



**An Internship Report On  
A study on AAA Rated Companies**

**Submitted by:**

**Mahjabin Tabassum**

ID: 11304093

BRAC Business School

BRAC University

**Internship Supervisor:**

Sayla Sawat Siddiqui

Lecturer

BRAC University

**Date of Submission:** 23 August, 2015

## Letter of Certification

August 13, 2015

This is to certify that Mahjabin Tabassum, ID No.11304093, a student of BBA, BRAC Business School, BRAC University has completed her internship report under my supervision. Her internship report topic is **“A Study on AAA Rated Companies”**.

She is permitted to submit the report.

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**Sayla Sowat Siddiqui**

Lecturer

BRAC Business School

BRAC University

## DECLARATION

I do hereby declare that the work presented in this Internship Report has been carried out by me and has not been previously submitted to any other University/College/Organization for an academic qualification/certificate/diploma or degree.

The work I have presented does not breach any existing copyright and no portion of this report is copied from any work done earlier for degree or otherwise.

I further undertake to indemnify the Department against any loss or damage arising from breach of the foregoing obligations.

Sincerely,

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**Mahjabin Tabassum**

ID:11304093

BRAC University

## Letter of Transmittal

August 23, 2015

Sayla Sowat Siddiqui  
Lecturer,  
BRAC Business School,  
BRAC University.

Subject: Submission of Internship Report on “**A Study on AAA Rated Companies**”

Dear Miss,

It is my great pleasure that, I have got the opportunity to submit the internship report on the topic cited above as part of my course curriculum. During preparing the report, your kind co-operation helped me in doing the report precisely.

In this regard, I am very much thankful to you, as you have helped me in all the times to organize the report flawlessly. With due respect and humble submission, I am submitting the report to you for appraisal. It will be my pleasure to answer any clarification regarding this report.

Sincerely yours,

---

Mahjabin Tabassum  
ID: 11304093  
BRAC Business School  
BRAC University

## Acknowledgement

First and foremost, I would like to express my deep gratitude to the almighty Allah for helping me to complete the report within the due time and without any major tribulations.

I would like to express heartiest gratitude to my academic supervisor **Sayla Sowat Siddiqui** for his important suggestions, excellent guidelines and supervisions for preparing and completing this internship report on “**A Study on AAA Rated Companies**”. I would also like to express my heartiest gratitude to Mr. Atiqur Rahman, Financial Analyst, SME Rating Unit, Credit Rating Agency of Bangladesh, for his kind concern and consideration regarding my academic requirements as my external supervisor .Also I express special gratitude to all the other employees of Credit Rating Agency of Bangladesh Limited who have shared their knowledge regarding credit rating with me.

Finally, I would like to convey my gratitude to my parents, teachers, friends and others who extended their support to prepare the report.

## Executive Summary

Credit rating evaluates the credit worthiness of a debtor, especially an individual, a business or a government. Generally, Credit rating agency involves in the evaluation process of debtor's ability to pay off its debt and the possibility of default. In Bangladesh Over the years, the number of credit rating agencies (CRA) has increased several folds, from only two in 2009 to eight in 2015. Consequently, the competition among the CRAs for market share has become more competitive and complex. Since credit rating is very sensitive in relation to quality, this enhanced competition may lead to deteriorated or inflation ratings by the CRAs to keep hold of its clients and keep the cash-flow unharmed.

Credit rating has been playing a vital role in reinforcing the financial markets, regulating the financial markets, estimating risk premium, enhanced transparency in the credit and fixed income securities market, and standardization of credit evaluation process. However, there are also some drawbacks of the credit rating. These drawbacks include that credit rating can be biased in some cases, in absence of appropriate knowledge management by the credit rating companies altering the concerned analyst lead to discrepancies, and credit ratings cannot be treated as only a standalone measure to invest.

An investigation on the financial variables of the AAA rated companies has been conducted to find out whether the financial variables and the rating provided are consistent or not. The analysis differentiates the most important ratios i.e. Quick ratio, Times Interest Earned Ratio, Days of Sales outstanding Ratio, P/E ratio, Sustainable growth rate and the z score of the AAA rated companies. The trend of these financial variables over the last five years has been observed and the mean and sigma of these ratios over the five years has been compared. F test is used to test various hypotheses regarding the consistency of the mean and variance of the financial indicators of the AAA rated companies.

Finally, it was established that no consistent relationship lies between the financial indicators of the AAA rated companies and the ratings provided to them. Rather the relationship is ambiguous and inconsistent in nature. This raises the question whether to believe the credit rating or to believe the standards of the financial indicators.

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## Chapter 1: Introduction

### 1.1 Background of the Report

This report is prepared as fulfillment of the requirement for the degree of Bachelors of Business Administration program of BRAC Business School, BRAC University. Honorable Lecturer, Miss Sayla Sowat Siddiqui, supervised while the preparation this report on “A Study on AAA Rated Companies.”

Credit rating works on the credit worthiness of a debtor, especially an individual, a business or a country. It is an evaluation process made by a credit rating agency of the debtor's ability to pay back the debt and the likelihood of default. In Addition there are eight rating companies currently operating in Bangladesh. This has been creating a competition among market players and declining rating fees. From credit rating definition, it should reflect the credit worthiness of the debtor, taking into consideration both the capacity and the willingness of the borrower. However, the effectiveness of the ratings within Bangladesh has been faced into questioned several time.

This report will emphasize on the key financial ratios and the z score of the AAA rated companies. In order to find out whether the rating provided to these companies are consistent with their financial ratios the report is designed. I will focal to find out if their lack any consistency or linkage between the major financial indicators of the companies and the rating provided to them through analyzing the financial indicators of the company.

## **1.2 Objectives of the study**

The ultimate objective of preparing this paper is to assess the consistency in rating methodology of rating agencies. However, in Bangladesh the rating methodology of the rating agencies is strictly confidential and not disclosed to public. In addition a study on financial ratios has been executed to find out whether these ratios are consistent and fair with the rating provided. The analysis will also emphasize the extent to which the ratios vary over the years and how much consistent the variables are with the rating allotted to them. Accordingly some financial ratio and variables of the companies are analyzed in order to evaluate the origin and standards of providing credit rating to the companies. The mean and variance of the financial indicators are used as tool to find out the consistency in the rating methodology. Consistency in rating methodology of each individual rating agency is assessed by taking companies belonging to same rating class which is “AAA”.

## **1.3 Methodology**

### **1.3.1 Data Sources**

#### **1.3.1.1 Primary Data**

- First-hand raw information acquired in the course of deliberations and questions answer with the officials and employees of Credit Rating Agency of Bangladesh.

#### **1.3.1.2 Secondary Data**

- Annual Reports of the AAA rated companies
- Bangladesh Bank guidelines for Credit Rating Agencies
- BSEC rules concerning Credit Rating Agencies in Bangladesh
- Rules and procedures imposed by Basel Committee
- Websites & Online journals as well as articles
- Work Papers on AAA Rated Companies

### **1.3.2 Analytical Framework**

The analytical framework of this study has been made by following ways:

#### **1.3.2.1 Analytical Approach**

This study has completed focusing on deductive approach as it makes mention of the report theme and does not intend to go beyond it. Moreover, this report topic primarily based on previously existed theories and studies in this area. The technique of this study is quantitative. Here different financial ratios and variables are used to analyze data collected from the annual reports of the sample companies. The research has been conducted on the basis of outputs result from the financial variable. Since information regarding credit rating is so confidential, the analyses are presented by using descriptive approach. In addition the results have been described without providing further explanation on the issues.

#### **1.3.2.2 Analytical Design**

The analysis of the study is aim to find out if there is any dependable relationship between the financial variables of the AAA rated companies as well as the ratings provided to the respective companies. To clarifying the relationship, the financial performance of the companies over the

last five years has been taken into account. The financial performance is analyzed in the form of Quick Ratio, Times interest Earned Ratio, Days of Sales outstanding ratio, P/E Ratio, Sustainable growth rate and the Z score of the company. The mean and sigma of these ratios over the last five years has been calculated to contrast the ratios among the companies .F Test is conducted to test various hypothesis and find if the mean of the ratios of the two different companies which have been rated AAA are consistent or not.

### **1.3.3 Sampling**

Basically, Grameenphone and Bata Shoe these two AAA rated companies have been chosen for performing the study. Annual reports from 2010 to 2014 of each company have been used to collect the financial data.

### **1.3.4 Data Analyzing Instruments**

Financial ratios and key variables are used and measured for the analysis in conducting the study. The hypothesis are tested by using F tests output of which are obtained through MS Excel 2007.

## **1.4 Limitations of the study**

The main limitations of the present study are as follows:

- Time was a genuine constraint issue for such a research.
- The study hasn't access the broader compass as only two AAA companies are being considered for evaluating the effectiveness of credit rating.
- The rating agencies were not enthusiastic and supportive about providing their rating data.
- More statistical analyses could have been applied and used.
- It was difficult to have group discussions with experts due to their busy schedules.
- Some of the confidential information of the organization cannot be disclosed as the matter of policy of the organization.

## Chapter 2: Literature Review

Credit ratings aim to measure the creditworthiness of an entity, e.g. a corporation, or small and medium industry. They provide an opinion of a rating agency that assess the fundamental credit strength of an issuer and his ability to meet its debt obligations (Gonzalez, et al., 2004). Credit ratings are produced by professional rating agencies and in most of the countries it requires establishment of regulatory guidelines that permits and monitors the credit rating agencies. For example, in the USA, agencies must be approved as Nationally Recognized Statistical Rating Organizations (NRSRO) by the Securities and Exchange Commission (SEC) (Hill, 2004). In Bangladesh, credit rating agencies has to be approved by Bangladesh Securities and Exchange Commission (BSEC). Subsequently, for the CRAs to rate issues and issuers under the BASEL II guideline has to be approved by Bangladesh Bank (BB) as External Credit Assessment Institution (ECAI). In an economic sense, rating agencies function as financial intermediaries, the existence of which would not be justifiable under the hypothesis of efficient markets (Ramakrishnan & Thakor, 1984).

