097337

Table 5: Findings from the stock returns

Sign	Before	During	After
AAR Positive	34	28	25
AAR negative	11	17	20
Total	45	45	45

The count of abnormal returns was inclined towards negative value of AAR during and after the downgrade period. However on calculating the daily returns and projecting it for the month will provide us a clear picture regarding the performance of the stock during the period.

Table 6: Punjab & Sind bank monthly returns

Period	Stock avg daily returns (in %)	Stock Avg Monthy return (in %)	Market avg daily returns (in %)	Market avg monthly return (in %)
26 Sep 2013- 26 Nov 2013	0.35%	10.50%	0.10%	3.00%
26 Nov 2013 - 13 Feb 2014 (Credit Rating change period)	-0.13%	-3.90%	0.08%	2.40%
13 Feb 2014- 13 April 2014	0.19%	5.70%	0.11%	3.30%

The table above shows a direct impact on the change in credit rating on the MPS. The different period segregated clearly shows in the period of announcement of credit rating downgrade the MPS dropped from 10.5% avg monthly returns to -3.9% monthly returns. The market also showed a dip in its monthly returns however the returns remained positive for the mentioned period. It was only in the case of P & S bank that the returns showed a drastic change. After the announcement (i.e. after 13 Feb 2014) the returns were low at -0.11% age daily return for a period of 1 month, later on the profits picked pace and eventually led to a figure of 0.19 % average daily return or 5.7% average monthly return for a period of 2 months after announcement. The movement of the stock price with the announcement of the rating change clearly shows the presence of a relation b/w MPS and credit rating.

A. For Indian Overseas bank

Table 7: Indian Overseas bank monthly returns

Period	Stock avg daily returns (in %)	Stock avg monthly returns in %	Market avg daily returns in %	Market avg monthly returns (in %)
10 Aug 2013- 9 Oct 2013	0.012%	0.36%	0.1855%	5.57%
10 Oct 2013 - 23 Jan 2014 (Credit rating change period)	-0.25%	-7.61%	0.078%	2.33%
23 Jan 2014 - 23 Mar 2014	-0.178%	-5.35%	0.047%	1.41%

The table above shows the comparison between stock performance of IOB and market performance for the mentioned period. In this case we can see that the average stock returns decreased by 7.61% after the rating downgrade announcement. Also after the announcement of last rating downgrade the stock returns continued to decrease but with less pace (5.35%). On the other hand the market was able to generate positive returns for the period under consideration clearly indicating that the negative returns can be attributed to rating downgrade.

B. For Central bank of India –

Table 8: Central bank of India monthly returns

Period	Stock avg daily returns (in %)	Stock Avg Monthy return (in %)	Market avg daily returns (in %)	Market avg monthly return (in %)
4 Aug 2013- 3 Oct 2013	-0.16%	-4.77%	0.12%	3.61%
4 Oct 2013 - 30 Dec 2013 (Credit Rating change period)	0.03%	0.99%	0.10%	3.08%
31 Dec 2013- 28 Feb 2014	-0.36%	-10.80%	0.30%	9.06%

The stock was not performing well before, during and after the downgrade period. However the downgrade announcement intensified the decrease in returns, causing the stock to perform worse than before when in fact the market was doing on a rise.

V. CONCLUSION AND RECOMMENDATIONS

The banking sector is an industry in which the returns are largely dependent on the returns of the market. Any change in the macroeconomic condition can significantly impact returns of the banking stocks. However by analyzing the returns trend after the announcement of rating change information we can see that such information also do produce a change in returns of the stock.

In case of Indian scenario, we can see that returns of Central Bank of India and Indian Overseas Bank deteriorated (-10.8% and -5.35% monthly returns respectively) after the rating downgrade announcement even when the market did well (9.06% and 1.41% respectively) in the given period. However in case of Punjab and Sind bank returns increased after the downgrade period which can be due to any corrective steps taken by the bank.The count of "average abnormal returns" increased during and after the rating downgrade further strengthening that rating change information do impact the returns of the stock. It is also observed that there is a change in the market price post announcement of rating downgrade. In case of Indian scenario the impact is clear as the market was doing well during and after the announcement when in fact the performance of stock deteriorated, so therefore the decrease can be attributed to the downgrade announcement.

The banking industry is a market driven industry, where stock returns depends on the market returns. Banking industry seeks credit from lenders, or gives credit to accounts and is part of the vast global network of commercial borrowers and lenders. It is impossible for investors to make credit determinations on every bank as it requires specific domain knowledge and skill set to conduct such analysis. This is where the credit rating agencies (CRAs) come in. Rating agencies analyze various financial, non-financial parameters, past credit history and future outlook before assigning a rating. Every rating grade comes with its possibility of default, which in turn assists investor/lender to take informed investment decision. It is therefore not a surprise to find credit rating change information significantly impacting the returns of the stock. The credit rating change information does influence the decision of investors and in turn impact the returns of the stock by affecting the stocks demand and supply.

