“A study on economic factors affecting credit ratings of Indian companies”

AUTHORS	Rajesh Mamilla https://orcid.org/0000-0003-3497-2468 Mehul Mehta Abhijay Shukla Piyush Agarwal

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Rajesh Mamilla (India), **Mehul Mehta** (India), **Abhijay Shukla** (India), **Piyush Agarwal** (India)

A STUDY ON ECONOMIC FACTORS AFFECTING CREDIT RATINGS OF INDIAN COMPANIES

Abstract

The objective of the research carried out is to understand the impact of selected economic variables (such as Crude Oil Price, GDP, Industrial Production, Exchange Rates, and Inflation) on credit rating of Indian companies.

The sample comprises of 120 rating observations during the period 2012–2016 for a total of 24 companies of India.

Measurement of central tendency – descriptive statistics is used where credit rating is used as dependent variable and five economic factors viz. Crude Oil Price, GDP, Industrial Production, Exchange Rates, and Inflation as the independent variables.

Results from the analysis indicate that the credit rating responds in both linear, as well as nonlinear manner, to selected economic factors. Economic factors such as GDP, Industrial Production, and Exchange Rates have a linear relationship to credit rating, whereas Crude Oil price and Inflation have a non-linear impact upon the credit rating.

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Rajesh Mamilla, Ph.D., Associate Professor, VIT Business School, VIT Deemed to be University, India.

Mehul Mehta, SENSE, B. Tech., VIT Vellore, India.

Abhijay Shukla, SENSE, VIT Vellore, India.

Piyush Agarwal, SMEC, B. Tech., VIT Vellore, India.

INTRODUCTION

In financial markets, a major role is played by credit rating agencies (CRAs), which help to improve the creditworthiness of the companies or countries by reducing the asymmetry in information lying between the lenders and investors, as well as the issuers. CRAs actually have the specialization by means of which they can tell about the creditworthiness of corporates just by analyzing and evaluating the debt securities. With the evolution of time and changes brought in financial infrastructures, CRAs are becoming more and more important for managing the credit risks faced by corporates. For a country like India, CRAs are gaining huge importance, especially in India in order to assess the soundness of different entities like corporations, banks and governments that had tried to raise funds by issuing debt. The decisions taken by such organizations can affect the economy drastically. Most decisions taken by the corporates are dependent on the ratings assigned to them by these agencies, since it helps in predicting the probability of defaults a company can make. S&P is one of the top global rating agencies. In fact, because of the same ability of predicting the default excellently, CRAs play a vital role in fashionable money markets. One in all the highest international rating agencies – S&P – has outlined credit rating as "the opinion of a rating agency concerning the power and disposition of the institution could also be a corpo-

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ration/firm or state or town government to satisfy its money obligations fully and on time" (Standard and Poor's [S&P], 2010). In simple terms, it can be said that it is the ability of a borrower who has taken a credit to payback its principal and interest if they are failing due (K. Kaur & R. Kaur, 2011). The ratings actually become important data to the investors and lenders because of the superiority it holds, as well as because of the price factor, which is quite low. Hence, CRAs play a crucial role in developing the capital markets because of the reliable opinion about the default probability of the institutions offered by them. Today, for conducting most of the studies in the money market, researchers are using credit ratings as a proxy live (Murcia et al., 2014). Going ahead, most of the analysis, which has been done so far, is based on the data provided by international credit agencies, which are approved as across the country. These are nationally recognized statistical rating organizations (NRSROs) by the U.S. Securities and Exchange Commission (SEC) and most of the ratings are provided by large three institutions, i.e., S&P, Moody's and Fitch group. However, there are just few analyses, which have been performed from the ratings, which are provided by agencies, which are not recognized as NRSROs. Hence, the current study conjointly gains connection, because it takes into account the ratings appointed by prime three Indian credit rating agencies viz. Credit Rating Information Services of India Ltd. (CRISIL), Credit Analysis and Research Ltd. (CARE) and Credit Rating Agency of India Ltd. (ICRA) to know the impact of economic variables on credit ratings of selected Indian companies.