Ratings are placed on a discrete ordinal scale, where for example under the S&P scale an AAA (the so called 'triple A') rating is the highest credit rating assigned to issuers with the highest credit-quality and a D rating is the lowest rating assigned to bonds or firms in default. Moreover, CRAs stress that ratings are just opinions. These opinions, which stem from fundamental credit analysis, are used to classify credit risk. In keeping with their status as opinions, ratings are determined by a rating committee. As such, ratings do not constitute a recommendation to buy, sell or hold a particular security, and do not address the suitability of an investment for a particular investor (Hilderman, 1999).

Empirical studies on credit ratings can be roughly divided into three lines of research (Blume, Lim, & MacKinlay, 1998). The first two measure the information content of credit ratings in different ways. The first line analyses whether credit ratings measure what they claim to measure, i.e. an issuer's creditworthiness. More specifically, the relationship of ratings and corporate default is measured (Zhou, 2001). The second line measures the information content of ratings on capital markets. Here, capital market reactions around rating changes are analyzed to see if ratings contain additional information (Gonzalez, et al., 2004). The third line of research investigates the determinants of credit ratings. Here ratings as independent variables are modeled on a number of financial data (Ederington, 1985), corporate governance characteristics (Bhojraj & Sengupta, 2003), and macroeconomic factors (Amato & Furfine, 2004). These studies show that ratings can be replicated to a certain degree solely using publicly available data. Further studies in this context analyze the stability of credit ratings with respect to their 'through-the-cycle' approach and the determining factors of rating changes and transition probabilities.

The CRAs attempt to assess the long term quality of a corporation. They therefore, take a through-the-cycle approach in contrast to a more point-in-time perspective. The through-the-cycle approach means that agencies try to form their opinion independently of short term business cycle effects (Amato & Furfine, 2004). The quality of credit rating has been criticized in many of the literatures done over the years. However, most of those literatures were primarily targeted to the bond market of the United States of America. According to some researches credit rating agency is likely to issue less accurate ratings in boom times and in high competition (Bar-Isaac & Shapiro 2013) (Doherty, Kartasheva & Phillips 2007). Moreover, Bo Becker, an Assistant Professor in Finance unit at Harvard Business School also argued the increased competition because of emergence of Fitch as a peer of Standard & Poor and Moody's has led to lower quality products in the US corporate bond rating (Becker & Milbourn 2010). Additionally, by definition rating should be monotonous and not affected by any kind of cyclicalities or sudden surge in business activities (Bar-Isaac & Shapiro 2013).

Several academic studies have examined the behavior of credit ratings over time, for instance through the analysis of credit upgrades and downgrades. Altman and Kao (1992) for example analyze the stability of newly issued S&P ratings for two sub-periods (1970 to 1979 and 1980 to 1988). They show that for every rating and time horizon (one to five years) newly-rated issues from the earlier period exhibit greater stability.

## Chapter 3: Credit Rating

### 3.1 Credit Rating Definition

A credit rating evaluates the credit worthiness of a debtor, especially a business (company) or a government. It is an evaluation made by a credit rating agency of the debtor's ability to pay back the debt and the likelihood of default. Credit ratings are determined by credit ratings agencies. The credit rating represents the credit rating agency's evaluation of qualitative and quantitative information for a company or government; including non-public information obtained by the credit rating agencies analysts. Credit ratings are not based on mathematical formulas. Instead, credit rating agencies use their judgment and experience in determining what public and private information should be considered in giving a rating to a particular company or government. The credit rating is used by individuals and entities that purchase the bonds issued by companies and governments to determine the likelihood that the government will pay its bond obligations.

### 3.2 Types of Credit Rating

#### □ Sovereign Credit Rating

A **sovereign credit rating** is the credit rating of a sovereign entity, i.e., a national government. The sovereign credit rating indicates the risk level of the investing environment of a country and is used by investors looking to invest abroad. It takes political risk into account.

| Exhibit 1: Country risk rankings (2014) |             |               |
|---|-------------|---------------|
| Least risky countries, Score out of 100 |             |               |
| Rank                                    | Country     | Overall score |
| 1                                       | Norway      | 90.86         |
| 2                                       | Luxembourg  | 88.69         |
| 3                                       | Singapore   | 87.91         |
| 4                                       | Sweden      | 85.71         |
| 5                                       | Switzerland | 84.11         |
| 6                                       | Finland     | 83.41         |
| 7                                       | Denmark     | 82.77         |
| 8                                       | Hong Kong   | 82.69         |
| 9                                       | Netherlands | 81.96         |
| 10                                      | Canada      | 81.72         |

Source: Euromoney country risk

### ❑ Short-Term Rating

A short-term rating is a probability factor of an individual going into default within a year. This is in contrast to long-term rating which is evaluated over a long timeframe. In the past institutional investors preferred to consider long-term ratings. Nowadays, short-term ratings are commonly used. First, the Basel II agreement requires banks to report their one-year probability if they applied internal-ratings-based approach for capital requirements. Second, many institutional investors can easily manage their credit/bond portfolios with derivatives on monthly or quarterly basis. Therefore, some rating agencies simply report short-term ratings.

### ❑ Corporate Credit Ratings

The credit rating of a corporation is a financial indicator to potential investors of debt securities such as bonds. Credit rating is usually of a financial instrument such as a bond, rather than the whole corporation. These are assigned by credit rating agencies such as A. M. Best, DBRS, Dun & Bradstreet, Standard & Poor's, Moody's or Fitch Ratings and have letter designations such as A, B, C. The Standard & Poor's rating scale is as follows, from excellent to poor: AAA, AA+, AA, AA-, A+, A, A-, BBB+, BBB, BBB-, BB+, BB, BB-, B+, B, B-, CCC+, CCC, CCC-, CC, C, D. Anything lower than a BBB- rating is considered a speculative or junk bond. The Moody's rating system is similar in concept but the naming is a little different. It is as follows, from excellent to poor: Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1, Baa2, Baa3, Ba1, Ba2, Ba3, B1, B2, B3, Caa1, Caa2, Caa3, Ca, C. A. M. Best rates from excellent to poor in the following manner: A++, A+, A, A-, B++, B+, B, B-, C++, C+, C, C-, D, E, F, and S.



### **3.3 The Importance of Credit Rating Agencies**

Credit rating agencies provide investors and debtors with important information regarding the creditworthiness of an individual, corporation, agency or even a sovereign government. The credit rating agencies help measure the quantitative and qualitative risks of these entities and allow investors to make wiser decisions by benefiting from the skills of professional risk assessment carried out by these agencies. The quantitative risk analysis carried out by credit rating agencies include comparison of certain financial ratios with chosen benchmarks and the qualitative analysis focuses on the management character, legal, political and economic environment in a jurisdiction.

#### **□ Development of Financial Markets**

Credit rating agencies help provide risk measures for various entities and make it easier for financial market participants to assess and understand the credit risk of the parties involved in the investing process. Individuals can get a credit score in order to be eligible for easy access to credit cards and other loans. Institutions can borrow money easily from banks without having to go through lengthy evaluations from each individual lender separately. Also corporations and governments can issue debt in the form of corporate bonds and treasuries to attract investors based on the credit ratings.

#### **□ Credit Rating Agencies Help Regulate Financial Markets**

The credit ratings provided by popular rating agencies including Moody's, Standard & Poor's and Fitch, have become a benchmark for regulation of financial markets. Legal policies require certain institutions to hold investment graded bonds. Bonds are classified to be investment graded based on their ratings by these agencies, any corporate bond with a rating higher than BBB is considered to be investment graded bond.

#### **□ Estimation of Risk Premiums**

The credit ratings provided by these agencies are used by various banks and financial institutions in determining the risk premium they will charge on loans and corporate bonds. A poor credit rating implies a higher risk premium with an increase in the interest rate charged to corporations and individuals with a poor credit rating. Issuers with a good credit rating are able to raise funds at a lower interest rate.

### ❑ **Enhanced Transparency in the Credit Markets**

The credit rating agencies provide improved efficiency in the credit markets and allow for more transparency in dealings. The ratings help monitor the credit soundness of various borrowers through a set of well-defined rules.

### ❑ **Standardization of the Evaluation Process**

Most credit agencies use their own methodology for determining credit ratings, but since only a handful of popular credit rating providers exist, this adds a great deal of standardization in the rating process. The credit ratings of different borrowers can be easily compared using ratings provided by a credit rating company and the applications can be easily sorted.

### 3.4 Limitations of Credit Rating

#### ❑ **Biased rating and misrepresentations:**

In the absence of quality rating, credit rating is a curse for the capital market industry, carrying out detailed analysis of the company, should have no links with the company or the persons interested in the company so that the reports impartial and judicious recommendations for rating committee. The companies having lower grade rating do not advertise or use the rating while raising funds from the public. In such cases the investor cannot get information about the riskiness of instrument and hence is at loss.

#### ❑ **Static study**

Rating is done on the present and the past historic data of the company and this is only a static study. Prediction of the company's health through rating is momentary and anything can happen after assignment of rating symbols to the company. Dependence for future results on the rating, therefore defeats the very purpose of risk indicativeness of rating. Many changes take place in economic environment, political situation, government policy framework which directly affect the working of a company.

#### ❑ **Concealment of material information:**

Rating Company might conceal material information from the investigating team of the credit rating company. In such cases quality of rating suffers and renders the rating unreliable.

#### ❑ **Rating is no guarantee for soundness of company:**

Rating is done for a particular instrument to assess the credit risk but it should not be construed as a certificate for the matching quality of the company or its management. Independent views should be formed by the user public in general of the rating symbol.

#### ❑ **Human bias:**

Finding off the investigation team, at times, may suffer with human bias for unavoidable personal weakness of the staff and might affect the rating.

❑ **Reflection of temporary adverse conditions:**

Time factor affects' rating, sometimes, misleading conclusions are derived. For example, company in a particular industry might be temporarily in adverse condition but it is given a low rating. This adversely affects the company's interest.

❑ **Down grade:**

Once a company has been rated and if it is not able to maintain its working results and performance, credit rating agencies would review the grade and down grade the rating resulting into impairing the image of the company.

❑ **Difference in rating of two agencies:**

Rating done by the two different credit rating agencies for the same instrument of the same issuer company in many cases would not be identical. Such differences are likely to occur because of value judgment differences on qualitative aspects of the analysis in tow different agencies.

