Credit Ratings of Issuers of Green Debt Instruments

Sylwia Frydrych[1]

Abstract:

Purpose: The purpose of this article is to assess whether having a creditworthiness assessment from more than one credit rating agency by issuers of green debt instruments affects the number of issues and the average amount issued. This objective was achieved through the process of analysis of the ratings assigned by the rating agencies.

Methodology: Due to the complexity of the data, mixed research methods were used such as observation, analysis, and inference. The study used data from Refinitiv Eikon. The credit ratings for the issuers, announced on the issue date, have been analyzed. The analysis covered debt instruments issued in all currencies in the years 2010-2020. The empirical research was carried out using the observation method, the analysis of source documents, and the method of deduction.

Findings: In the analyzed period only 44.22% of issuers had credit ratings. The results of the conducted research indicate that the number of green debt instruments and the average issue amount were affected by the number of ratings given to the issuer. Because the largest number of green debt instruments and the highest average issue amount was held by green debt issuers with three ratings, there is a need for an additional creditworthiness assessment.

Practical implications: The conclusions of this study can be used in the process of obtaining financing from capital markets on green projects. The content of the article concerns the conclusions from the analysis of the credit ratings of the issuers of green debt instruments.

Originality/Value: The theoretical and empirical literature does not provide guidance on the impact of the issuer's credit rating on the success of issuing debt instruments, in particular green ones.

Keywords: Credit rating, green bond, creditworthiness assessment.

JEL codes: G12, G15, G24.

Paper type: Research paper.

---

[1]*Institute of Risk and Financial Markets, SGH Warsaw School of Economics, Warsaw, Poland, sfrydr@sgh.waw.pl;*

1. Introduction

The interest of issuers, as well as investors, in sustainable, socially, environmentally, and climatically stable development of the economy is growing. Green debt securities are an instrument of sustainable financing. Therefore, considering the growing interest in green debt instruments an analysis of this market was performed. The choice of this segment of issuers was driven by the growth of popularity of green bonds. Morgan Stanley describes it as a 'green bond boom' (Morgan Stanley, 2017). Green debt instruments, like other debt instruments, include an issuer's promise to pay a coupon to holders in accordance with the terms of issue. Debt securities holders are exposed to various types of risk, including a default risk. The credit rating is one of the indicators of the default risk (Fabozzi, 2007). Default's probability normally increases as the credit rating drops (Harper *et al.*, 2019). The ratings are given by independent and objective rating agencies, mainly Standard & Poor's (S&P), Moody's and Fitch Group.

The credit rating agencies (CRAs) play an important role in the development of the capital market (Opp *et al.*, 2013). Credit ratings from a reputable CRA is required to enable borrower to access the capital (Duff *et al.*, 2015). Moody's, Standard & Poor's and Fitch are the largest rating agencies. Each publication of the credit rating commissioned by the issuer requires a fee for this service (Jewell and Livingston, 2000). Feinberg, Shelor and Jiang (2004) proved that the third agency obtains, on average, higher ratings than Moody's and S&P. However, Cantor and Packer (1997) found that the differences result from different rating scales. The author introduces the hypothesis that having a creditworthiness assessment from more than one CRA by issuers of green debt instruments leads to a higher number of issues and a higher average amount issued.

The article presents the rating of issuers of green debt instruments. The period of analysis covers the years 2010-2020. The work is based on the number of instruments outstanding as of 30th of April 2021 from Refinitiv Eikon and the data from websites of the agencies, Standard & Poor's, Moody's and Fitch Group. As regards the structure of this study, its first section presents an overview of the literature on the subject, with particular emphasis on the analysis of credit ratings by the three largest agencies. In the empirical part, the differences in the given credit ratings between the agencies were analyzed. Moreover, the paper captures an impact of having the ratings assigned by the rating agencies on the number of issues and an average amount of the issued green debt instrument. The article ends with the conclusions regarding the role of credit rating of the green debt issuers in raising capital.

