

# What Makes Difference in Credit Ratings between Foreign and Domestic Credit Rating Agencies?

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## Abstract

A split rating is a phenomenon that occurs when the same bond is rated differently by the rating agencies. This research examines whether the domestic credit rating agencies in Japan assign superior ratings than Standard & Poors and Moody's ratings. We also investigate the determinants of the split rating observed between two groups. We found that domestic rating agency in Japan assign higher rating than their foreign counterparts. We also found that bond issuer's profitability measured by ROA is the primary factor that drives the split ratings. Given that the Japanese companies rely less on the bond financing than bank debt, this research gives insight into the judgmental nature of credit rating in Japan and the view of rating agencies on economic indicators.

## I INTRODUCTION

The collapse of Lehman Brothers in 2008 and the undergoing European Financial Crisis raise the vital issues of the integrity of the credit rating process. It became more highly questionable when American International Group Inc. (AIG), the largest insurance company with the highest credit rating, collapsed in 2008 because of reckless speculation by a subsidiary, A.I.G. Financial Products<sup>1)</sup>. To response to the concerns and awareness of the integrity of the credit ratings, several researches attempted to assess the process that major credit rating agencies (CRAs) employ in their credit rating decision including the technical standards, the ability to obtain information, and other factors presumed to be used by CRAs<sup>2)</sup>.

Split ratings are referred to as the differences among multiple ratings given by different

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CRAs to the identical corporate bond. For example, the split ratings are present when a particular CRA assigns 'AA' to a bond of Company A while its counterpart assigns 'A' to the identical bond. Given that even one-rank downgrade, i.e. from AAA to AA, could lead to increased interest payments, the split ratings may significantly affect the bond issuer in a favorable or unfavorable way. On the other hand, credit ratings are supposed to reflect the trustworthiness of the issued bonds. Therefore, the presence of split ratings would get investors confused about which rating they should believe.

The top two credit ratings agencies in the United States, Standard and Poors (S & P) and Moody's, issue credit ratings not only on the corporate bonds but also the sovereign bonds. A large number of companies and nations outside the United States also prefer to have their bonds rated by these two big CRAs for the high level of assurance matter. Accordingly, the CRAs have extended their business to the local markets where there are established domestic CRAs that have operated within the region assigning the ratings mainly to local companies. For example, in Japan, Japanese corporate bonds often have multiple ratings issued by S & P, Moody's, and Japanese domestic CRAs that are not affiliated with those major global agencies.

The CRAs generally obtain the financial information from the bond-issuer's annual report and, hence, both foreign global agencies and domestic agencies are assumed to have equal access to public information. The more stable the company's financial condition, the higher the rating is likely to be. If the technical standard that individual CRAs employ in the decision making process is only based on the public information, then there should not be significant difference in the grades of ratings. In other words, the existence of split ratings implies that there must be something other than the public information per se that influences the credit decision.

First, this research examines whether there is the existence of split ratings especially between Japanese CRA and Foreign CRAs. No prior research has examined the presence of split ratings existing between Japanese and the Foreign CRAs. In addition, we advance to investigate which credit agencies between Japanese and Foreign CRAs assign favorable (superior) ratings while the others assign conservative (inferior) ratings in terms of the grade of rating, regardless of the quality of rating per se. The first research question is formulated as follows:

***Research Question 1.***

Do split ratings between Japanese and foreign credit rating agencies exist? If so, which CRAs tends to assign a conservative rating relative to the counterpart CRAs?

We further examine the factors that might cause the split ratings. Ederington (1986) concludes that split ratings occur as random events because no difference appears in the technical standards or rating methods used by S & P and Moody's.

Nonetheless, we believe the occurrence of the split ratings especially between Japanese and foreign CRAs would not be considered merely a random event. The rationale behind is that the split ratings between those two groups of CRAs have been well acknowledged in Japan and the occurrence is much frequent compared to that observed in other countries. Furthermore, there would be the determinant(s) unique to Japan that might create the split ratings between Japanese and Foreign CRAs.