Using a detailed literature review and the availability of the data, five economic factors are chosen, an attempt was made to analyze the effect of those factors on credit ratings for which descriptive analysis is performed to understand the results. Using trend analysis, linear and non-linear relationship is identified among microeconomic factors and credit ratings assigned to the company.

1. REVIEW OF LITERATURE

By assigning ratings to the companies the ratings agencies used to study various factors, which can affect the performance of the company, like risk factors (market share, innovation level, diversification, competition, etc.), factors related to management (quality, management and risk appetite to the management, etc.) and accounting factors (leverage, profitability, liquidity, etc.) (ICRA, 2009; Ministry of Finance, 2009). There are various alternative factors identified by Bhalla (2008) and Kumar and Rao (2012) like the worth of assets pledged as collateral security, earning capability and future money flows' stability of company, directors and expertise of staff of the company, track record of promoters, etc. that are considered by rating agencies for assigning credit rating to corporations or their instruments.

During the same time, some of the financial researchers tried to find out the impact of non-financial determinants on credit rating agencies. The factors which cannot be expressed in monetary terms and which cannot be obtained from the financial statements for an entity are known as non-financial factors. Non-financial factors are considered to be leading indicators for better financial performance in future, which can contribute largely by forecasting the quality of borrower's quality accurately. The credit rating will be high if the non-financial indicators are better for the corresponding entity. Market share is actually one of the non-financial factors, which is used for assigning rating to the bank's internal credit, as well as to predict the probability of default, but it is considered as highly significant factor. Grunert, Norden, and Weber (2005) analyzed market share as one of the non-financial input to the bank's internal credit ratings in forecasting the future default events and found it as a positive but insignificant factor. A positive and insignificant relationship exists between the ratings to the corporate and corporate governance existing there (Murcia et al., 2014). Innovation is positively correlated to the ratings assigned to the company (Czarnitzki & Kraft, 2004; Al-Najjar & Elgammal, 2013). But too many innovations can also reduce the ratings of the company because of increased probability of failures. Further studies concluded that internationalization of credit ratings is also positively and significantly correlated to the ratings assigned to the company (Murcia et al., 2014). Firms which have good social performance have good credit ratings (Attig et al., 2013). The variation in different microeconomic factors has its own