2. Literature Review

Green debt instruments, also referred to as climate bonds, are the same as conventional instruments, except that the proceeds shall be used for environmental purposes (Cooperman, 2017; Flaherty *et al.*, 2017). They are driven by the same financial risk

factors as conventional instruments; thus, investors should use a similar risk credit assessment as other debt instrument (Agliardi *et al.,* 2021).

The creditworthiness assessment is essential if the entity intends to obtain financing. The credit rating can be defined as an "investment risk classification scheme" (Dziawgo, 2010). The role of CRAs is to forecast the probability of default of debt issuers (Griffith‑Jones *et al.,* 2010). The credit ratings have a large impact on the access to finance. Graham and Harvey (2001) believe that the ratings of debt instruments are one of the most important factors in deciding to issue debt.

In terms of technical qualities, independence is an essential feature of CRAs. If the CRA, remunerated by the issuer of the debt security, is not regarded as independent of the issuer, then concerns about the buyer‑pays model emerge and the rating becomes worthless. Three major agencies (Moody's Investors Service, Standard & Poor's and Fitch) have dominated the bond rating industry.

Despite many examples of inaccurate risk assessments, the demand for services provided by credit rating agencies has not decreased. While CRAs have different concepts and measures of a probability of default, studies comparing the Moody's, Fitch, Standard & Poor's ratings showed strong similarities in credit ratings (Ammer and Packer, 2000). CRAs use different sets of symbols to indicate the rating given to debt instrument issuers. However, the differences between the companies are slight, and it is quite easy to see the relationship between different symbols. The offered products are homogeneous (Candelon *et al.,* 2014).

Table 1. *The symbols of ratings assigned by CRAs*

Standard & Poor's, Fitch	Moody's	Rating description
Investment grade		
AAA	Aaa	Highest quality
AA+/AA/AA-	Aa1, Aa2, Aa3	High quality
A+/A/A-	A1/A2/A3	Upper medium grade quality
BBB+/BBB/BBB-	Baa1/Baa2/Baa3	Medium grade quality
Speculative grade		
BB+/BB/BB-	Ba1/Ba2/Ba3	Speculative, substantial credit risk
B+/B/B-	B1/B2/B3	Speculative, high credit risk
CCC+/CCC/CCC-	Caa	Speculative and current vulnerability to default
CC/C/D	Ca/C/D	In bankruptcy or default

Source: Standard & Poor's, Fitch, and Moody's Investors Service materials.

As can be seen in Table 1, the scales are very similar. The first letter is the same for every company in every symbol. Only the other symbols differ. As it is shown, the ratings have been divided into two big categories: investment rating and speculative rating. The topic of the credit ratings was a subject of the empirical studies many times in the past (Galil and Soffer, 2011). Most researchers focused on the reaction of common stocks to rating changes (Griffin and Sanvicente, 1982). The study by Hand *et al.* (1992) revealed that bond and stock markets made diverse responses to rating announcements. The conflict of interest between stockholders and bondholders can

explain both the selective response of stock markets and the differences in the reactions of stock markets and of bond markets (Goh *et al.,* 1993).

However, according to the author's knowledge, very few studies focus on the impact of assessing an issuer's creditworthiness now of debt issue on the amount of debt instruments, in particular green debt instruments, and their average value.

3. Material and Research Methods

The analysis covers the credit rating of the issuers of green debt instruments issued in the years 2010-2020. The research material in this paper includes - apart from the analysis of literature - a method of observation, analysis of source materials, and a method of deduction. The paper utilizes the data from Refinitiv Eikon. The author has examined which agencies most often gave the ratings to issuers of the green debt instruments. Moreover, it has been checked whether the issuers were rated by one or more agencies and which agency awarded the highest and lowest credit rating. Furthermore, the differences in ratings between the agencies and what rating was given most frequently have been examined (Figure 1).

For this purpose, 1706 issues of 490 issuers of green debt instruments have been analyzed. The analysis included bonds as well as notes and others green instruments. Moreover, the research was conducted for all currencies, and the average amount of issued papers was given in USD.