Our second research question is presented as follows:

***Research Question 2.***

What are the factors that cause the split ratings between Japanese and Foreign CRAs?

We studied the bond ratings for 192 Japanese corporates that have multiple ratings assigned by at least one Japanese CRA and at least one of the Foreign CRAs (S & P and Moody's) during the 2000 to 2009.

The remainder of the paper is organized as follows. Section 2 provides background on credit rating agencies. This is followed by literature review. Section 4 outlines the research data and sample. Section 5 presents the empirical test method and result of exploring split ratings between Japanese and Foreign CRAs. Section 6 presents the empirical test method and result of the determinants of Split Ratings that have been recognized in the previous section. Section 7 concludes the research.

## **II BACKGROUND ON CREDIT RATING AGENCIES**

Credit ratings reflect the bond issuers' trustworthiness. In turn, interest rates on corporate bonds are highly affected by the grade of credit ratings. Companies with low rated bonds are generally considered not enough to serve the debt obligations compared to those with relatively high rated bond. Under the circumstance, investors demand higher interest rate as a form of a premium. Investors' judgmental call for determining whether the bond is considered "investment grade" or "speculative grade" is heavily based on the grades of bond ratings<sup>3</sup>. The rule of thumb is that a credit rating, as an indicator of the possibility of default on the bonds, should well reflect the company's financial situation such as financial stability, credit risk, debt

capacity and a level of financial distress.

Credit ratings issued by CRAs play a dual role. First, credit ratings provide investors with information on bonds. Bond issuers are more likely to have better and more information and understanding about their own companies than investors. If information asymmetry between the company and financial market is acknowledged by investors, it may trigger investors' doubt and concerns about the company, increasing uncertainty around the companies' future performance. It is obvious that the reputation and creditability of the issuer company would be adversely affected and so would its bond ratings. CRAs should be able to reduce the information asymmetry by acting as the information generator. Under the situation where information asymmetry exists, bond-issuers have incentive to exploit the benefits from it while investors who recognize asymmetry information would demand a higher risk premium. CRAs ease the dilemma by reducing the information gaps between them, leading to a situation where both issuers and investors can benefit.

Secondly, CRAs have an important role for regulators who mostly try to prevent the collapse of bond market that might be caused by poorly and wrongly rated corporate bonds in the perspective of integrity of credit rating process. Credit ratings have become an important benchmark for regulators<sup>4</sup>. Disclosure requirements, investment restrictions, and capital requirements are the three major areas of rating-based regulation (Adams et al. 1999). For disclosure requirements, credit ratings serve to define disclosure requirements. An unbiased grade of rating resulted from the integrity of credit rating process ('Good credit rating', hereafter) should be able to lower legislative obligations of paying higher premiums and enable the bond issuer to avoid unnecessary regulatory scrutiny. For investment restrictions, regulators use credit ratings to impose investment restrictions on certain financial institutions. The overall risk of a financial institution's portfolio can be limited by the prohibition of holding unrated or low-rated investments. As a result, financial institutions are able to avoid a potential loss caused by a low-rated company's default or their inability to meet obligations. For capital requirements, credit ratings can be also used for determining the level of risk of single assets. Overall, CRAs are required to pay careful attention to information they deal with because a subtle change in the rating may potentially have a large negative impact on the financial market worldwide.

It was not until recently that investors and regulators felt highly skeptical about the integrity in bond ratings process, raising one question about whether credit ratings issued by the large major CRAs were really trustworthy. Having triggered the European financial crisis, the collapse in Greek sovereign bonds has further deepened the concerns<sup>5</sup>. Under the current

circumstance where investors have a strong doubt about the corporate bond ratings including even those with AAA, split ratings can help to regain investors' confidence in the corporate bond market by suggesting investors an option to have a second thought when any one rating seems prone to error. Ederington (1986) pointed that multiple ratings for an identical bond would give a second opinion just as patients look for a second opinion from another doctor.