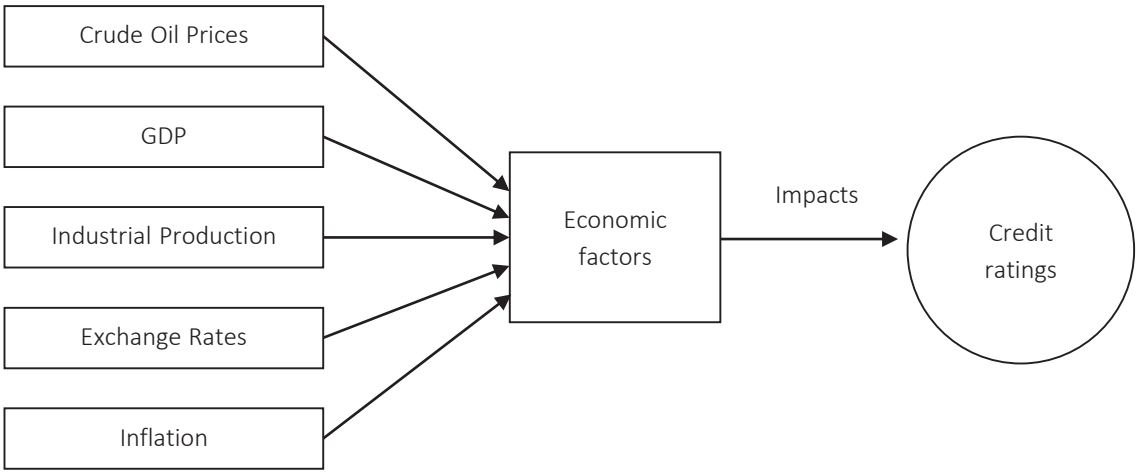

Figure 1. Conceptual model

effect on the profitability of the company. A shock in oil price fluctuation has resulted in both direct and indirect effect on bank profitability, which was channelled through institutional and microeconomic variables that are too country wise (Ibrahim, 2019). From the literature review, it is observed that limited studies have taken place on financial variables, few studies were done on non-financial variables, as well as combination of both financial and non-financial determinants impact on credit ratings, but in the research done on non-financial determinants impact on credit ratings, no one considered economic variables. Hence, in the present research, an attempt is made to know the impact of selected economic variables (such as Crude Oil Price, GDP, Industrial Production, Exchange Rates, and Inflation) on credit rating of Indian companies.

Based on the literature review and the availability of data, the following objectives and hypotheses are developed.

Objectives of the study

Since, majority of the studies previously revolved around the financial factors affecting the credit ratings of the companies in which various models and methodologies were discovered to understand the results.

The major objective of this study is to understand the macroeconomic factors affecting the credit ratings of Indian companies. The whole study is done for Indian companies because of the availability of the data about macroeconomic factors for India.

Hypotheses

H_{01}: *There is no relationship between change in GDP and credit ratings assigned to the company.*

H_{02}: *There is no relationship between change in Inflation and credit ratings assigned to the company.*

H_{03}: *There is no relationship between change in Exchange Rates and credit ratings of the company.*

H_{04}: *There is no relationship between change in Crude Oil Price and credit ratings of the company.*

H_{05}: *There is no relationship between change in Industrial Production and credit ratings assigned to the company.*

Theoretical model

The model explains the impact of economic factors on credit ratings of various Indian companies.

2. METHODOLOGY

Measurement of central tendency – descriptive statistics was used on a multidimensional data (i.e., data for different time periods) collected from the annual reports of the company, where credit rating is taken as dependent variable and five economic factors, i.e., Crude Oil Price, GDP,

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Industrial Production, Exchange Rates, and Inflation as the independent variables.

3. DATA AND SAMPLE

In an order to carry out the present study, so that objectives set can be achieved, credit ratings of Indian companies is taken into consideration for the time period 2012–2016, which were taken from their respective annual reports, as well as from the websites of CRISIL, ICRA and CARE. The annual report of the company is the most important source of the database. These agencies are considered as the major credit rating agencies in India sharing majority of the total market share (Suresh & Paul, 2010). Moreover, these organizations are well recognized and they are approved by the Securities and Exchange Board of India (SEBI), as well as Reserve Bank of India (RBI), and both the institutions use the ratings provided by these agencies for various regulatory purposes (Kumar & Rao, 2012). The ratings have been divided into eight categories as described in Table 1.

Table 1. Ratings based on various credit agencies

Ratings	Meaning
CRISIL AAA	Highest safety
CRISIL AA	High safety
CRISIL A	Adequately safe
CRISIL BBB	Moderately safe
CRISIL BB	Moderate risk
CRISIL B	High risk
CRISIL C	Very high risk
CRISIL D	Default

During the period of study, the relevant data were available for 24 Indian companies with 120 rating observations.

Table 2. Encapsulated data

Years	GDP	INF	IP	ER	OIL
2012	5.5	9.9	3.3	54.41	105.87
2013	6.4	9.4	3.4	60.5	96.29
2014	7.5	5.9	4	61.14	40.49
2015	8	4.9	3.4	65.47	40.68
2016	7.1	4.5	5	67.07	52.51
Descriptive analysis					
Mean	6.9	6.92	3.82	61.72	67.17
Minimum	5.5	4.5	3.3	54.41	40.49
Maximum	8	9.9	5	67.07	105.87
Median	7.1	5.9	3.4	61.14	52.51
Standard deviation	0.98	2.55	0.71	4.95	31.52
Variance	0.95	6.50	0.51	24.49	993.53