4. Results of the Study

In the years 2010-2020 green debt instruments were issued by 1108 issuers. Only 44.22% of issuers have credit ratings. No credit rating was assigned to 618 issuers. As can be seen in Table 2, one agency gave a credit rating to 41.02% of the issuers; two agencies gave a credit rating to 35.51% of the issuers, while three agencies gave a credit rating to 23.47% of the issuers. Issuers with credit rating from three CRAs issued the largest number of green debt instruments, 119 issuers made 436 issues. The highest average amount of issue also applied to issuers with three credit ratings. However, the largest average number of debt instruments were issued by issuers with two credit ratings (Moody's and Fitch) and with one credit rating assigned by Moody's. In these cases, the lowest average emission value was found. On the other hand, issuers with a rating only from Moody's issued the lowest average value of a green financial instrument, while the rating given to an issuer only by Fitch determined only two issues per issuer.

The data in Table 2 show that S&P awarded the highest number of ratings – 43.29%. Moody's, on the other hand, assigned 26.85% and Fitch 29.87% of ratings. Since 289 issuers of green debt instruments have two or more credit ratings, the second stage of the research focused on the comparison of the highest and lowest credit ratings awarded by CRAs and the difference in the credit ratings between the agencies. For

this purpose, the issuers who received the ratings from two or three agencies were analyzed. The issuers who received the rating only from one agency were excluded from this sample.

Table 2. *The number of ratings assigned by CRAs*

S&P	Moody's	Fitch	Issuers	Number of issues	Average Amount Issued (USD)
x			119	279	241 538 078
	x		40	233	121 037 545
		x	42	85	480 564 970
x	x		64	239	462 195 293
x		x	89	230	555 916 443
	x	x	21	204	271 608 376
x	x	x	115	436	745 725 743

Source: *Own estimates based on data available in the Refinitiv Eikon.*

Figure 1. *The highest, the lowest ratings of CRAs*
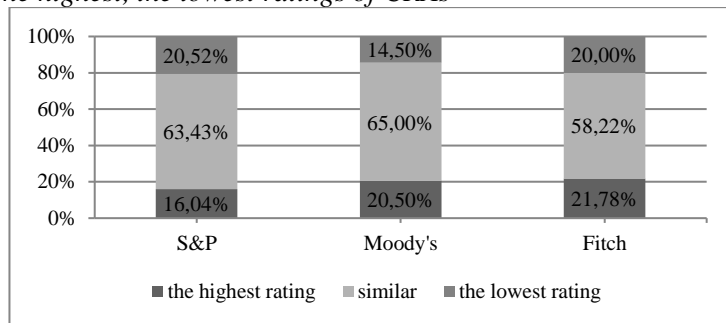
Source: *Own estimates based on data available in the Refinitiv Eikon.*

The comparison of the highest and lowest credit rating awarded by S&P, Moody's and Fitch led to some conclusions. Fitch gave the highest rating to 21.78% of the issuers. Whereas S&P only to 16.04% of the issuers. When analyzing the lowest grade received by the issuers, the situation looks different. S&P gave the lowest rating to 20.52% of the issuers while Moody's to 14.50% of the issuers of green debt instruments (Figure 1).

Figure 2. *Ratings differences between agencies*
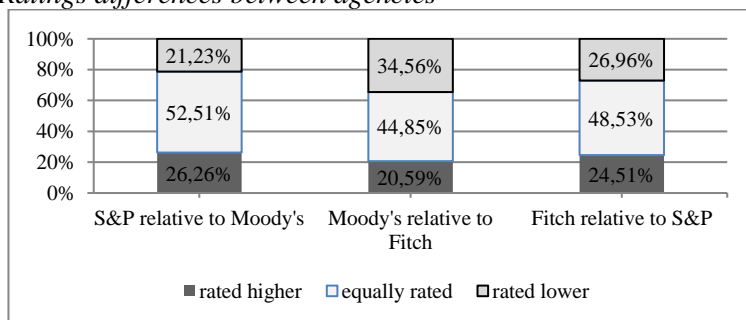
Source: *Own estimates based on data available in the Refinitiv Eikon.*

Furthermore, there are some differences in the ratings given to issuers between agencies (Figure 2). S&P rated higher than Moody's in 26.26% of the cases and the Moody's ratings were lower than Fitch in 34.56% of the cases, whereas S&P gave similar ratings to Moody's in 52.51% of the cases and similar ratings to Fitch in 48.53% of the cases. When comparing the Moody's with the Fitch's ratings, 44.85% of the issuers received the same rating. The Fitch ratings were higher than S&P ratings only in about 24.51% of the cases and lower than the S&P's ratings in 26.96% of the cases.