### 3.5 Rating Grades

Each rating agency has developed its own system of rating sovereign and corporate borrowers. Fitch Ratings developed a rating system in 1924 that was adopted by Standard & Poor's. Moody's grading is slightly different. Moody's sometimes argues that their ratings embed a conceptually superior approach that directly considers not only the likelihood of default but also the severity of loss in the event of default.

**Exhibit 2: Rating Notches of Moody's, S&P, and Fitch**

| Description           | Moody's | S&P | Fitch |
|-----------------------|---------|-----|-------|
| Maximum Safety        | Aaa     | AAA | AAA   |
| High Grade            | Aa      | AA  | AA    |
| Higher Medium Grade   | A       | A   | A     |
| Lower Medium Grade    | Baa     | BBB | BBB   |
| Speculative           | Ba      | BB  | BB    |
| Highly Speculative    | B       | B   | B     |
| Substantially Risky   | Caa     | CCC | CCC   |
| May be in Default     | Ca      | CC  | CC    |
| Extremely Speculative | C       | C   | C     |
| Default               | D       | D   | D     |

### 3.6 Rating Methodology of Moody

This rating methodology is not intended to be an exhaustive discussion of all factors that their analysts consider in assigning ratings in this sector. They note that their analysis for ratings in this sector covers factors that are common across all industries such as ownership, management, liquidity, corporate legal structure, governance and country related risks which are not explained in detail in this document, as well as factors that can be meaningful on a company-specific basis. Their ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a grid format. The grid used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex grid that would map grid-indicated ratings more closely to actual ratings. This explains the rating methodology for issuers in the service industry in seven sections, which are summarized as follows:

#### 1. Identification and Discussion of the Grid Factors

The grid in this rating methodology focuses on five rating factors. The five factors are comprised of sub-factors that provide further detail.

| <b>Business &amp; Consumer Service Industry Grid</b> |                         |                        |                             |
|--|-------------------------|------------------------|-----------------------------|
| <b>Broad Factors</b>                                 | <b>Factor Weighting</b> | <b>Sub-Factors</b>     | <b>Sub-Factor Weighting</b> |
| Scale  | 20%                     | Revenue                | 20%                         |
| Business Profile                                     | 20%                     | Demand Characteristics | 15%                         |
|  |                         | Competitive Profile    | 5%                          |
| Profitability  | 10%                     | EBITA Margin           | 10%                         |
| Leverage and Coverage                                | 40%                     | Debt/EBITDA            | 15%                         |
|  |                         | EBITA/Interest         | 15%                         |
|  |                         | RCF/Net Debt           | 10%                         |
| Financial Policy                                     | 10%                     | Financial Policy       | 10%                         |
| Total  | 100%                    | Total                  | 100%                        |

## **2. Measurement or Estimation of Factors in the Grid**

Moody's explain their general approach for scoring each grid factor and show the weights used in the grid. They also provide a rationale for why each of these grid components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in company financial statements, derived from other observations or estimated by Moody's analysts. Moody's ratings are forward-looking and reflect the expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company's performance as well as for peer comparisons. They utilize historical data (in most cases, the last twelve months of reported results) in this document to illustrate the application of the rating grid. All of the quantitative credit metrics incorporate Moody's standard adjustments to income statement, cash flow statement and balance sheet amounts for restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases. In most cases, the illustrative examples in this document use historic financial data from a recent 12 month period. However, the factors in the grid can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historic and expected future performance for periods of several years or more.

## **3. Mapping Grid Factors to the Rating Categories**

After estimating or calculating each sub-factor, the outcomes for each of the sub-factors are mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, Caa, or Ca).

## **4. Mapping Issuers to the Grid and Discussion of Grid Outliers**

They provide a table showing how an illustrative sample of public companies maps to grid-indicated ratings for each grid sub-factor and factor. We highlight companies whose grid-indicated performance on a specific sub-factor is two or more broad rating categories higher or lower than its actual rating and discuss some general reasons for such positive and negative outliers for a particular sub-factor.



**5. Assumptions and Limitations and Rating Considerations Not Included in the Grid**

This section discusses limitations in the use of the grid to map against actual ratings, some of the additional factors that are not included in the grid but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

**6. Determining the Overall Grid-Indicated Rating**

To determine the overall grid-indicated rating, they convert each of the sub-factor scores into a numeric value based upon the scale below

|            |           |          |            |           |          |            |           |
|------------|-----------|----------|------------|-----------|----------|------------|-----------|
| <b>Aaa</b> | <b>Aa</b> | <b>A</b> | <b>Baa</b> | <b>Ba</b> | <b>B</b> | <b>Caa</b> | <b>Ca</b> |
| 1          | 3         | 6        | 9          | 12        | 15       | 18         | 20        |

The numerical score for each sub-factor is multiplied by the weight for that sub-factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.



| <b>Grid-Indicated Rating</b> |  |
|------------------------------|--|
| <b>Grid-Indicated Rating</b> | <b>Aggregate Weighted Total Factor Score</b> |
| Aaa                          | $x < 1.5$                                    |
| Aa1                          | $1.5 \leq x < 2.5$                           |
| Aa2                          | $2.5 \leq x < 3.5$                           |
| Aa3                          | $3.5 \leq x < 4.5$                           |
| A1                           | $4.5 \leq x < 5.5$                           |
| A2                           | $5.5 \leq x < 6.5$                           |
| A3                           | $6.5 \leq x < 7.5$                           |
| Baa1                         | $7.5 \leq x < 8.5$                           |
| Baa2                         | $8.5 \leq x < 9.5$                           |
| Baa3                         | $9.5 \leq x < 10.5$                          |
| Ba1                          | $10.5 \leq x < 11.5$                         |
| Ba2                          | $11.5 \leq x < 12.5$                         |
| Ba3                          | $12.5 \leq x < 13.5$                         |
| B1                           | $13.5 \leq x < 14.5$                         |
| B2                           | $14.5 \leq x < 15.5$                         |
| B3                           | $15.5 \leq x < 16.5$                         |
| Caa1                         | $16.5 \leq x < 17.5$                         |
| Caa2                         | $17.5 \leq x < 18.5$                         |
| Caa3                         | $18.5 \leq x < 19.5$                         |
| Ca                           | $x \geq 19.5$                                |

For example, an issuer with a composite weighted factor score of 11.7 would have a Ba2 grid-indicated rating.

### 3.7 Credit Rating in Bangladesh

Bangladesh credit rating industry started its journey with the mandatory requirement of having credit rating for all public debt instruments, right offer issues and shares issued at a premium before the same were offered to the public. In the year of 2002, Credit Rating Information & Service Limited (CRISL) started its operation as the first registered credit rating agency of Bangladesh. The second rating agency, Credit Rating Agency of Bangladesh Limited (CRAB) went to its operation on 2004, thus, making the sustainability more difficult for two rating agencies.

Credit Risk Grading Manual of Bangladesh Bank was circulated by Bangladesh Bank vide BRPD Circular No. 18 dated December 11, 2005 on Implementation of Credit Risk Grading Manual which is primarily in use for assessing the credit risk grading before a bank lend to its borrowing clients. By that time CRISL rating reports were appearing to be very useful for the users; specially CRISL rating report on the then Al Baraka Bank convinced the Bangladesh Bank of the need of credit rating and it took the initiative to make mandatory for all banks to have credit rating before it goes for public offering. The banking regulator further decided to make it mandatory for all banks to submit credit rating reports to the regulator within six months after the finalization of accounts.

Following the example of the central bank, the insurance regulator also came up with the requirement to make rating mandatory for all general insurance companies every year and for the life insurance companies bi-annually. The Dhaka Stock Exchange, while issuing the direct listing regulations, made the credit rating mandatory before a company apply for direct listing. The above regulations created an enabling environment for credit rating in the country's capital and financial markets. The concept of client rating by the rating agencies to support capital adequacy of the banks came up in view of the need for implementation of Basel II capital adequacy framework by Bangladesh Bank.

According to Basel II framework, BB adopted a standardized approach for credit risk in which the services of rating agencies were required under certain strict terms and conditions. Bank client rating is a very sensitive issue in view of the fact that most of the private sector companies, enjoying banking facilities, are not maintaining standard financials for appropriate evaluation. Unless and until all the above factors are properly evaluated through sector wise studies, the ratings are bound to give wrong signals. Security and Exchange Commission of Bangladesh (SECB) allows 2% default rate of the credit rating agencies. There are certain penalties in case default rate of more than 2% including cancellation of license of the defaulter rating agency as the highest penalty by BSEC.

Other credit rating companies National Credit Ratings Ltd and Emerging Credit Rating Ltd started their journey on 2010. ARGUS Credit Rating Services Ltd. is on operation since 2011. Lastly, new four credit.

rating companies have come to operation on 2012, which are ARGUS Credit Rating Services Ltd., Alpha Credit Rating Limited, The Bangladesh Rating Agency Limited and WASO Credit Rating Company (BD) Limited. A list of credit rating companies operating in Bangladesh can be found in Exhibit 3: List of CRAs.

According to Association of Credit Rating Agencies of Asia, Bangladesh has the highest number of credit rating companies. India, one of the largest economies of Asia has only two credit rating companies. On the other hand China, another largest economy is continuing its economic growth with a single credit rating company. The rating industry In Bangladesh is now considered to be a parentless industry. The behavior of the regulators towards nourishing this industry does not appear to be rational. The rating agencies are still defined by the SEC rules as an investment advisory company. This has not changed over a long time. The paid-up capital still remains at Tk. 5.0 million, to start a rating agency by any group of sponsors.