4. ANALYSIS AND INTERPRETATION

Financial markets are an intermediary, which plays a huge role for the functioning of any market economy. They are the connecting points, which help the savers and investors to mobilize the capital so that it can be allocated efficiently between the competing firms. Today, rating has become a simple tool based on which investors are successfully differentiating between various available debts instruments on the basis of their credit quality. Today, investors are using the credit ratings as a yardstick to measure the inherent risk in the instrument offered by the company. Credit ratings are concerned with pre-estimating the repayment capacity and ability of the borrower for a particular debt planned to be raised. Credit ratings are the opinions of the agencies about the fact that how capable a firm is in meeting its debt obligations. A rating is provided by doing a detailed objective analysis of the information available and the clarifications provided by the lender, as well as the other sources, which the agencies considered to be reliable. There are various factors impacting the credit ratings like the position of issuer firm as compared to its peers, various industry characteristics, management quality, and operational efficiency, commitment to new products and other associate companies and funding policies of the issuer. A plethora of studies have been conducted and it has been inferred that macroeconomic variables will impact the sovereign bond's ratings in emerging's markets. The macroeconomic factors are not considered to be important, but this study extends the macroeconomic factors to study the impact of change in macroeconomic factors on ratings assigned to companies.

Field = GDP

Statistical tool = measurement of central tendency → descriptive statistics = *Average*

If an economy is growing at the positive rate, then it will result in reduction of the debt burden. Other than that it will also solve the insolvency problems. If the economy is growing in positive direction at a high rate, so it is a good sign for the firms to improve their bottom lines, i.e., their profitability. So in order to identify a pattern from encapsu-

lated data set, descriptive statistics is used. And it can be clearly identified that the average of GDP is 6.9 (nominal). Further, a clear trend could be found, as and when GDP breaches the aforementioned average GDP the credit rating also changes favourably, though few exceptions are there. So if there is a growth observed for a period it suggests that there are lower chances of bond degradation for that period.

Rational = A GDP increase means that more and more produce is being produced. More production implies more consumer consumption, which indicates more purchase power and more output. So with an increase in GDP average for the period 2014–2016, the credit ratings for various companies increase in a favorable manner, except for few. For the given period, a trend has been observed how the rating is changing with the change in GDP. Majority of the companies, which belong to manufacturing sector, are actually showing positive trend with an increase in GDP for the given timeline.

Based on the trend studied, we can reject the hypothesis and infer the fact that there is linear relationship between GDP and credit ratings assigned to the company.

Table 3. Impact of GDP on credit ratings of select companies during the study period

Fields/companies	Trend observed	Rating
Atul Auto	Positive	From A– to A
M&M	Positive	From AA+ to AAA
SARAC	Neutral to positive	From BBB+ to A–
TTSL	Positive	From A– to AA–
IDBI	Negative	From AA+ to AA–
BOI	Negative	From AAA to AA+
KMB	Positive to neutral	From AA to AAA to AA
OBC	Negative	From AA+ to AA
ABFL	Positive	From AA to AA+
Muthut	Negative	From AA– to AA to BBB+
TPSS	Positive	From A to A+
HFML	Negative	From BB to B
TM	Positive	From AA– to AA
IIFL	Positive	From AA– to AA
ASHOK	Positive	From A to A+ to AA
Escorts	Positive	From BBB to BBB+
Bajaj	Positive	From AA– to AA to AAA
Rest	No anomaly detected	–

Field = Inflation

Statistical tool = measurement of central tendency → descriptive statistics = *Minimum & Average*

The pricing of corporate bond is multivariable, dynamic process in which there is always a competing pressure. Investment returns are affected by the inflation, usually with the inflation the returns get reduced, hence, its understanding becomes very important. Usually, when the economy grows, the demand starts increasing and it gets outstripped by the supply of the goods and ultimately the prices for the goods increase leading to inflation. It becomes a major threat to the investors, since it affects the savings and decreases the returns generated from an investment. Every investor who makes investment aims to increase their purchasing power for the long term. But their aim is kept at risk when inflation starts increasing, as investment returns have to be kept in pace with the rate of inflation so that they can increase their purchasing power. Hence, inflation poses a serious threat to the credit ratings and corporate bond yields.