### III LITERATURE REVIEW

Cantor (2007) interviews fund managers about their perception on split ratings, and finds that they prefer bonds with multiple ratings to single CRA rated bonds. In addition, American fund managers are found to be favorable for higher ratings regardless of trustworthiness of the rating while Europeans prefer relatively conservative ratings.

Ederington (1986) does not find any significant discrepancy in the technical standards or rating criteria used by the major CRAs. Dale and Thomas (1991) document that the regulation on credit rating agencies has been enormously intensified since the U.S. subprime mortgage crisis. Governmental regulatory bodies such as Basle II or European Capital Adequacy Directive took a step toward protection of investors by putting pressure on the CRAs to apply the strict rating method.

According to the findings by both Ederington (1986) and Canter (2007), split ratings have become a common phenomenon no matter how the splits influence investors and bond issuers. Research by Ederington (1986) shows that approximately 13 percent of corporate bonds had split ratings during the 1975–1980 periods, and the occurrence of split ratings was more likely random.

Livingston (2010) provides evidence that Moody's is more likely to assign conservative ratings than S & P. Livingston also highlights the evidence that investors have become more sophisticated after experiencing several financial crises. Therefore, it is expected that those investors who are able to recognize the difference in the ratings by S & P and Moody's in terms of conventional practice have a choice to select one rating over the other. For example, one CRA is consistently found to be conservative over time. Then, those risk-averse investors or those who simply lost confidence in bond market are likely to put more weight on the conservative rating than less conservative ratings. Interestingly, Livingston (2010) finds that split rated bonds with a conservative rating particularly by Moody's have lower yields than similar bonds with a higher ratings by S & P, indicating that risk adverse investors are more likely to

pick the bonds with Moody's than those rated aggressively by the S & P. The reason for more conservative rating assigned by Moody's is that the Moody's ratings incorporate not only the probability of default but also the expected recovery rate while the S & P rating reflects strictly a measure of default risk (Livingston, 2010).

#### IV SAMPLE & DATA

An initial sample for this research is taken from all the companies whose stocks are publicly traded in stock exchange market in Japan from the 2000 to 2009<sup>6)</sup>. Of the 4,969 listed companies, the final sample included 192 firm-year companies that have issued corporate bonds during the test period and the bonds have been rated both by domestic and one or two of the foreign CRAs. Because the first research question is concerning the presence of split ratings between Japanese and foreign CRAs, bonds with multiple ratings (one by Japanese CRA and at least one by foreign CRAs) are included in the final sample companies.

To control the impacts of low-quality domestic CRAs, we use the rating by one of the major and most reliable Japanese CRAs, Rating & Investment Information, Inc. (R & I). Through this

**Table 1** Grades of Credit Ratings converted into Numeric Values

Point	Moody's	S & P
20	Aaa	AAA
19	Aa1	AA+
18	Aa2	AA
17	Aa3	AA-
16	A1	A+
15	A2	A
14	A3	A-
13	Baa1	BBB+
12	Baa2	BBB
11	Baa3	BBB-
10	Ba1	BB+
9	Ba2	BB
8	Ba3	BB-
7	B1	B+
6	B2	B
5	B3	B-
4	Caa1	CCC+
3	Caa2	CCC
2	Caa3	CCC-
1	CaC	C
0	C	C

approach, we could eliminate the spurious effect that might cause split ratings other than country-specific rating process. On the other hand, S & P and Moody's are represented as foreign CRAs. The data concerning bond ratings issued by foreign CRAs are obtained from *Thomson Reuters Datastream*, and the data on bond ratings by Japanese CRA (R & I) are obtained from *Nikkei NEEDS-Financial Quest*. Among the bond ratings issued for the 192 firm-year samples, 96 bonds have ratings by Moody's and R & I, 58 bonds have ratings by S & P and R & I, and 38 bonds have ratings by all three CRAs. All financial data used in the regression model are collected from *Nikkei NEEDS-Financial Quest*. In order to summarize the credit quality of the sample, three numerical rating variables have been created ranging from 0 (for C) to 20 (for AAA). Table 1 shows the description about the conversion of the credit ratings into numeric values.