**Exhibit 3: List of CRAs**

| <b>Name of Company</b>                             | <b>Date of Issuance of Registration Certificate</b> |
|--|---|
| Credit Rating Information and Services Ltd (CRISL) | 21 August, 2002                                     |
| Credit Rating Agency of Bangladesh Ltd (CRAB)      | 24 October, 2004                                    |
| National Credit Ratings Ltd                        | 22 June, 2010                                       |
| Emerging Credit Rating Ltd                         | 22 June, 2010                                       |
| ARGUS Credit Rating Services Ltd.                  | 21 July, 2011                                       |
| WASO Credit Rating Company (BD) Limited            | 15 February, 2012                                   |
| Alpha Credit Rating Limited                        | 20 February, 2012                                   |
| The Bangladesh Rating Agency Limited               | 7 March, 2012                                       |

### 3.8 Laws and Guidelines Regulating CRAs

Credit rating agencies (CRA) in Bangladesh has been guided by the “Credit Rating Companies Rules, 1996” enacted by Bangladesh Securities and Exchange Commission (BSEC) through notification of SEC/Section-7/117 on 24 June 1996. The basic snapshot of the law is provided below:

- ❑ **Requirement for credit rating:** No issue of debt security, or public issue of shares (including rights share) at a premium, shall be made by an issuer unless the issue is rated by a credit rating company and declaration about such rating is given in the offer document, prospectus or rights share offer document.
- ❑ **Eligibility for registration:** A company proposing to commence business as a credit rating company shall be eligible for registration under these rules if it fulfils or complies with the following conditions or requirements:
  - It is incorporated as a public company under the Companies Act, 1994 o  
It must have a paid-up capital of at least Tk. 5.00 million
  - It has professional competence, financial soundness and has entered into a joint venture or technical collaboration arrangement with a reputed credit rating company,
  - It has at least two professional staff having professional or post-graduation degree in finance, accountancy, business, economics and/or law and experience for at least two years in credit rating or investment advisory activities,
- ❑ **Cancellation or Suspension of Registration:** Where BSEC is of the opinion that a credit rating company has contravened any provision or has otherwise failed to comply with any requirement of the Ordinance or any rule or direction made or given there under the Commission may, if it considers necessary in the public interest, so to do by order in writing, cancel or suspend the registration of the credit rating company. Provided that no such order shall be made except after giving the credit rating company an opportunity of being heard.
- ❑ **Submission of ratings report to the Commission:** Every credit rating company shall submit to BSEC a report giving such details of credit rating for a quarter of the year in such form as may be required by the Commission by order in writing, within fifteen days of the close of the quarter.

### 3.9 Credit Rating Process

Rating is an interactive process with a prospective approach. It involves a series of steps. The main steps are described as follows:

#### ❑ **Rating Request:**

Ratings in CRAs are usually initiated on formal request from the prospective Issuer. An undertaking is also obtained on a Taka 150 non-judicial stamp paper before commencement of a Rating assignment; which spells out the terms and conditions of the engagement of credit rating agency.

#### ❑ **Rating Team**

The Rating team usually comprises two members. The composition of the team is based on the expertise and skills required for evaluating the business of the Issuer. The team is usually led by the primary analyst with adequate knowledge of the relevant industry/instrument to be Rated.

#### ❑ **Information Requirements:**

Issuers are provided with a list of information requirements and broad framework for discussions. These requirements are derived from the experience of the Issuers business and broadly conform to all the aspects, which have a bearing on the Rating.

#### ❑ **Secondary Information:**

CRA draws on the secondary sources of information including its own in-house research and information obtained through meetings with the Issuers' bankers, auditors, customers and suppliers among many other relevant market participants. CRA also has a panel of industry experts who provide guidance on specific issues to the Rating team. The secondary sources generally provide data and trends including changes in industry structure, sector outlook, global trends and government policies, etc. for the industry.

#### **❑ Management Meetings and plant visits:**

Rating involves assessment of number of qualitative factors with a view to estimate the future earnings prospects of the Issuer. This requires intensive interactions with the Issuers' management specifically with a view to understanding the business plans, future outlook, competitive position and funding policies, etc.

#### **❑ Other Meetings:**

The CRA's analyst team may also decide to meet the auditors (accounting policies followed, quality of internal controls, standard of disclosures, etc.), bankers/lenders (relationship, reputation, dealings in the past in respect of timeliness of servicing obligations), lawyers (if there are major litigations pending which may have serious impact on credit quality), trade union leaders (if industrial relations is a sensitive issue), key functional executives as well as a few investors, customers and suppliers, depending upon the circumstances to get a direct feedback from different stakeholder.

#### **❑ Meeting with the Issuers' CEO /CFO:**

This would be a very important meeting (usually, the last meeting) when the Rating team would discuss all the critical issues/findings that may impact the Rating decision with the CEO/CFO of the Issuer (in the absence of CEO/CFO, with a senior executive nominated by the Issuer for this purpose).

#### **❑ Internal Review Committee Meeting**

Once the draft report is prepared by the Analyst team, it is placed before the Internal Review Committee (IRC) Meeting. The committee comprise of senior analysts. The committee reviews the draft rating report and analysis made by the analysts. Committee also reviews the due diligence, documents, meetings, site visits etc.

#### □ **Rating Committee Meeting:**

The authority for assigning Ratings is vested in the Rating Committee of individual CRA. The Rating reports are sent by the analyst team in advance to the Rating Committee members. A presentation about the Issuers business and the management is made by the Rating team to the Rating Committee at the meeting. All the key issues are identified and discussed at length during the meetings and all relevant issues, which influence the Rating, are considered. The differences if any arise during the discussion are taken note of. Finally, a Rating is assigned either by a consensus or by majority votes.

#### □ **Surveillance:**

It is obligatory on the part of CRAs to monitor ratings over the tenure of the rated instrument or till any amount is outstanding under the program rated. The Issuer is bound by the agreement to provide information to CRAs to facilitate such monitoring. In case the Issuer do not co-operate by way of providing information, etc, for the purpose of surveillance, CRAs may on its own carry out the surveillance on best efforts basis based on the available information and possible interactions after giving the Issuer adequate notice requesting him to co-operate. The Ratings are generally reviewed every year, unless the circumstances of the case warrant an earlier review due to changes in circumstances or major developments that were not anticipated/factored in the Rating decision. The Ratings may be Upgraded, Downgraded or retained after the surveillance. The CEO, at his sole discretion, may give one opportunity to the Issuer to represent his case if he is not satisfied with the rating decision after the surveillance process. However, the Issuer would not have any option of not accepting the Rating after the surveillance.

### **3.10 Importance of Credit Rating: Bangladesh**

The motives act behind the entities' paying fees to secure a credit rating depends on the surrounding regulatory environment and form of financial market. There are several reasons of getting a rating. The reasons are different in different markets and economies. The motives of getting a rating in Bangladesh are not identical as USA or UK. As same, the motives of American entities are not same as those of European or Australian entities. However, there are some common reasons for which the entities all over the world are spending money to get rating from the rating agencies. The identical reasons are enumerated here within the context of Bangladesh:

#### ❑ **Market access**

Any company that wishes to enter capital markets and issue debt in capital market is obliged to obtain a credit rating. Rating conveys the entity's ability and willingness to the market participants regarding repayment of its borrowed money or equity capital. In Bangladesh, as per Credit Rating Companies Rules 1996, all the companies are required to be rated before issuing its debt or floating its equity share at premium in the market.

#### ❑ **Build up market reputation**

New companies that seek to build a reputation in the international financial markets demand credit ratings to increase the exposure of their brand name. This brand exposure is important when companies for example initiate foreign direct investments. An entity with a higher rating is considered as a reputable organization. Recently, Delta BRAC Housing (DBH) has been awarded as an "AAA" rated company of the country, which excels the company's reputation that was reflected through the share price the company at DSE and CSE.

#### ❑ **Lower cost of funding**

A less known company can lower their cost of borrowing if they obtain a higher investment grade rating. Banks or financial institutions consider rating as an indication of an entity's performance measurement yardstick. Entities with a higher rating are sanctioned loan at a lower interest rate whereas a lower graded entity is charged at a higher interest rate. So, it is going to be a common practice of the country to require an entity to be rated itself before applying for a loan to the banks or financial institutions.

#### ❑ **Distinguish oneself from the competition**

In sectors that are characterized by a limited number of competing companies such as the banking or insurance industry, a credit rating is a tool to distinguish them from the competition. Our banking sector is an example of this practice. In 2006, only Standard Chartered Bank was rated "AAA" by CRISL that makes the bank unique. But in 2007, both Standard Chartered Bank and HSBC operation of Bangladesh has been awarded the highest rating "AAA" by CRISL and CRAB respectively that creates some competitive advantage for both the banks.



### ❑ **Regulatory Requirement**

All over the world entities are rated for the regulatory bindings by the securities commissions and other authorities. In Bangladesh, SEC, Bangladesh Bank and Department of Insurance are the three regulators who issued regulations, circulars and notifications for the entities for rating. Our banks and insurances are now rated once in a year for these requirements of the regulatory authorities.

### ❑ **Implementation of BASEL II**

Bangladesh Bank (BB) issued new guidelines on capital adequacy for Banks under the implementation process of Basel II framework. Under the guidelines, Banks require to link the minimum size of their capital to the credit risk in their portfolios. So far Banks were calculating required capital as proportion of the entire loan portfolio, regardless of the degree of credit risk. To determine credit risk in their loan portfolios, banks will need to use credit ratings assigned by approved External Credit Assessment Institutions (ECAIs).

## **3.11 Basel II**

### **3.11.1 Basel Accord**

The world financial market is an extremely complex system that involves many different participants from local banks to the central banks of each nation and even the investor. Due to its importance on the global economy and our everyday lives it is vital that it is functioning properly. One tool that helps the financial markets run smoothly is a set of international banking agreements called the Basel Accords. These accords coordinate the regulation of global banks, and are "an international framework for internationally active banks". The accords are obscure to people outside banking, but they are the backbone of the financial system; the Basel Accords were created to guard against financial shocks, which is when a faltering capital market hurts the real economy, as opposed to a mere disturbance. Basel II is recommendatory framework for banking supervision, issued by the Basel Committee on Banking Supervision in June 2004. The objective of Basel II is to bring about international convergence of capital measurement and standards in the banking system. The Basel Committee members who finalized the provisions are primarily representatives from the G10 countries, but several countries that are not represented on the committee have also stated their intention to adopt this framework. Basel II is the second accord of the Basel Committee on Bank Supervision's recommendations, and unlike the first accord, Basel I, where focus was mainly on credit risk, the purpose of Basel II was to create standards and regulations on how much capital financial institutions must have put aside. Banks need to put aside capital to reduce the risks associated with its investing and lending practices

### **3.11.2 Basel II and Credit Rating**

Basel II is recommendatory framework for banking supervision, issued by the Basel Committee on Banking Supervision in 2004. The objective of Basel II is to bring about international convergence of capital measurement and standards in the banking system. BB, in December 2008, issued guidelines on the New Capital Adequacy Framework (BRPD Circular 09, dated 31.12.08) to banks operating in Bangladesh, based on the Basel II framework. These guidelines inform that BB suggests implementation of Basel II with the following approaches:

- i. Standardized approach for calculating RWA against credit risk
- ii. Standardized approach for calculating RWA against Market Risk; and
- iii. Basic indicator approach for calculating RWA against Operational Risk

Under standardized approach for measuring credit risks, the risk grades are determined on the basis of ratings assigned by ECAIs. Basel II is implemented from January 2009. In this regard a quantitative impact study (QIS) to assess the preparedness for implementing Basel II as well as the bank's view on the optional approaches for calculating Minimum Capital Requirement (MCR) as stated in Basel II was carried out in April-May 2007. Study & subsequent discussion with few related banks revealed that bankers should be more acquainted with the New Capital Accord (Basel-II). To address this challenge capacity building of concerned implementing & supervisory officials were given first priority in the Action Plan/Roadmap.