Taking reference from the encapsulated data set, it can be clearly inferred that the average of Inflation is "6.92" for the time period 2012–2016, whereas the minimum value is "4.5". A clear trend could be found after observing the data carefully as when Inflation is lowest of all the years, the credit rating of the companies also changes favorably, though few exceptions are to be found out.

Rational = Inflation can be explained as a relative increase in final consumption price of a commodity in relation to previous four quarters. Inflation increases because of various factors, but one among them is that because of downgrade of India's credit rating, which means that India has to pay more of risk default premium for its borrowing, and in order to compensate the aforementioned dilemma, it increases the natural direct tax, which in return chokes the floating currency at the hands of the consumer. So in relation as and when inflation goes above the average, a natural phenomenon, a decrease in rating, can be subsumed. A generalization can be obtained from the above result and is that lower the inflation for a particular period, the higher will be the credit rating that

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can be achieved by the company. Table 4 is completely revealing the result about how the credit ratings care changing for the companies with the decrease in inflation for the given time period. A close observation of the data is indicating the fact that credit rating is actually improving with a decrease in inflation. The last column indicates the change in credit ratings of companies when the inflation value is 4.5 in the year 2016.

So based on the trend observed, it can be clearly identified that we can reject the hypothesis and infer that an inverse relationship exists between change in inflation and credit ratings assigned.

Table 4. Impact of Inflation on credit ratings of select companies during the study period

Fields/ companies	Trend observed	Rating @ 4.5
Atul	Positive	A @ 4.5
M&M	Positive	From AAA to AA+/AAA@ 4.5
SARAC	Positive	From BBB+ to BBB/A– @ 4.5
TTSL	Positive	AA– @ 4.5
IDBI	Negative	AA– @ 4.5
BOI	Negative	From AA+ to AAA/AA+ @ 4.5
KMB	Negative	From AAA to AA/AA @ 4.5
OBC	Negative	From AA+ to AA/AA @ 4.5
ABFL	Positive	From AA+ to AA/AA + @ 4.5
Muthut	Negative	BBB+ @ 4.5
TPSS	Positive	From A to A–/A+ @ 4.5
HFML	Negative	From B to BB
TM	Positive to neutral	From AA to AA–
IIFL	Positive	From AA to AA–/AA @ 4.5
ASHOK	Positive	From A+ to A/AA @ 4.5
Escorts	Positive	From BBB+ to BBB/A– @ 4.5
Bajaj	Positive	From AA to AA–/ AAA @ 4.5
Rest	No anomaly detected	–

Field = Exchange Rates

A change in credit rating of a company changes the yield of the corporate bond company offers. Generally, the higher the credit ratings of the company, the lower the interest rate the company offers. Fluctuations in Exchange Rates create much deeper and broader indirect effect impacting the most important aspects of economy for both short and long periods of time.

A change in Exchange Rates will bring changes in inflation, then interest rates and finally on savings and loans. For a country whose domestic currency is weak, it can increase the inflation rate for the nation if it is a big importer, also because of the fact of higher prices of foreign products. As a result, the central bank takes various counteractions to decrease the inflation, like they raise the interest rates in order to support the currency, which helps in preventing it from plunging sharply. If a company is operating in more than one nation, the result will be that it must be "translated" from foreign currencies to home currencies. The fluctuations in exchange rates make the forecasting of financial systems difficult for such kind of companies, which create a marked effect on unit sales, price and costs. A depreciation in the home currency due to fluctuation in Exchange Rates has huge effect on the transaction of the business. This will entirely affect the credit rating of the company.

Statistical tool = measurement of central tendency → descriptive statistics = *Standard Deviation and Maximum*

Taking reference again from the encapsulated data set, a peculiar pattern can be identified whereby as and when the Exchange Rate swivels around the optimum range of standard deviation from 56.76 to 66.66, credit rating stabilizes to a certain extent, further a movement of either of the directions could be observed as and when this standard deviation range is breached. Further, when maximum quote is indicated, a favorable change can be observed as the credit rating also hits its highest rating.