Table 2 describes the frequency of ratings by one Japanese CRA (R & I) and the foreign CRAs.

**Table 2 Frequency of Ratings**

Value	Japanese	Percentage	Foreign	Percentage
8	0	0.0%	2	0.9%
9	1	0.5%	9	3.9%
10	0	0.0%	3	1.3%
11	5	2.6%	10	4.4%
12	4	2.1%	20	8.7%
13	9	4.7%	20	8.7%
14	15	7.8%	76	33.2%
15	26	13.5%	25	10.9%
16	23	12.0%	14	6.1%
17	40	20.8%	40	17.5%
18	14	7.3%	7	3.1%
19	42	21.9%	1	0.4%
20	13	6.8%	2	0.9%

## V EMPIRICAL TESTS OF THE PRESENCE OF SPLIT RATINGS

Section 5 examines whether split ratings between Japanese and Foreign CRAs are present in Japanese bond market. Table 3 provides basic statistics about credit ratings. The Japanese CRA assigns the ratings at a mean of 16.599 while foreign CRAs assign the rating at a mean of 14.251. However, the average rating value of two groups cannot give an absolute answer with statistical significance. Therefore, two statistical tests are conducted in order to provide evidence with statistical significance.

**Table 3 Basic Statistics of Ratings**

	Japanese	Foreign
Number of Observation	192	229
Mean	16.60	14.26
Median	17	14
Standard Deviation	2.30878109	2.2651044
Variance	5.33047011	5.13069792
Mean Difference*		2.34
Median Difference**		3

\*Mean Difference is calculated by Mean of Group Japanese minus Mean of Group.

\*\*Median Difference is calculated by Median of Group Japanese minus Median of Group Foreign.

**Table 4 Result of *t*-Test on Median Difference**

CRA		Mean		
Japanese		16.599		
Foreign		14.2576		
Diff (1-2)		2.3413		

  

Method	Variances	DF	<i>t</i> Value	Pr >   <i>t</i>
Pooled	Equal	419	-10.47	< .0001

  

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	191	228	1.04	0.78

## 1 *t*-Test Analysis

This research firstly conducts *t*-Test on the means of two independent populations to examine the existence of split ratings between ratings by Japanese and foreign CRAs. The two independent populations to be analyzed are: Group A (192 ratings issued by the Japanese CRA) and Group B (229 ratings issued by foreign CRAs). In Group A, the mean is represented by the symbol  $\mu_1$  and the standard deviation is represented by the symbol  $\sigma_1$ . In Group B, the mean is represented by the symbol  $\mu_2$  and the standard deviation is represented by the symbol  $\sigma_2$ . If *t*-stat rejects the following null hypothesis ( $H_0$ );  $\mu_1 = \mu_2$  or  $\mu_1 - \mu_2 = 0$ , then the alternative hypothesis ( $H_1$ );  $\mu_1 \neq \mu_2$  or  $\mu_1 - \mu_2 \neq 0$ , will be taken supporting that there is split ratings between Japanese and foreign CRAs.

Table 4 shows the result of *t*-Test. The means of the two groups differ by 2.3413. In general, when S & P or Moody's issue A, the Japanese CRA is likely to issue AA-, which is two grades (2.3413 points) higher than those by the foreign counterparts<sup>7</sup>. At a 95% confidence level

( $\alpha$  value of 0.05), we can reject the null hypothesis (with  $p$ -value less than 0.0001). In other words, there is clearly a difference between the means of the two groups with a statistical significance of  $\alpha=0.05$ . Therefore, the result of the  $t$ -Test suggests that split ratings between Japanese and foreign CRAs do exist and, furthermore, the Japanese CRA is, on average, likely to assign higher (less conservative) ratings than foreign CRAs do.