## Chapter 4: Job Description

### 4.1 Description of the Job

This Internship Program leads a student toward an opportunity to get introduced to the corporate world and works like an ice-breaking before they step into their practical working life. Accordingly I can say that I really had the best orientation in my corporate life. While doing Internship program a student experiences practical learning process in an organization. It is a good blend of theoretical and practical knowledge. Credit Rating Agency of Bangladesh is one of the leading rating agencies in Bangladesh. I have successfully done my internship in Credit Rating Agency of Bangladesh (CRAB). It was really a great experience of working with financial analysts of CRAB. My major duties and responsibilities were collecting information from clients and their respective bankers via mail, phone and meetings, assisting financial analysts, learning corporate culture, learning rating process, analyzing financial statements, preparing credit rating reports etc. In the following there is a short description of my work.

### 4.2 Job Responsibilities:

#### ❑ Collecting information:

Collecting all the necessary information from the client and their bankers was one of my major duties. Authentic and sufficient information is the prerequisite for analyzing the credit worthiness of a business. So as soon as a new client was assigned to the Financial Analyst my duty was to gather information about the client from the banker and from other sources. The information was collected via mail, phone and sometimes through formal meetings.

#### ❑ Maintaining Database:

As I was working in SME Rating Unit I was given the responsibility to maintain and update the SME client database. The Database contained the list of the all the SME clients of CRAB. The database also highlighted the name of the team, analyst, bank, branch, banker, address of the client etc. My duty was to update the database on a regular basis so that all this information were organized and found easily.

#### **❑ Contacting Clients:**

For providing rating to a business it is very important to contact the clients and know about the business in details. It was my responsibility to contact some of the clients on behalf of the analyst and get a clear idea about their business model, extent of competition, opportunities and challenges. So I had to contact the client via phone to collect these information

#### **❑ Analyzing the financial Statements**

Analyzing the financial statements of some of the clients was one of my responsibilities. I was given the task to give the input of the financial statements of the clients into the financial model to compute the financial position of the clients.

#### **❑ Preparing Credit Rating Reports**

Assisting the financial analyst's in preparing credit rating report was also one of my responsibilities. I got the chance to learn how to construct the credit rating report while helping the analysts.

## Chapter 5: Analysis of Financial Variables

### ❑ Objective of the Study

The rating procedures of the rating agencies in Bangladesh are strictly confidential and not disclosed to public. Therefore, an analysis of the financial ratios has been conducted to figure out whether these ratios are consistent with the rating provided. The core objective of the study is to assess the consistency in rating methodology of rating agencies. The analysis will also highlight how much the ratios vary over the years and how much consistent the variables are with the rating assigned to them. So to find out the basis and standards of providing credit rating to the companies some financial ratio and variables of the companies are analyzed. The mean and variance of the financial indicators are used to find out the consistency in the rating methodology. Uniformity as well as Reliability in rating methodology of each individual rating agency is evaluated by comparing with the companies belonging to same rating class which is “AAA”.

### ❑ Methodology and Data Collection

The analysis is primarily based on the secondary data and the time period considered for the study is from 2010 to 2014. Rating methodology has been analyzed corresponding to six variables. The financial ratios and variables which are considered for this analysis are

- Quick Ratio
- Times Interest Earned Ratio
- Days Sales Outstanding Ratio
- P/E Ratio
- Sustainable growth rate
- Z score

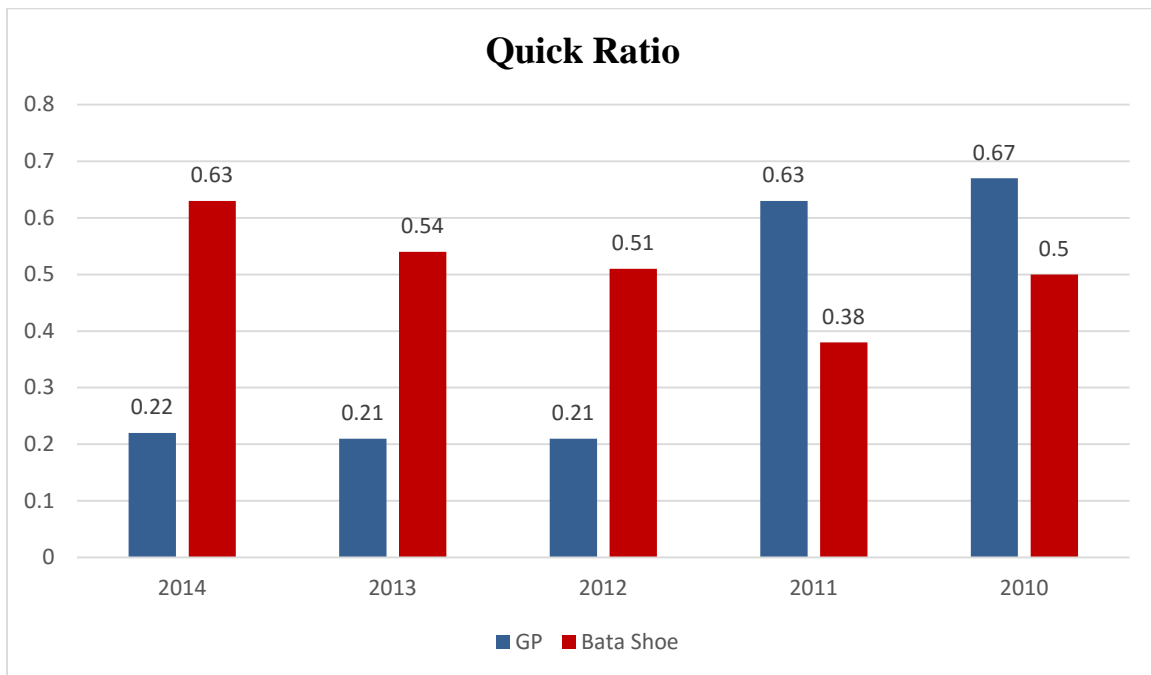
These financial ratios are selected as these are commonly used by all the credit rating agencies and some of the previous studies support these ratios. The data regarding various rating grades has been collected from the reports of the rating agencies including various issues and websites of the rating agencies. Further, the data relating to various financial ratios relating to the given period has also been collected from their Annual Reports. Two public limited companies which are rated AAA are considered as the sample for this analysis.

### 5.1 Quick Ratio:

Quick ratio is termed to examine the strength of a company to pay its short-term debts. It calculates the relationship between liquid assets and current liabilities. Quick ratio is considered a more reliable test of short-term solvency than current ratio since it shows the ability of the business to pay short term debts immediately.

The Quick ratios of the Grameenphone and Bata Shoe of the last five years are given in the table below and plotted in a bar chart to make them well understand.

| Quick Ratio      |      |      |      |      |      |       |          |
|------------------|------|------|------|------|------|-------|----------|
| Year             | 2014 | 2013 | 2012 | 2011 | 2010 | Mean  | Sigma    |
| <b>GP</b>        | 0.22 | 0.21 | 0.21 | 0.63 | 0.67 | 0.388 | 0.239625 |
| <b>Bata Shoe</b> | 0.63 | 0.54 | 0.51 | 0.38 | 0.50 | 0.512 | 0.089833 |



**Analysis:**

By analyzing all the above information we can figure out that the Quick Ratio of Grameenphone varies from .67 to .22 over the last five years. The mean of the Quick ratio over the 5 years is .388 and the sigma is .239625. The quick ratio of Grameenphone has seen drastically decreased from the year 2010 to 2014. In 2010 we can observe that the quick ratio was .67 which started to decrease from 2011 and had a sharp decrease in 2011 to .21 from .63. Such a sharp decrease in the quick ratio is certainly a red signal for the investors as it shows a poor ability of the company to pay its short term debt immediately. As we know a Quick ratio with less than .5 is a red signal for the company and still Grameenphone has been rated AAA. If we look at the Quick ratios of the Bata Shoe Ltd we can see that their quick ratio has fluctuated from .38 to .63 over the last five years. The mean of the quick ratio of the last five years is .512. So the quick ratio of Bata Shoe Ltd is around .5 over the last five years with a sigma of 0.089

Now if we compare the mean and sigma of the quick ratio of the two companies we find that Grameenphone has been rated AAA with a mean of Quick ratios of .388 and on the other hand Bata Shoe is also rated AAA with a mean of .512. The sigma the quick ratio of Grameenphone is .239625 whereas the sigma is lower in the case of Bata Shoe. Thus we can see that while providing AAA rating there is no standardized benchmark on the quick ratio.



### Hypothesis Testing:

F-test is executed to check if the mean of the quick ratio is equal or not.

Let us assume that,

$H_0$  = The mean of the quick ratios of Grameenphone and Bata Shoe are equal.