Rational = Exchange Rates Here we are assuming and correlating it to Dollar to Rupiah, i.e., an indirect quote (one unit of foreign currency = "X" units of home currency) to that of exports. This indicates more inflow of money. If the trend is observed carefully, a stability is observed when the exchange rate is found to be 67.07.

Table 5. Impact of Exchange Rates on credit ratings of select companies during the study period

Fields/ companies	Trend observed	Rating @ 67.07
Atul	Stable (@A–) & Positive	A
M&M	Stable (@AAA) & Positive	AAA
SARAC	Stable (@BBB+) & Positive	A–
TTSL	Stable (@a–) & Positive	AA–
IDBI	Stable (@AA+) & Negative	AA–
BOI	Stable (@AAA) & Negative	AA+
KMB	Stable (@AA) & Negative	AA
OBC	Stable (@AA+) &Negative	AA

Table 5 (cont.). Impact of Exchange Rates on credit ratings of select companies during the study period

Fields/ companies	Trend observed	Rating @ 67.07
ABFL	Stable (@AA+) & Positive	AA +
Muthut	Stable (@ AA–) & Negative	BBB+
TPSS	Stable (@ A) & Positive	A+
HFML	Stable (@B) & Negative	B
TM	Stable (@AA) & Positive	AA
IIFL	Stable (@AA–) & Positive	AA
ASHOK	Positive	AA
Escorts	Positive	A–
Bajaj	Stable (@AA) & Positive	AAA
Rest	No anomaly detected	

Field = Crude Oil Price

For big oil and gas companies, when the discounts for their product continue, a huge downgrading in their credit score is observed. And such kind of degrading actually affects the company's future ability to generate funds and their ability to service the debts. All these things hence ultimately put a lot of pressure on the cash flows generated by the company and lastly on the credit ratings allotted to them. A common effect of the decrease in oil prices on the company is the risk of assets impairment. If the forecasted prices are low, it means producers are expecting lower profits from the assets. Finally, it will create a huge impact on the value of asset and in case if the value carried on balance sheets is not recovered, then there are chances of writing off the assets. Possibilities of knocking on effects will also exist.

It becomes difficult to judge the present value of assets for various investment decisions or acquisition if prices are changing rapidly for the oil. A collapse observed in oil prices will generate huge uncertainty, which can be seen in the credit ratings given to the company.

Statistical tool = measurement of central tendency → descriptive statistics = *Maximum*

Referring to the data set, a pattern can be identified whereby Credit rating has an inverse relation to the maximum of Crude Oil Price, i.e., 105.5. That implies that when the oil price, which is usually expressed in terms of Dollar for Barrel, strikes maximum in their value for the given time period 2012–2016, the credit rating shrinks of the companies shrink to the minimum.

Rational = High oil prices is good news for some industries. Positive and negative effects both can be felt in the economy, but they will definitely benefit the petroleum businesses. Now if the data are observed carefully, it can be clearly inferred that for all the automobile companies the credit ratings has actually shown an upward trend with the decrease in oil price, whereas for the financial companies, the trend is found to be completely reversed. The above phenomena can usually be attributed to the simple fact of decrease in demand of various produce, which are in close connection to oil, say, automobile, among others. Usually when the price of oil drops, the demand for automobiles increases, hence, there is an increase in profitability of the companies and finally improvement in the credit ratings of the companies. Whereas one of the possible reasons for the decrease in credit ratings of financial companies is their involvement in hedging process, which seems to be not profitable for the company at the end of financial year due to decrease in oil pricing.

So a decrease in oil price results in decrease in credit rating of companies, hence, the hypothesis framed can be rejected because of the trend.