## 2 Wilcoxon Scores Test Analysis

To provide solid evidence on the existence of split ratings, we additionally performed Wilcoxon Scores Test on the median difference. A Wilcoxon Scores Test examines whether there is a difference between two medians whereas the  $t$ -Test compares the means of two groups. The median is the middle value in a set of data that has been ranked from smallest to largest, and thus, the median is not affected by extreme values, hence it is possible to use a comparison of median values when extreme values are present in the target sample. Wilcoxon Scores Test hypothesizes the following null hypothesis ( $H_0$ );  $M_1 = M_2$  or  $M_1 - M_2 = 0$  whereas the alternative hypothesis ( $H_1$ ) is;  $M_1 \neq M_2$  or  $M_1 - M_2 \neq 0$ <sup>8)</sup>.  $Z_{STAT}$  is a statistical value to testing the median difference.

If the  $p$ -value is lower than a given  $\alpha=0.05$ , it can be concluded that there is a difference in medians between the two groups, or there is an extremely low possibility that the medians of the two groups are the same.

Table 5 shows the result from the Wilcoxon Scores Test on median difference between the two groups. The result indicates that the medians of the two groups differs by a median of 3,

**Table 5 Result of Wilcoxon Scores Test**

$H_0$ : Median A = Median B

Credit Rating Agency (CRA)	No. of observation	Std Dev Under $H_0$	Mean Score
Foreign	229	1230.204	159.7227
Japanese	192	1230.204	272.1589

Wilcoxon Two-Sample Test	
Statistic	52253.5
Normal Approximation	
Z	9.5448
One-Sided	<.0001
Two-Sided	<.0001

which supports the alternative hypothesis that  $M_1 - M_2 \neq 0$  with the  $p$ -value less than .001. Combining both of the results from the  $t$ -test on mean difference and the Wilcoxon Scores Test on median difference, we provide evidence that split ratings really do exist and, moreover, Japanese CRAs are more likely to assign superior ratings than foreign CRAs do.

## VI DETERMINANT OF SPLIT RATINGS

### 1 Empirical model specification

We advance to identify the factor(s) that might cause the split ratings between two groups of CRAs. The following model is estimated:

$$\text{Difference} = \beta_0 + \beta_1 \text{ROA} + \beta_2 \text{ASSET} + \beta_3 \text{LEVERAGE} + \beta_4 \text{LIQUIDITY}$$

, where

*Difference* Absolute value of Rating Difference,  
where Rating Difference calculated as Japanese CRA  
rating grade *less* foreign CRA rating grade.

*ROA* Return on Asset measured as company's net profit  
divided by company's total asset

**Table 6 Summary Statistics of Variables**

	Mean	Std. Deviation	100%	75%	Quantile 50% Median	25%
Difference	3.15202	2.05535	11	4	3	2
ROA	0.13669	0.09118	0.37298	0.21271	0.1280266	0.0596942
ASSET	14.8346	1.01103	16.4939	15.6773	14.8931	14.3264
LEVERAGE	4.65122	2.18734	16.7	5.68	4.5	2.84
LIQUIDITY	105.725	61.0483	553.99	129.74	110.11	69.25

	Pearson Correlation Coefficients			
	Asset	Leverage	Liquidity	Difference
ROA	0.1806 0.0002	0.27908 <.0001	-0.41815 <.0001	0.32349 <.0001
ASSET		0.37332 <.0001	-0.3266 <.0001	0.26376 <.0001
LEVERAGE			-0.35553 <.0001	0.1086 0.0262
LIQUIDITY				-0.32666 <.0001

<i>ASSET</i>	Natural logarithm of total asset
<i>LEVERAGE</i>	Total liabilities divided by total equity.
<i>LIQUIDITY</i>	Current asset divided by current liability

The dependent variable, *Difference*, denotes the rating difference between the Japanese and foreign CRAs, calculated as subtracting the rating grade assigned by Japanese CRA from rating grade assigned by foreign CRAs. For example, if Japanese CRA assigns a superior rating than the foreign counterparts, the value of *Difference* would have a positive value.