REFERENCES

[1] Archana, H.N., Jayanna, S. (2015) "Impact of rating changes on stock prices in India – A Study of banking sector 'International Multidisciplinary E-Journal Vol-IV,Issue –VIII, Aug,2015.

[2] Abad-Romero, P. and .Robles-Fernandez, (2006), 'Risk and Return around Bond Rating Changes: New Evidence from the Spanish Stock Market', Journal of Business Finance & Accounting, Vol. 33, Nos. 5&6 (June/July), pp.885-908.

[3] Akhigbe, A., J. Madura and A.M. Whyte, (1997), 'Intra-industry Effects of Bond Rating Adjustments', The Journal of Financial Research, Vol 20, pp. 545-61.

[4] 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.

[5] 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.

[6] ChandrashekarR,Mallikarjunappa, T. (2013), "Research paper on Impact of Bond Rating on Stock Returns" Paripex –Indian Journal of Research Volume: 2 | Issue: 4 | April 2013

[7] Hasniza, M.T., Amalia, Di Iorio, Terrence, H (2011), "The Stock Market Impact of Corporate Bond Rating Changes: New Evidence from the UK and Australian Stock Markets"www.efmaefm.org/0EFMAMEETINGS/.../2012.../EFMA2012_0383_fullpaper.pdf

[8] Boehmer, E., Musumeci,J. and Poulsen, A. B. (1991), 'Event-study Methodology under Conditions of Event-induced Variance', Journal of Financial Economics Vol.30, PP. 253-72.

[9] Creighton, A, Gower,L and Richards,A.J. (2007), 'The Impact of Rating Changes in Australian Financial Markets', Pacific-Basin Finance Journal, Vol. 15, pp. 1-17.

[10] Crouhy, M., Galai, D. and R. Mark, (2001), Prototype Risk Rating System'. Journal of Banking and Finance, Vol 25, pp. 47-95.

[11] Dichev, I... and Piotroski, J.D. (2001), 'The Long-run Stock Returns Following Bond Rating Changes',The Journal of Finance, Vol. 56. pp. 173-203.

[12] Goh, J.C.andEderington, L.H. (1993), 'Is a Bond Rating Downgrade Bad News, Good News, or No News for Stockholders?' The Journal of Finance, Vol. 48, pp. 2001-8.

[13] 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. 101-12.

[14] Hand, J.R.M., R.W. Holthausen, R.W.andLeftwich, R.W. (1992), 'The Effect of Bond Rating Agency Announcements on Bond and Stock Prices', the Journal of Finance, Vol. 47, pp. 733-52.

[15] Hite, G. and Warga, A. (1997), 'The Effect of Bond Rating Changes on Bond Price Performance', Financial Analyst Journal, Vol. xxx, pp. 35-51.

[16] Holthausen, R.W., andLeftwich, R.W. (1986), 'The Effect of Bond Rating Changes on Common Stock Prices', Journal of Financial Economics, Vol. 17, pp. 57-89.

[17] Hsueh, L.P. and Liu,Y.A. (1992), ,Market Anticipation and the Effect of bond Rating Changes on Common Stock Prices', Journal of Business Research, Vol. 24, pp. 225-39.

[18] Kish, R.J. Hogan, K.M. and Olson, G. (1999), 'Does the Market Perceive a Difference in Rating Agencies?' The Quarterly Review of Economics and Finance, Vol. 39, pp. 363-77.

[19] Kliger, D. and Sarig, O. (2000), 'The Information Value of Bond Ratings', The Journal of Finance, Vol.55, pp.2879-902.

[20] Matolcsy, Z.P. and Lianto, T. (1995), 'The Incremental Information Content of Bond Rating Revisions: The Australian Evidence', Journal of Banking & Finance, Vol. 19, pp. 891-902.

[21] Norden, L. and Weber, M. (2004), 'Informational Efficiency of Credit Default Swap and Stock Markets: The Impact of Credit Rating Announcements', Journal of Banking and Finance, Vol. 28, pp. 2813-43.

[22] Pinches, G.E. and J.C. Singleton, (1978), 'The Adjustment of Stock Prices to Bond Rating Changes. The Journal of Finance, Vol. 33, pp. 29-44.

[23] Uwe, W. (2005) "Credit Risk Evaluation: Modeling - Analysis - Management," Center for Risk & Evaluation, Vol. 33, pp 345-356, June 14, 2005.

[24] Weinstein, M.I. (1977), 'The Effect of Rating Change Announcements on Bond Price', Journal of Financial Economics, Vol. 5, pp. 329-50.

[25] Zaima, J.K. and JMcCarthy, (1988), 'The Impact of Bond Rating Changes on Common Stocks and Bonds: Tests of the Wealth Redistribution Hypothesis', The Financial Review, Vol. 23, pp. 483-98.