$H_1$  = The mean of the quick ratios of Grameenphone and Bata Shoe are not equal

The result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |             |                  |
|--|-------------|------------------|
|  | <i>GP</i>   | <i>Bata Shoe</i> |
| <b>Mean</b>                            | 0.388       | 0.512            |
| <b>Variance</b>                        | 0.05742     | 0.00807          |
| <b>Observations</b>                    | 5           | 5                |
| <b>Df</b>                              | 4           | 4                |
| <b>F</b>                               | 7.115241636 |                  |
| <b>P(F&lt;=f) one-tail</b>             | 0.041810954 |                  |
| <b>F Critical one-tail</b>             | 6.388232909 |                  |

### Results and Discussion

The table shows that F value 7.115 is greater than the F critical value 6.388 and therefore we reject the Null Hypothesis. And we can say that the mean of the quick ratios of the two companies is not equal. Thus we can conclude that the rating provided by CRAB for these two companies have not considered the mean of the quick ratios over time. In spite of poor quick ratio of Grameenphone the mean of which is less than .5 has been awarded with a AAA rating. And Bata Shoe a company with a mean of quick ratio of .512 has also been awarded AAA rating.

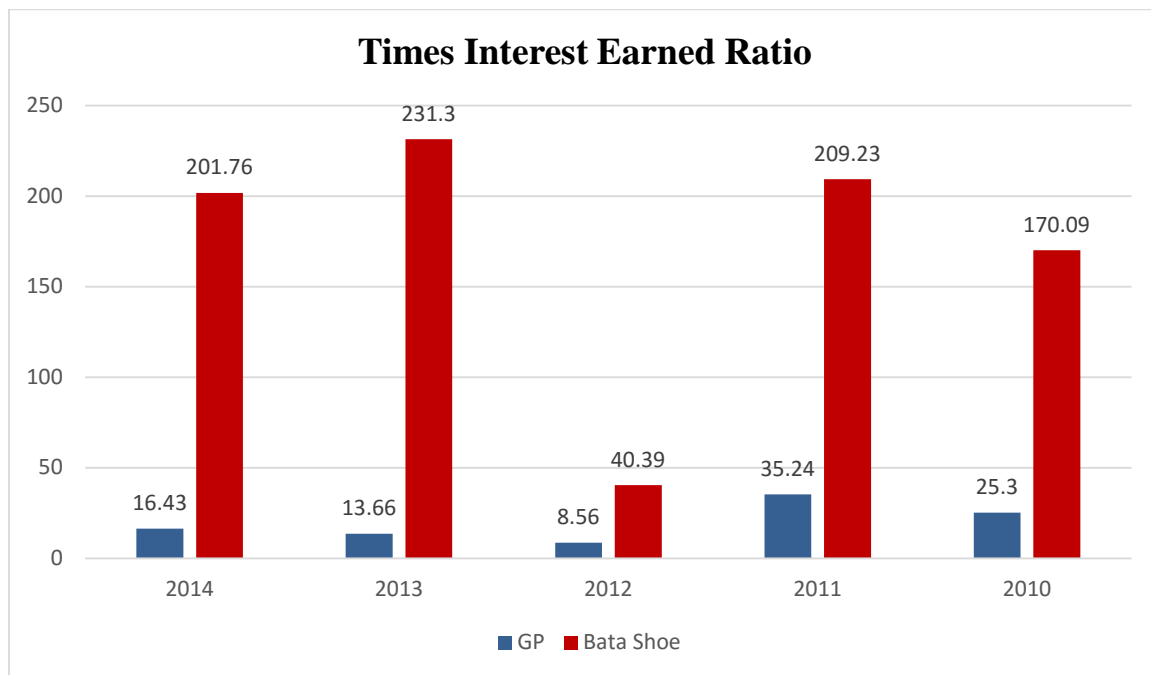
### 5.2 Times Interest Earned Ratio:

Times interest earned (TIE) ratio refers how many times the annual interest expenses are covered by the net operating income (income before interest and tax) of the company. It is a long-term solvency ratio that measures the ability of a business to pay its interest charges as they become due. It is computed by dividing the income before interest and tax by interest expenses.

The Times Interest Earned Ratio of Grameenphone and Bata Shoe of the last five years and the mean and sigma of the ratios are given in the table below:

| Times Interest Earned Ratio |        |        |       |       |        |         |          |
|-----------------------------|--------|--------|-------|-------|--------|---------|----------|
| Year                        | 2014   | 2013   | 2012  | 2011  | 2010   | Mean    | Sigma    |
| GP                          | 25.3   | 35.24  | 8.56  | 13.66 | 16.43  | 19.838  | 10.53602 |
| Bata Shoe                   | 170.09 | 209.23 | 40.39 | 231.3 | 201.76 | 170.554 | 75.99771 |

We get the following chart by plotting the TIE ratios of the two companies.



## Analysis

We can see that both Grameenphone and Bata shoe have satisfactory TIE ratio. But the ratio varies from 8.56 to 35.24 for Grameenphone .On the other hand the ratio varies from 40.39 to 209.23 for Bata Shoe. Both the AAA rated companies have satisfactory TIE ratio but the ratios varies from each other to a great extent. The mean of the ratio for Grameenphone is 25.3 and for Bata shoe it is 170.09. Times interest earned ratio is very important from the creditors view point. A high ratio ensures a periodical interest income for lenders. The companies with weak ratio may have to face difficulties in raising funds for their operations. Though both the companies have high TIE ratio a very high times interest ratio may be the result of the fact that the company is unnecessarily careful about its debts and is not taking full advantage of the debt facilities. So as the TIE ratio of Bata shoe is very high we can conclude that BataShoe is very much careful about its debt and therefore not taking the full advantage of debt facilities. Yet both the companies are been rated AAA by the CRAB.

## Hypothesis Testing

Now we will conduct F-test to check if the mean of the TIE ratios are equal.

Let us assume that,

$H_0$  = the mean of the TIE ratio of Grameenphone and Bata Shoe are equal.

$H_1$  = the mean of the TIE ratio of Grameenphone and Bata Shoe are not equal

The result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |                  |           |
|--|------------------|-----------|
|  | <i>Bata Shoe</i> | <i>GP</i> |
| <b>Mean</b>                            | 170.554          | 19.838    |
| <b>Variance</b>                        | 5775.65153       | 111.00762 |
| <b>Observations</b>                    | 5                | 5         |
| <b>df</b>                              | 4                | 4         |
| <b>F</b>                               | 52.02932492      |           |
| <b>P(F&lt;=f) one-tail</b>             | 0.001053403      |           |
| <b>F Critical one-tail</b>             | 6.388232909      |           |

## Results and Discussion

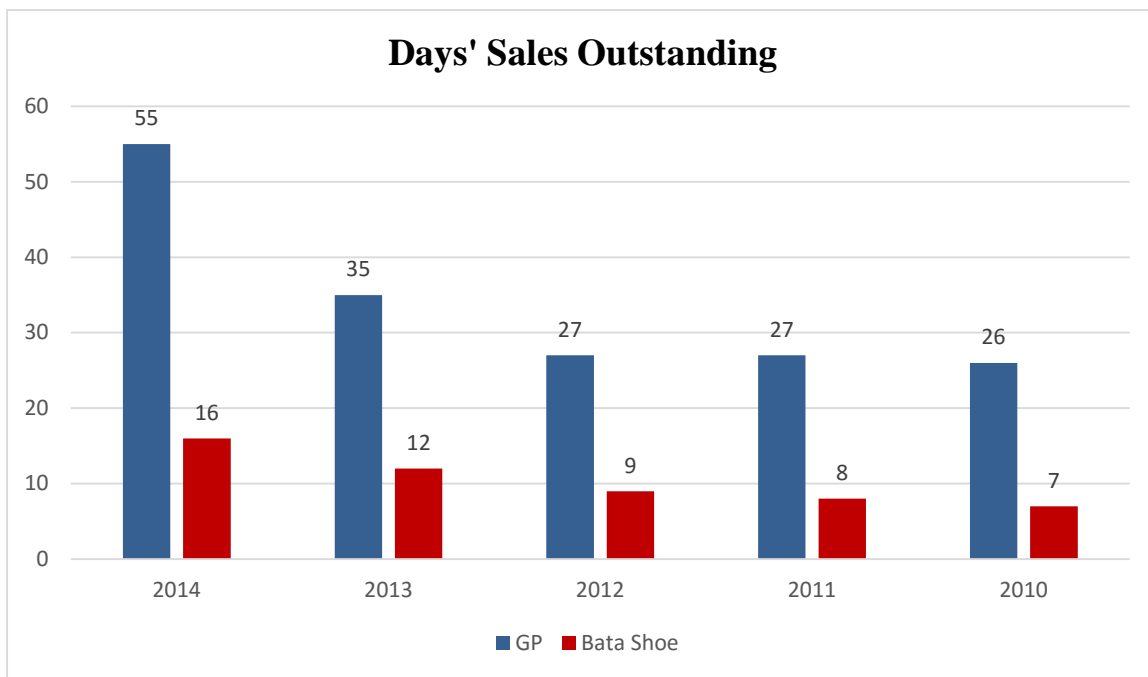
The table shows that F value is greater than the F critical value and therefore we reject the Null Hypothesis. And we can come to the decision that that the mean of the TIE ratio of the two companies is not equal. And thus we can conclude that no standardized benchmark can be traced for TIE ratio by the rating agency CRAB while providing the AAA rating.

### 5.3 Days' Sales Outstanding (DSO) Ratio

Days' sales outstanding ratio is used to measure the average number of days a business takes to collect its trade receivables after they have been created. It is an activity ratio and gives information about the efficiency of sales collection activities.

The table below shows the DSO of Grameenphone and Bata shoe for the last five years

| Days' Sales Outstanding (DSO) Ratio |      |      |      |      |      |      |          |
|-------------------------------------|------|------|------|------|------|------|----------|
| Year                                | 2014 | 2013 | 2012 | 2011 | 2010 | Mean | Sigma    |
| GP                                  | 55   | 35   | 27   | 27   | 26   | 34   | 12.28821 |
| Bata Shoe                           | 16   | 12   | 9    | 8    | 7    | 10.4 | 3.646917 |



#### Analysis

From the table we can see that the DSO ratio for Grameenphone is much higher than the DSO ratio of Bata Shoe. The DSO of Grameenphone ranges from 26 to 55 days where as the DSO of Bata Shoe ranges from 7 to 16 days. Though the DSO of both of the companies are increasing but the DSO of Grameenphone is much higher than Bata Shoe. The higher DSO of Grameenphone

Indicate the inefficiency in credit sales collection .In spite of the higher DSO ratio Grameenphone was awarded AAA rating from the rating agency which brings into question the effectiveness and relevance of the rating provided.