Figure 3. *Ratings assigned by Moody's, Standard and Poor's and Fitch.*
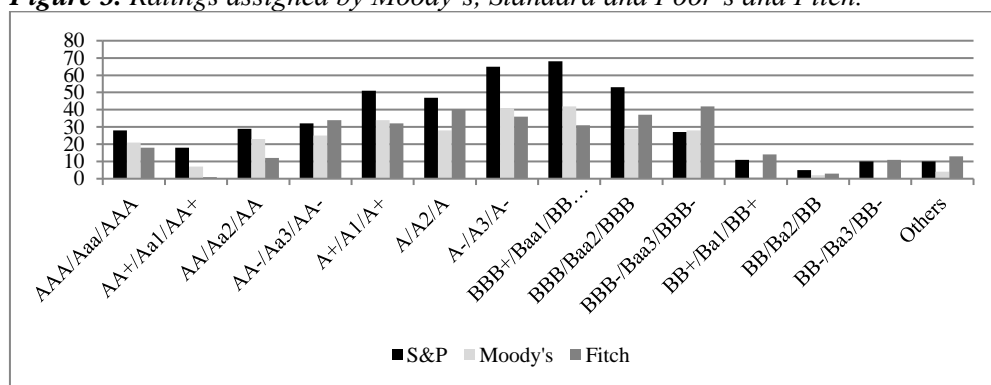
Source: Own estimates based on data available in the Refinitiv Eikon.

Figure 3 shows that A-/A3/A- and BBB+/Baa1/BBB+ ratings prevail among the ratings given to the issuers. The low credit risk was awarded 142 times, with 65 issuers receiving such ratings from Standard & Poor's, 41 from Moody's and 36 issuers receiving such rating from Fitch The moderate credit risk was awarded 141 times, with 68 issuers receiving such ratings from S&P, 42 from Moody's and 31 issuers receiving such rating from Fitch. Whereas the highest quality credit rating (AAA/Aaa/AAA) were received by 67 issuers. The lowest rated and typically in default credit rating was assigned one time by Standard & Poor's.

5. Conclusions

The purpose of this article was to analyse the impact of the number of credit ratings of an issuer of green debt instruments on the number of issues and the average amount of instruments issued. This basically means proving whether a higher number of ratings for an issuer that incurs additional costs result in more issues and a higher average amount of green debt issued.

During the period under analysis, only 44.22% of issuers had credit ratings, while 618 issuers were not rated. Taking into account the number of credit ratings assigned by CRAs to issuers of green debt instruments, the issuers who received ratings from 3 CRAs had the highest average value of issues in USD. Therefore, the research based on data collected from the Refinitiv Eikon Database for the period between 2010 and

2020 allows us to conclude that the higher number of issuer's ratings results in the higher number of issues as well as the higher average amount of issued green debt instruments. The issuers with only one rating, assigned by Moody's, had the lowest average value of issues. On the other hand, the lowest average number of issues was recorded by issuers with only one Fitch rating. In addition, credit ratings assigned to issuers by Fitch were 26.96% below Standard & Poor's and those assigned by Moody's were 34.56% below Fitch. In addition, Standard & Poor's gave lower ratings than Moody's to 21.23% of entities and a similar credit rating to over 50% of issuers of green debt instruments. For green debt issuer ratings, Fitch did not always assign a higher credit rating than Moody's and S&P, as shown in the studies by other authors (Feinberg et al., 2004). The most common credit ratings assigned by CRAs were A-/A3/A- and BBB+/Baa1/BBB+.

The source literature does not include many studies comparing the credit rating of the issuers of green debt instruments in spite of the growth of this market.