The explanatory variables of interest are ASSET, ROA, LIQUIDITY, and LEVERAGE. Those financial indicators of liquidity, solvency, and profitability are found to be associated with credit ratings. Table 6 summarizes the statistics of the variables.

## 2 Empirical test results

Table 7 shows the result of the multivariate regression model analysis. The coefficients on ASSET and ROA are positive and significant ( $t$ -value=4.03;  $p < 1\%$ , and  $t$ -value=4.79;  $p < 1\%$ , respectively), indicating that *Difference* increases with either ASSET or ROA. It suggests that Japanese and foreign CRAs have different approach to these two financial indicators in their decision making process.

The coefficients on LEVERAGE and LIQUIDITY are significantly negative ( $t$ -value= -2.04;  $p < 5\%$ , and  $t$ -value= -3.83;  $p < 1\%$ , respectively), indicating that *Difference* decreases as either LEVERAGE or LIQUIDITY increases. It suggests that the magnitude of split ratings between Japanese and foreign CRAs increase when they assign the credit ratings for the company with high level of credit risk.

**Table 7 Determinant of Split Ratings**

$$Difference = \beta_0 + \beta_1 ROA + \beta_2 ASSET + \beta_3 LEVERAGE + \beta_4 LIQUIDITY$$

Variable	Coefficient	$t$ Value	Pr >   $t$
Intercept	-2.37084	-1.58	0.1146
ROA	5.33314	4.79	<.0001
ASSET	0.40167	4.03	<.0001
LEVERAGE	-0.09597	-2.04	0.0424
LIQUIDITY	-0.00668	-3.83	0.0001

, where

*Difference* Absolute value of Rating Difference,  
 Where Rating Difference calculated as Japanese CRA

	rating grade <i>less</i> foreign CRA rating grade.
<i>ROA</i>	Return on Asset measured as company's net profit divided by company's total asset
<i>ASSET</i>	Natural logarithm of total asset
<i>LEVERAGE</i>	Total liabilities divided by total equity.
<i>LIQUIDITY</i>	Current asset divided by current liability

### 3 Discussion: Split Ratings and Disclosure Level

International Financial Reporting Standards (IFRS) adoption has made a positive difference to disclosure levels. As results, those jurisdictions which adopted IFRS have seen a reduction in cost of capital and information asymmetry as well. Nonetheless, some countries including Japan and the US currently are still considering adopting IFRS and their plans for convergence or harmonization differ widely by jurisdiction<sup>9)</sup>. Japan is one of the countries that are less likely to adopt the IFRS, and Japanese companies still follow Japanese GAAP that requires less disclosure levels than IFRS<sup>10)</sup>. Those credit analysts in foreign CRAs are more likely familiar to the type of information usually required by the IFRS than Japanese GAAP. We conjecture that the observed split ratings would be partially attributable to the difference in the accounting standards under which the analysts would perform better than the other.

In addition, Japanese credit rating agencies have issued credit ratings to companies domestically operated and, thus, better understand industry-level and firm level business condition in Japan. Unlike their foreign counterparts who may heavily rest on the publicly available information, Japanese credit analysts would have information source other than publicly firm released information.

## VII CONCLUSION

We examine whether split ratings between Japanese and foreign CRAs, and which CRA assigns more conservative ratings than the other. In addition, we attempted to identify the determinant of the split ratings observed between Japanese and foreign CRAs.