Table 6. Impact of Crude Oil Price on credit ratings of select companies during the study period

Fields/companies	Trend observed	Rating @ 105.87
Atul	Positive	A –
M&M	Positive	AA+
SARAC	Positive	BBB
TTSL	Positive	A
IDBI	Negative	AA+
BOI	Negative	AAA
KMB	Negative	AA
OBC	Negative	AA
ABFL	Positive	AA +
Muthut	Negative	AA–
TPSS	Positive	A–
HFML	Positive	B
TM	Positive	AA–
IIFL	Positive	AA –
ASHOK	Positive	A–
Escorts	Positive	BBB
Bajaj	Positive	AA–
Rest	No anomaly detected	–

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Table 7. Impact of Industrial Production on credit ratings of select companies during the study period

Fields/companies	Trend observed	Rating @ 105.87
Atul	Positive	A
M&M	Positive	AAA
SARAC	Positive	A–
TTSL	Positive	AA–
IDBI	Negative	AA–
BOI	Negative	AA+
KMB	Negative	AA
OBC	Negative	AA
ABFL	Positive	AA +
Muthut	Negative	BBB+
TPSS	Positive	A+
HFML	Negative	B
TM	Positive	AA
IIFL	Positive	AA
ASHOK	Positive	AA
Escorts	Positive	A–
Bajaj	Positive	AAA
Rest	No anomaly detected	–

Field = *Industrial Production*

Statistical tool = measurement of central tendency → descriptive statistics = *Maximum*

Industrial Production measures the output generated by the industrial sector of any nation. Various kinds of activities are a part of this sector like manufacturing, mining and utilities. It measures the change in the production of basket of industrial products during a given time period, compared to base year. It has become an excellent indicator of industrial activity, which indicates the corporate earnings, as it measures the production and it translates into sales and revenue for the companies. Hence, for forecasting the future GDP and the performance of our economy, industrial production plays a crucial role. Central banks are even using IP for measuring the inflation, as the higher the IP, the higher the consumption and then the higher will be the inflation. Since credit rating agencies are rating different debt instruments based on their ability to repay and financial liquidity. For this credit rating agencies, large number of economic and other ratios is utilized. The economy bears the main burden of financing, and hence a huge weightage is given to industrial production.

Referring to the data set, we can yet again clearly identify a pattern whereby credit rating has a direct relation to the Maximum of industrial produce, i.e. 5. That implies that the higher the industrial produce, the better the credit rating.

Rational = the above phenomena can usually be attributed to the simple fact that consumption has a direct relation to production. All the companies related to production sector are observed to be having a positive trend, and the reason being the improvement in index of industrial production with time. And hence with an improvement in index value, the rating is also improved. The Table 7 indicates the change in trend with the change in index value and the last column of the same table gives the rating value for the company when the index value is maximum.

CONCLUSION

This study is done to analyze the relationship that exist between the fluctuations observed in credit ratings due to changes brought in macroeconomic variables for an emerging market. The objective of this research was the examination of the relationship between credit ratings and various economic factors for the time period 2012–2016. Through this study, it can inferred that macroeconomic variables will impact the credit ratings of the companies.

So far, no attempt has been made specifically with respect to Indian companies where a trend to identify the impact of macroeconomic factors on the credit ratings. Individually, there are various studies done before where macroeconomic factors were observed to affect the financial performance of companies impacting the productivity ultimately, so it's completely a novice attempt based on the trend patterns of the companies. However, the result varies due to different structure of individual factor. Out of five economic factors, the results from the analysis indicate that the credit ratings responds in both linear, as well as nonlinear manner, to certain economic factors. The economic factors such as GDP, Exchange Rate, and Industrial production have a linear relationship to credit rating, where as other factors have a non-linear impact upon the credit rating. So, it suggests that oil price and inflation can downgrade the company's performance and ultimately decreases the credit ratings.

This study even provides useful insights for the firm to take appropriate measures in an order to avoid the downgrading of credit ratings due to change is macroeconomic environment of the nation. Using this study, an investor can proactively implement his investment strategies to get good returns considering the effect of changes brought in macroenvironment.

LIMITATIONS AND SUGGESTIONS

1. Because of the non-availability of data, the study is restricted only to Indian companies.

2. Again due to data constraints of five economic factors for a specific time period, this study was done for the period 2012–2016.

3. Hence, a novice approach can be made by collecting the data for companies present in other countries and that also for longer time period, which can provide better insights to the readers.

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