References:

Agliardi, E., Agliardi, R. 2021. Corporate Green Bonds: Understanding the Greenium in a Two-Factor Structural Model. Environ Resource Economics. https://doi.org/10.1007/s10640-021-00585-7.

Ammer, J., Packer, F. 2000. How Consistent are Credit Ratings? A Geographic and Sectoral Analysis of Default risk. International Finance Discussion Papers, 668.

Candelon, B., Gautier, A., Petit, N. 2014. Market Power in the Credit Rating Industry: State of Play and Proposal for Reforms. CPI Antitrust Chronicle, 2. https://ssrn.com/abstract=2392989.

Cantor, R., Packer, F. 1997. Differences of opinion and selection bias in the credit rating industry. Journal of Banking & Finance, 21(10), 1395-1417. https://doi.org/10.1016/S0378-4266(97)00024-1.

Cooperman, E.S. 2017. Managing Financial Institutions: Markets and Sustainable Finance. New York, Routledge.

Duff, A., Einig, S. 2015. Debt Issuer: Credit Rating Agency Relations and the Trinity of Solicitude: An Empirical Study of the Role of Commitment. Journal of Business Ethics, 129(3), 553-569. https://doi.org/10.1007/s10551-014-2175-y.

Dziawgo, D. 2010. Credit rating na międzynarodowym rynku finansowym. PWE, Warszawa.

Fabozzi, F. 2007. Bond Market, Analysis, and Strategies 6th Ed. New Jersey, Pearson Prentice Hall.

Feinberg, M., Shelor, R., Jiang, J. 2004. The effect of solicitation and independence on corporate bond ratings. Journal of Business Finance & Accounting 31(9-10), 1327-1352. https://doi.org/10.1111/j.0306-686X.2004.00576.x.

Flaherty, M., Gevorkyan, A., Radpour, S., Semmler, W. 2017. Financing Climate Policies through Climate Bonds–A Three Stage Model and Empirics. Research in International Business and Finance, 42, 468-479. https://doi.org/10.1016/j.ribaf.2016.06.001.

Galil, K., Soffer, G. 2011. Good News, Bad News and Rating Announcements: An Empirical Investigation. Journal of Banking and Finance, 35(11), 3101-3119. https://doi.org/10.1016/j.jbankfin.2011.04.010.

Goh, J.C., Ederington, L.H. 1993. Is bond rating downgrades bad news, good news, or no news for stockholders? The Journal of Finance, 48(5), 2001-2008. https://doi.org/10.1111/j.1540-6261.1993.tb05139.x.

Graham, J.R., Harvey, C.R. 2001. The theory and practice of corporate finance: Evidence from the field. Journal of Financial Economics, 60, 187-243.

Griffin, P., Sanvicente, A. 1982. Common stock returns and rating changes: a methodological comparison. Journal of Finance, 37(1), 103-119. https://doi.org/10.2307/2327120.

Griffith-Jones, S., Ocampo, J.A., Stiglitz, J.E. 2010. Time for a Visible Hand: Lessons from the 2008 World Financial Crisis. Oxford University Press.

Hand, J., Holthausen, R., Leftwich, R. 1992. The effect of bond rating agency announcements on bond and stock prices. Journal of Finance, 47(2), 733-752. https://doi.org/10.2307/2329121.

Harper, J., Kemper, K.J., Sun, L. 2019. Managerial ability and bond rating changes. Financial Markets, Institutions & Instruments, 28(5), 345-401. https://doi.org/10.1111/fmii.12123.

Jewell, J., Livingston, M. 2000. The Impact of a Third Credit Rating on the Pricing of Bonds. Journal of Fixed Income, 10(3). https://doi.org/10.3905/jfi.2000.319275.

Morgan Stanley. 2017. Behind the green bond boom, Morgan Stanley. Retrieved from: https://www.morganstanley.com/ideas/green-bond-boom.

Opp, C.C., Opp, M.M., Harris, M. 2013. Rating agencies in the face of regulation. Journal of Financial Economics, 108, 46-61. https://doi.org/10.1016/j.jfineco.2012.10.011.