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Research Paper

The Effect of Initial Bond Rating on Share Price Performance

Management

KEYWORDS : Rating, AARs, CAARs, Significance.

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ABSTRACT

Credit rating enables investors to draw up the credit risk profile and to assess the adequacy of the risk premium offered by the market. Credit rating announced by the rating agencies significantly influence the share price of rated companies. Prior research has found that stock prices react negatively to the announcement of downgrades of bond ratings, while weaker positive excess bond and stock returns are found for upgrades. However, prior studies report mixed results on the information content of the bond ratings. Our study examines the reaction of stock returns to the initial bond rating. We find that the returns associated with these events are insignificant.

1. Introduction

The borrowing trend has changed drastically on account of the revolution in the capital market. To raise funds corporates either directly issue debt or borrow through a financial intermediary. In this process the regulators need to ensure that the investors have full information about the credit worthiness of debt issuers. Credit rating is a business proposition that has been evolved to address this problem.

Credit rating is guidance to the investors in determining the credit risks associated with the debt instruments. Credit Rating plays a vital and unique role in strengthening the capital market and building investors' confidence in the financial system. The volume of the credit rating business picked up in India only after rating was made compulsory for certain instruments by the regulating authority. At present commercial papers, public issue of debentures and bonds with maturity exceeding eighteen months, and fixed deposits of large non-banking financial companies registered with RBI, are required to be compulsorily rated. While the range of instruments has been quoted to be wide, the bulk of credit rating so far is confined only to the commercial papers, fixed deposits, bonds and debentures. Rating of an equity and corporates (especially small and medium enterprises) has commenced recently. Credit rating enables investors to draw up the credit risk profile and assist in assessing the adequacy of the risk premium offered by the market. It saves the investor's time, enables him to take a quick decision and provides him better choice among available debt instruments.

Several studies have been undertaken to examine the effect of credit rating on share price performance. Hand, et al., (1992) finds that there are both bond and stock price effects associated with announcements of additions to the credit watch list and with the announcement of actual rating changes. Kim and Nabar (2003) find that rating agencies play an important information provision role and that bond down grades significantly impact firm's future cash flows. They also find that stock returns around the rating change date are significantly negative for firms with institutional ownership. The bond-rating agency is a significant information provider and stock returns are negatively related to firm's debt equity ratios. Goh and Ederington (1993) observe a negative equity market reaction to the downgrades due to deterioration in the firm's prospects but no reaction to the downgrade due to an increase in leverage. They also argue that it is unlikely that all downgrades are a surprise since many follow news of an increase in the firm's riskness and a surprise downgrade is clearly bad news for bondholders. It is not necessarily bad news for shareholders.

Dichev and Piotroski (2001) examine the long–run stock returns following bond rating changes and found no reliable abnormal returns following the upgrades, whereas there are substantial negative abnormal returns following downgrades. They also found that underperformance is most pronounced in the first month following downgrades, lasts at least a year, and is on the magnitude of –10 to –14 percent at the one-year horizon. Pinches and Singleton (1978) argue that the informational content of bond rating changes is very small and the stock markets are efficient in processing this type of information for both bond rating increase and decrease. Nayar and Razef (1994) have examined the commercial paper rating and equity returns and found that commercial paper rating downgrades have negative information content while upgrades have no equity price effects, similar to the effect of rating changes of long–term debt. In the context of insurance sector, Singh and Power (1992) observe that rating changes are found to convey no information to the capital market. They also argue that the absence of stock price reactions in response to rating changes are a non-event in terms of new information conveyed to the market. Rao and Ramachandra (2004) have 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.

Unlike other studies our study examines the impact of initial bond rating on stock return.

Remider of the paper is organized as follows. Data and sample selection are presented in section 2, methodology is described in the section 3, empirical results are examined in section 4 and section 5 presents the conclusion of the study.

2. Sample and Data

The share prices and initial bond ratings data are collected from the Prowess, the corporate database of Centre for Monitoring Indian Economy (CMIE). In this study we use initial bond rating of listed companies for the period 1996 to 2005. We restrict our sample to the initial bond rating of companies. Our initial sample consists of 126 initial bond rating of 93 firms reported in the CMIE data base. We consider bond ratings announced by the four major credit rating agencies in India i.e., CRISIL, ICRA, CARE and Fitch. The adjusted daily stock prices and Nifty index (NSE index) are collected for each of the firms from day – 120 to + 120. If the share price data is not available due to non-trading, such companies are eliminated. The final sample of companies after applying these criteria is 43.