### Hypothesis Testing

A comparison among the mean of DSO ratio of the two companies can be done by F test. Let,

$H_0$  = the mean of the DSO ratio of Grameenphone and Bata shoe are equal.

$H_1$  = the mean of the DSO ratio of Grameenphone and Bata shoe are not equal  
to the result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |             |                  |
|--|-------------|------------------|
|  | <i>GP</i>   | <i>Bata Shoe</i> |
| <b>Mean</b>                            | 34          | 10.4             |
| <b>Variance</b>                        | 151         | 13.3             |
| <b>Observations</b>                    | 5           | 5                |
| <b>df</b>                              | 4           | 4                |
| <b>F</b>                               | 11.35338346 |                  |
| <b>P(F&lt;=f) one-tail</b>             | 0.018597562 |                  |
| <b>F Critical one-tail</b>             | 6.388232909 |                  |

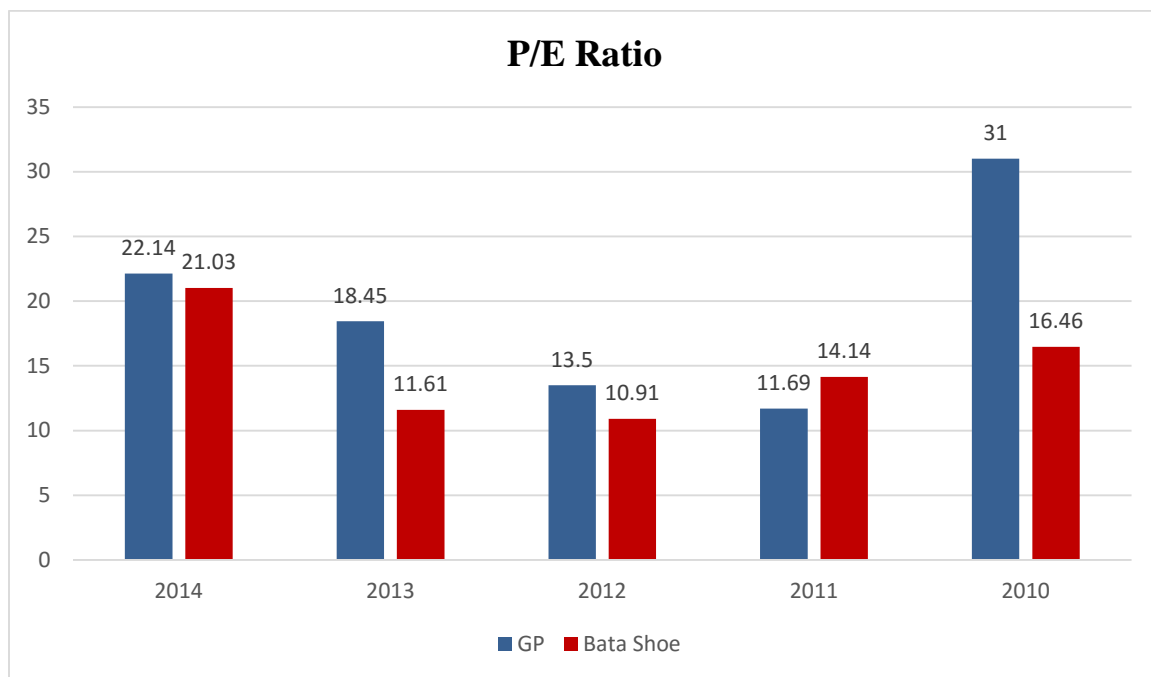
### Results and Discussion

The table shows that F value is greater than the F critical value and therefore we reject the Null Hypothesis. And we can say that the mean of the DSO ratio of the two companies is not equal. And thus we can conclude that no standardized DSO is considered while assigning the credit rating to the companies' .As we can see that Grameenphone with an average DSO of 34 days and Bata Shoe with an average DSO of 10.4 days were both rewarded with AAA rating.

### 5.4 Price/Earnings Ratio:

Price/Earnings or P/E ratio is the ratio of a company's share price to its earnings per share. It tells whether the share price of a company is fairly valued, undervalued or overvalued. The P/E ratio of the two company’s Grameenphone and Bata Shoe over the last five years is given below:

| Price/Earnings Ratio |       |       |       |       |       |       |          |
|----------------------|-------|-------|-------|-------|-------|-------|----------|
| Year                 | 2014  | 2013  | 2012  | 2011  | 2010  | Mean  | Sigma    |
| <b>GP</b>            | 22.14 | 18.45 | 13.5  | 11.69 | 31    | 19.35 | 7.700885 |
| <b>Bata Shoe</b>     | 21.03 | 11.61 | 10.91 | 14.14 | 16.46 | 14.83 | 4.102067 |



### Analysis

We can see that the mean of P/E ratio for Grameenphone is 19.35 and for Bata shoe is 14.83. The mean P/E ratio for grameenphone is 19.35 whereas the mean P/E ratio of .The sigma in case of grameenphone is 7.70 and for Bata shoe is 4.10. So we can say that the the P/E ratio of Grameenphone is more volatile in nature than the P/E of Bata Shoe. But still both the companies get an AAA rating.

## Hypothesis Testing

Now let us,

$H_0$  = The mean of the P/E ratio of Grameenphone and Bata shoe are equal.  $H_1$  =

The mean of the P/E ratio of Grameenphone and Bata shoe are not equal

The result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |                     |                 |
|--|---------------------|-----------------|
|  | <i>Grameenphone</i> | <i>Batashoe</i> |
| <b>Mean</b>                            | 19.356              | 14.83           |
| <b>Variance</b>                        | 59.30363            | 16.82695        |
| <b>Observations</b>                    | 5                   | 5               |
| <b>df</b>                              | 4                   | 4               |
| <b>F</b>                               | 3.524324373         |                 |
| <b>P(F&lt;=f) one-tail</b>             | 0.124963661         |                 |
| <b>F Critical one-tail</b>             | 6.388232909         |                 |

## Results and Discussion

From the table we can see that F value is smaller than the F critical value and therefore we cannot reject the null hypothesis. This means that there is no significant difference between the mean of P/E ratio between Grameenphone and Bata Shoe. And thus we can conclude that the mean of the P/E ratio is equal for the two companies.

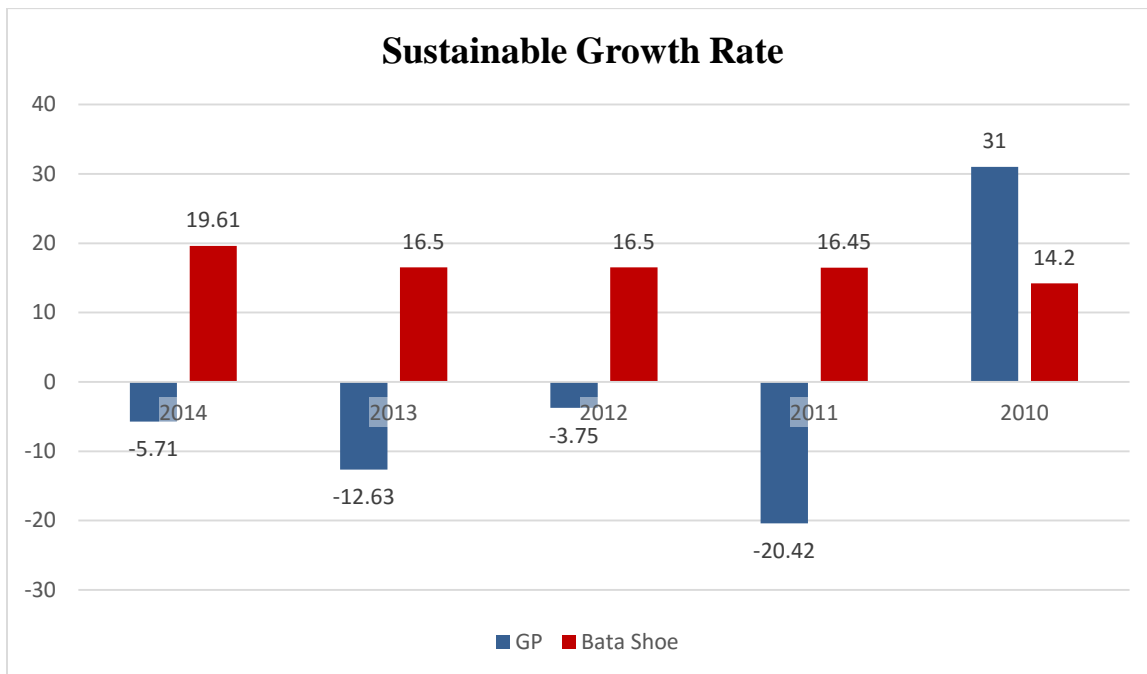
The mean of the P/E ratio is equal that means the rating provided to both the companies are consistent with the P/E ratio of the companies over the last five years.



### 5.5 Sustainable Growth Rate

The sustainable growth rate is a measure of how much a firm can grow without borrowing more money. After the firm has passed this rate, it must borrow funds from another source to facilitate growth. A company's Sustainable growth Rate is its growth ceiling assuming the contribution of its own resources. In order to grow more rapidly beyond this ceiling, a company must borrow funds or offer new issues of equity or debt securities.

The sustainable growth rate of the two AAA rated companies are over the last five years are given below in the table and then plotted in the chart



#### Analysis

From the above information and chart it is seen that the sustainable growth rate for Grameenphone is negative whereas the sustainable growth rate of BataShoe is in double digit. Yet both the companies have been rated as AAA companies. This gives a signal that the Sustainable growth rate was not considered or given importance while providing credit rating to Grameenphone. Sustainable growth is often used by investors and other external analysts to assess a company's creditworthiness. But in case of Grameenphone with a negative sustainable growth rate the credit rating provided to this company is questionable.

## Hypothesis Testing

A comparison among the variance of Sustainable growth rates of the two companies can be done by F test.

Let,

$H_0$  = The mean of the SGR over the years of Grameenphone and Batashoe are equal.