We provide evidence that the split ratings between Japanese and foreign CRAs do exist, and the Japanese CRAs are more likely to assign superior ratings (less conservative) than Foreign CRAs on average with reliable statistical significance.

In order to explain the possible factors that cause the split ratings, several economic indicators are taken into consideration in the model specification. The result implies that the Japanese CRA puts more weight on a certain economic indicator than its foreign counterparts. Specifically, bond issuer's profitability measured by ROA is the primary factor that drives the different credit rating between Japanese and foreign CRAs. Results from a Multivariate Regression Model analysis explain that the variables of interest used for the regression can be proposed as the determinant of the split ratings. Out of four control variables, company's profitability represented as ROA is the strongest influential indicator increasing difference followed by ASSET, LEVERAGE, and LIQUIDITY. Unlike early studies suggesting that the split ratings between S & P and Moody's are merely random occurrences, our findings suggest that the split ratings occurring between Japanese and foreign CRAs are frequent events that are considered not random in nature but are more likely attributed to domestic and foreign CRA's different approach to financial indicators in their decision making process of assigning rating grades. Among those financial indicators, the profitability measure (ROA) is found to be the primary factor to influence the split ratings between Japanese and Foreign CRAs followed by measures of firm size (ASSET), Leverage Ratio (LEVERAGE), and Liquidity Ratio (LIQUIDITY).

Although we did not perform the empirical test on the association between the split ratings and accounting disclosure level, the observed split ratings would be partially attributable to the difference in the accounting standards under which one credit analysts would perform better than the other.

To enhance understanding of the split ratings observed in this study, our study calls for further research that examines whether investors recognize the split ratings between Japanese and foreign CRAs and how investors' acknowledgement influences the cost of borrowing.

#### NOTE

- 1) Bond, Security, or other financial products which are ranked AAA have very little probability of defaulting. AIG had a credit rating of AAA until the close at September, 2008. One of leading credit rating agencies has affirmed its 'AAA' counterparty credit rating on AIG and similar high ratings on various AIG operating companies.
- 2) Companies known as Credit Rating Agencies (CRA) are companies that issue credit ratings, and CRAs get paid by bond issuers who receive the ratings from CRAs. Since the grade of credit ratings can easily affect the rated company's future financing plan; e.g. a lower rated company may have difficulty in raising capital through bond issuing due to the higher interest rate. Section 2 provides the details on the role for CRAs in capital market.

- 3) Bonds with ratings higher than BBB– are usually considered as “investment grade” and below are “speculative grade.”
- 4) “There were at least eight federal statutes and 47 federal regulations, along with over 100 state laws and regulations, Nationally Recognized Statistical Rating Organizations (NRSRO) ratings serves as a bench mark in the U.S.” (US Senate 2002, p. 102)
- 5) Greek in 2011 had its sovereign rating downgraded dramatically after an intention to manipulate the Greek government bonds market came to light.
- 6) Stock Exchanges in Japan are; Tokyo Stock Exchange, Osaka Stock Exchange, Nagoya Stock Exchange, Sapporo Stock Exchange, Fukuoka Stock Exchange, Tokyo AIM, JASDAQ, MOTHERS, Centrex, Q-Board, and Ambitious.
- 7) Moody’s investment grade ratings in order from the highest to the lowest are: Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1, Baa2 and Baa3. Standard & Poor’s investment grade ratings in order from the highest to the lowest are: AAA, AA+, AA, AA–, A+, A, A–, BBB+, BBB and BBB–.
- 8) A median is represented as M.
- 9) SEC rules allow foreign private issuers listing securities in the United States to report exclusively in International Financial Reporting Standards (IFRS).
- 10) In 2012, only five companies in Japan have adopted IFRS and the rest of companies have yet to adopt IFRS. However, some companies such as trading conglomerates, Mitsubishi Corporation and Sumitomo Corporation, are going to shift to IFRS from next fiscal year and others will adopt IFRS in parallel with current standard.

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