3. Methodology

We follow event study methodology to analyse the impact of initial bond rating on stock price. The event period is centered on the announcement date of bond rating. The announcement date is designated as day "0" in the event period. Prior studies consider different event period to analyse the effect of an event on stock price. Brown and Warner (1985) used eleven day event period (– 5 to + 5) to analyse daily stock returns. Wansley et.al,(1987) and Dodd Peter (1980) used – 50 to +50 event period to examine the effect of merger announcement on stock return. To examine the effect of bond rating, we use 41- day event period, i.e. 20 trading days before the announcement of

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the bond rating to 20 trading days after the announcement of the credit rating, 0 being the day of the announcement of the bond rating. The market proxy used in the study is Nifty.

The effect of stock prices is measured in an event period using the abnormal return associated with this event. We compute the expected returns (ER), abnormal returns (AR), average abnormal returns (AAR) and cumulative average abnormal returns (CAARs) to examine the stock price reaction. To measure the stock price response to the bond rating announcement, it is necessary to segregate the returns attributed to the market movement and those that are not attributed to the market movement, but to bond rating. This adjustment is made using the market adjusted model. The estimation period used was -21 days to -120 days and +21 days to +120 ('0' day being the event day). If there is no trading in the market on the announcement day, the immediate next trading day is considered as event-day for those firms.

The methodology of the study involves use of market model which was developed and suggested by Sharpe (1963). 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. It is a model to analyse the riskiness of stocks in terms of systematic risk and unsystematic risk. In market model we regress returns on a security against returns of the market index. The market model is given by the following regression equation:

$$E(R_{jt}) = \alpha_j + \beta_j R_m + e_j$$

Where,
α is intercept. (Mean return over the period not explained by the market).
$E(R_{jt})$ is the expected return on security j,
R_m is the expected market return,
β_j is the slope of the regression and,
e_j is the error term (with a zero mean and constant standard deviation).

The predicted return represents the return that would be expected if no event took place. The predicted return for a firm for a day in the event period is given by the following market model:

$$E(R_{jt}) = \alpha_j + \beta_j R_{mt}$$

Where R_{mt} is the return on the market index for day 't' in the event period. Since the market model takes explicit account of both the risk associated with the market and mean return, it is used to estimate the expected return (Weston and Kwang, 1996). The residual is calculated for each day and for each firm. The residual is the actual return for that day for the firm minus the predicted return. The abnormal return is the difference between the actual return on day t and the predicted return i.e.,

$$AR_{jt} = R_{jt} - E(R_{jt})$$

The residual AR_{jt} represents the abnormal return, that is, the part of the return that 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 AAR_t for day 't' using the following formula,

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

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,

$$CAAR = \sum_{t=-20}^{+20} AAR_{jt}$$

The first set of estimated coefficients is used to estimate $E(R_{jt})$ for t less than or equal to the announcement day, and the second set is used for t greater than the announcement date. The slope, β_j, of the regression measures the variability of the security's returns relative to the market returns and it is the security's beta. Beta is the ratio of the covariance between the security's returns and the market returns to the variance of the market returns. Alpa (α) indicates the return on the security when market return is zero. It could be interpreted as return on the security on account of unsystematic risk. Over a long period of time α should be zero given the randomness of unsystematic risks.

To examine the statistical significance of the average abnormal returns t–statistic is constructed and the hypothesis that the AAR is equal to zero is tested. The test – statistics for significance of AAR is given by,

$$AAR_t / \sigma(AAR_t)$$

Where, AAR_t is the average excess return on day t across the stocks over the estimation period and given by,

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

Where AR_{jt} is a specific firm's abnormal return for day t and market model is used to calculate the $AR_{jt.}$

$\sigma(AAR_t)$ is the standard deviation of average abnormal returns (AAR_t) over the estimation period (in our study, +21 to +120 days and -21 days to -120 days) and is computed using,

$$\sigma(AAR_t) = \left(\sum_{t=1}^{\cdots v} (AAR_t - AAR)^2 * 1/99\right)^{1/2}$$

AAR is the average of average abnormal returns over the estimation period, and is given by $AAR = \frac{1}{100} \sum_{\cdots}^{\cdots} AAR_t$

4. Empirical Results

Effect of bond rating on security return:

The empirical results for the effect of bond rating on security returns are presented in the following table.