$H_1$  = The mean of the SGR over the years of Grameenphone and Batashoe are not equal

The result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |             |                 |
|--|-------------|-----------------|
|  | <i>GP</i>   | <i>BataShoe</i> |
| <b>Mean</b>                            | -0.10718583 | 0.168134513     |
| <b>Variance</b>                        | 0.004289764 | 0.000378005     |
| <b>Observations</b>                    | 5           | 5               |
| <b>df</b>                              | 4           | 4               |
| <b>F</b>                               | 11.34842544 |                 |
| <b>P(F&lt;=f) one-tail</b>             | 0.018612073 |                 |
| <b>F Critical one-tail</b>             | 6.388232909 |                 |

## Results and Discussion

The table shows that F value is greater than the F critical value and therefore we reject the Null Hypothesis. There is significant difference between the mean of the Sustainable growth rate of the two companies. And it can be said that the mean of the Sustainable Growth rate among the two companies is not equal. And thus we can conclude that in spite of having negative sustainable growth rates the companies are been rewarded with AAA rating which brings the rating system and basis in question.

## 5.6 The Altman Z-Score

The Altman Z-Score is an analytical representation created by Edward Altman in the 1960s which involves a combination of five distinctive financial ratios used for determining the odds of bankruptcy amongst companies. Most commonly, a lower score reflects higher odds of bankruptcy. In 2012, he released an updated version called the Altman Z-score Plus, that can be used to evaluate both public and private companies, both manufacturing and nonmanufacturing companies and both U.S. and non-U.S. companies. Investors can use Altman Z-scores to help determine whether they should buy or sell a particular stock if they're concerned about the underlying company's financial strength. The Altman Z-score Plus can be used to evaluate corporate credit risk.

### The Z-score Formula

Here is the formula (for manufacturing firms), which is built out of the five weighted financial ratios:

$$\text{Z-Score} = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

Where:

A = Working Capital/Total Assets

B = Retained Earnings/Total Assets

C = Earnings before Interest & Tax/Total Assets

D = Market Value of Equity/Total Liabilities

E = Sales/Total Assets

A Z-score of lower than 1.8, in particular, indicate that the company is heading for bankruptcy. Companies with scores above 2.99 are unlikely to enter bankruptcy. Scores in between 1.8 and 2.99 lie in a gray area.

### **Z-Score for Non-manufacturers**

Altman originally developed the Z-Score for manufacturers, primarily because those were the companies in his original sample. However, the emergence of large, public service companies prompted him to develop a second Z-Score model for non-manufacturing companies. The formula is essentially the same as before; it just excludes the last component (sales / total assets) because Altman wanted to minimize the effects of manufacturing-intensive asset turnover.

$$\mathbf{Z\text{-Score} = 6.56A + 3.26B + 1.05C + 6.72D}$$

Where:

A = Working Capital/Total Assets

B = Retained Earnings/Total Assets

C = Earnings before Interest & Tax/Total Assets

D = Book Value of Equity/Total Liabilities

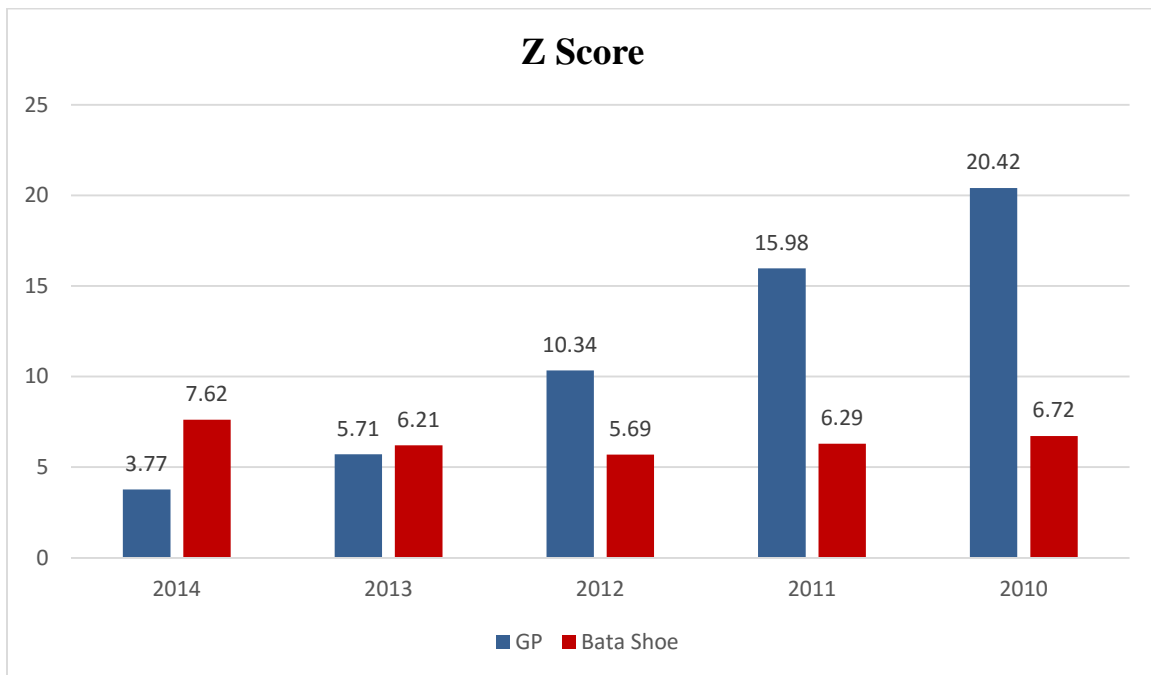
A Z-score of lower than 1.23, in particular, indicate that the company is heading for bankruptcy. Companies with scores above 2.90 are unlikely to enter bankruptcy. Scores in between 1.23 and 2.99 lie in a gray area.

**Z score calculation of AAA rated Companies:**

The AAA rated companies which are considered for the analysis is Grameenphone and Bata Shoe. As Grameenphone is a nonmanufacturing service company the Z score would be calculated according to the Z score model for the non-manufacturing company. And Bata Shoe is a manufacturing public limited company and thus the z value of this company is calculated according to the Z score formula for the manufacturing company.

The Z score value of the two companies over the last 5 years is shown in the table below.

| Z Score      |      |      |       |       |       |       |          |
|--------------|------|------|-------|-------|-------|-------|----------|
| Year         | 2014 | 2013 | 2012  | 2011  | 2010  | Mean  | Sigma    |
| Grameenphone | 3.77 | 5.71 | 10.34 | 15.98 | 20.42 | 11.24 | 6.961895 |
| BataShoe     | 7.62 | 6.21 | 5.69  | 6.29  | 6.72  | 6.51  | 0.721895 |



**Analysis:**

We can see that the z score of Grameenphone has decreased over the last 5 years. In 2010 the z score was 20.42 which started to decrease sharply and came to 3.77 at 2014. As we know a z score 2.90 indicates that the company is unlikely to enter bankruptcy. So the z score of



Grameenphone indicates a no bankruptcy but a matter of concern is that the z score is decreasing every year. And thus it is moving towards the grey zone of bankruptcy. If we look at the z score of Bata Shoe we can see that the z score is around 6 over the last five years. This indicates the financial position of Bata shoe is almost stable over the last five years and thus the Z score is also stable. As a z score above 2.90 indicates a non-bankruptcy we can say that Bata shoe is in a no bankruptcy zone.

Now if we compare the z score of the two companies we can see that the z score of Bata shoe is quite stable in the recent years where as the Z score of Grameenphone seems to be decreasing over the years.

## Hypothesis Testing

Now let us,

$H_0$  = The mean of the z score ratio of Grameenphone and Batashoe are equal.

$H_1$  = The mean of the z score ratio of Grameenphone and Batashoe are not equal.

The result of the F test is as follows:

| <b>F-Test Two-Sample for Variances</b> |             |                  |
|--|-------------|------------------|
|  | <i>GP</i>   | <i>Bata Shoe</i> |
| <b>Mean</b>                            | 11.24399822 | 6.509187077      |
| <b>Variance</b>                        | 48.4679828  | 0.521132241      |
| <b>Observations</b>                    | 5           | 5                |
| <b>df</b>                              | 4           | 4                |
| <b>F</b>                               | 93.00515114 |                  |
| <b>P(F&lt;=f) one-tail</b>             | 0.000337075 |                  |
| <b>F Critical one-tail</b>             | 6.388232909 |                  |

## Results and Discussion

From the table we can see that F value is greater than the F critical value and therefore we cannot reject the null hypothesis. This means that there is significant difference between the mean of z score of Grameenphone and Bata Shoe. And thus we can conclude that the mean of the z score of the companies are not equal. Though the mean of the z score of the two companies are not equal both the companies are rated AAA.

## Chapter 6: Findings and Conclusion

From the above mentioned analyses of the financial variables we get the following findings:

- ❑ The financial ratios of the companies that rated AAA vary significantly over the years but still the rating grades are same.
- ❑ Despite of having a quick ratio which is below than .5 Grameenphone has been rated with AAA rating. This question's the reliability of the credit rating provided.
- ❑ The Times interest Earned Ratio varies drastically between the two sample companies and yet both of them are awarded with the same rating AAA.
- ❑ The Days of Sales Outstanding Ratio of the two sample companies vary to a great extent
  - The Days of Sales Outstanding for Grameenphone is very high in comparison to Bata Shoe. And still both are awarded with AAA rating.
- ❑ The P/E ratios of the two companies are almost steady and constant over the years.
- ❑ The Sustainable growth rate of the two companies shows that Grameenphone despite of having a negative Sustainable growth rate has been awarded AAA rating since the last five years. Whereas Bata shoe with almost 2 digit growth rate is also a AAA rated company.
- ❑ The z score of the two companies indicates that both the companies are in no bankruptcy risk. Yet the z score of Grameenphone is decreasing over period significantly which may be a red signal in the near future.
- ❑ Since the clients provide the rating fees for rating assignments, there is a possibility that the client would try to influence the credit ratings assigned.
- ❑ The CRAs to attain and retain new clients may try to inflate the credit ratings.

Based on the above findings it can be said that the financial variables and the rating provided have an ambiguous and vague relationship between each other. If we believe in the financial variables and their interpretation the credit rating seems to be irrelevant. So the relationship between the financial variable and the rating provided is ambiguous in nature rather than liner and simple.



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