Table showing AAR, CAAR and Calculated t-Values

-20th day to -1 day				0 day to + 20 day			
Day	AAR	CAAR	t-values	Day	AAR	CAAR	t-values
-20	-0.00383	-0.00383	-0.64812	0	-0.00272	-0.03767	-0.45993
-19	0.009583	0.005752	1.621179	1	-0.00222	-0.03988	-0.40729
-18	-0.00224	0.00351	-0.37924	2	0.002898	-0.03699	0.532101
-17	0.003741	0.007251	0.63284	3	-0.00358	-0.04057	-0.65821
-16	0.000788	0.008039	0.133352	4	0.000617	-0.03995	0.113382
-15	-0.00854	-0.00051	-1.44552	5	-0.00428	-0.04423	-0.78548

-14	-0.0033	-0.00381	-0.55839	6	0.001151	-0.04308	0.211412
-13	-0.0014	-0.00521	-0.23766	7	-0.00147	-0.04455	-0.27025
-12	-0.00395	-0.00916	-0.66812	8	0.001476	-0.04308	0.27111
-11	-0.007	-0.01616	-1.18443	9	0.001609	-0.04147	0.295488
-10	0.005297	-0.01087	0.896047	10	-0.00252	-0.04399	-0.46271
-9	-0.0044	-0.01527	-0.74503	11	-0.00133	-0.04532	-0.24471
-8	0.002376	-0.01289	0.401979	12	0.001832	-0.04349	0.336405
-7	0.003815	-0.00908	0.64542	13	0.001798	-0.04169	0.330156
-6	-0.00939	-0.01847	-1.589	14	0.000848	-0.04084	0.155677
-5	-0.00865	-0.02712	-1.46336	15	0.004739	-0.0361	0.870216
-4	0.001266	-0.02586	0.214225	16	0.004608	-0.03149	0.84612
-3	-0.01405	-0.0399	-2.37636	17	0.003771	-0.02772	0.692501
-2	0.005304	-0.0346	0.897244	18	-0.00845	-0.03617	-1.55102
-1	-0.00035	-0.03495	-0.05912	19	0.006618	-0.02955	1.21531
				20	-0.00378	-0.03333	-0.69455

Results of this study reveals that under the market model with raw returns AARs is negative for 12 days and positive for 8 days before the announcement of bond rating, where as they are negative for 8 days and positive for 12 days after the announcement of the bond rating. During the whole event period, AARs are negative for 21 days and positive for 20 days. The opposite movement of AARs after the announcement reveals that the share price movements have changed the direction after the bond ratings.

It is evident from the table that the CAAR is positive for 4 days and negative for 16 days prior to the announcement of the bond rating while they are negative for all days after the announcement of bond rating. During the event period CAARs are negative for 37 days and positive for 4 days. This indicates that for the majority of the days CAARs are negative. The results of test statistics lead to the acceptance of the hypothesis that the abnormal return is equal to zero at 5 percent level of significance. The CAAR values have started declining even before the event period and this trend continues after the event period. This reveals that market was anticipating the same information from the credit rating agencies. Regarding the information content of bond rating, the results of our study are consistent with the results of Singh and Power (1992). It is evident from the above findings that market anticipates the information and incorporates this in the stock prices. The persistence of negative stock returns after the event period shows that no new information, than what it was expecting, is conveyed to the market by the bond rating.

5. Conclusion

Prior studies find that bond down grading are associated with significant declines in the stock prices of the affected firms, but, a very low positive abnormal returns for bond upgrades. Our study examined the effect of initial bond rating on the stock returns of rated firms around the day of announcement. The AARs are negative for majority of the days before announcement and they are positive for majority of the day after the announcement. The CAARs are negative for 90 percents of the event period. Further, CAAR values have started declining before the event day and that trend persists after the event day. Market has not found any surprises in the announcements as revealed by the continuing trend that started before the event. The absence of any change in the direction of stock price reactions to bond ratings reveals that market anticipates the information provided by credit rating agencies and incorporates this before the event and therefore, event itself does not seem to have any significant impact on the stock prices. We also conclude that the returns (AAR) associated with this event are insignificant.

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