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Development of Green Bonds in Indonesia

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ABSTRACT

Purpose –This paper explains the development of Green Bonds in Indonesia by providing information regarding the characteristics of green bonds and macroeconomics during the 2018 – 2023 period.
Methodology/approach –Research that provides information regarding the characteristics of green bonds and macroeconomics by collecting data on 29 green bonds issued in the 2018 - 2023 period.
Findings –It was found that from the results of descriptive statistics the research variables in the form of Maturity, Rating, Coupon, BI Rate, Inflation and Exchange Rate can explain the development of Green Bonds in Indonesia from the 2018 - 2023 period.
Novelty/value –Because green bonds were only issued in 2018, it is very important to understand the development of Green Bonds in Indonesia by looking at the characteristic variables of green bonds along with macroeconomic variables on the first date of green bond issuance.

INTRODUCTION

Awareness of environmental issues and climate change has increased. For a long time, the issue of considering environmental aspects in every action, especially in business and business, has been a main topic of discussion in various international forums. This is supported by a large number of studies and studies showing the dangers posed by climate change. Currently, the Paris Agreement is the main source of international law used in every discussion forum, policy formulation, and drafting of regulations related to climate change. Furthermore, the sustainable development goals compiled in a document entitled "Transforming Our World: The 2030 Agenda for Sustainable Development" were ratified through UN General Assembly Decision No. A/RES/70/I,4, which are now known as the Sustainable Development Goals (SDGs). The document contains 17 goals and 169 objectives intended to encourage development that places the principle of sustainability as a top priority.

SDGs require investment that is free from fossil oil and greenhouse gases, as well as industries that exploit natural resources intensively. For this reason, the sustainable development goals contained in the SDGs are essential to support signatory countries to the Paris Agreement to achieve their NDC commitments. SDGs began at the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012 and made the agenda for dealing with climate change clear and on target. By achieving the targets set out in the SDGs, the results will have an impact on the level of achievement of the NDC commitments of the countries that are signatories to the Paris Agreement. On the other hand, the carbon neutral goal and NDC commitments of the Paris Agreement participating countries will encourage participating countries to implement the sustainable development goals stated in the SDGs.(Setiawati et al., nd).

One strategy for solving the problem of environmental conservation and climate change is sustainable development, which considers three dimensions simultaneously: economic, social and environmental. Countries must prepare financial instruments that can accommodate the SDGs goals by minimizing the risk of natural damage to welcome this big agenda. Because Indonesia is one of the countries with the highest level of vulnerability to disasters, the use of Green Bonds is very important to minimize material losses due to disasters. The most frequent hydrometeorological natural disasters in Indonesia are drought and flood. This increase is caused by sustainable development that does not pay attention to the environment. When sustainable development does not pay attention to the environment more and more, it will affect climate change and ultimately lead to drought and floods. As a result, this will have an impact on the economy, which in turn will disrupt human survival as a whole.(Mutmainnah & Romadhon, 2023)

Currently known as green bonds, or green bonds, which means environmentally sound bonds. This is a green bond that is new to Indonesia, although it has enormous potential. In terms of funding, the alternative offered to investors is green bonds, which provide costs to overcome environmental damage or change a hot environment to a cool or green one.

In this case, the capital or financing provided will fully focus on environmental management for projects in the KUBL (Environmentally Responsive Business Activities) category, namely projects for renewable resources.Companies that use Environmentally Friendly Bonds (Green Bonds) are committed to supporting the achievement of various sustainable development goals outlined in the Sustainable Development Goals (SDG), which have also been ratified by the Government of the Republic of Indonesia. The company does this by providing funds to business and infrastructure projects that can help. It is hoped that the company can finance projects in other fields that are included in the KUBL category, such as sustainable pollution prevention and control, energy efficiency, and empowering clean water and waste management (Husnan Su' ad and Pudjiastuti Enny, 2004). By supporting these projects, the Company will indirectly help achieve several SDG goals, such as "Clean and Affordable Energy" and "Tackling Climate Change". In addition, the Company will support the Indonesian government's program to handle healthy greenhouse radiation.(At-Tibasiy et al., nd).

The green debt securities used in Indonesia are not much different from the green debt securities used by the World Bank. According to POJK No.60/POJK.04/2017, only environmental business activities can be funded by green bonds. In addition, at least seventy percent of the proceeds from the Green Bond Public Offering must be allocated to business activities related to the environment. Environmental experts are people, groups, or institutions that have the ability to assess, verify, or test environmental business activities only. They will manage the mechanism for selecting business activities.(Haddad & Rokhim, 2022).

According to(Siswantoro, 2018), as investors seek profits and a good reputation from these bonds, the demand for green bonds is very high. This can be a reward for companies to show that they care about environmental issues. The demand for green bonds is directly related to climate change issues because they provide credit to investors, so investors must ensure that they have a good reputation.

The aim of this research is to see how green bonds function in the secondary market. Green bond investors are not the same as sharia investors, who may have market dominance. Investors may choose to buy or sell green bonds for various reasons in the secondary market. This research provides the results of descriptive analysis in the form of green bond characteristic variables along with macroeconomic variables to show the development of green bonds in Indonesia.

LITERATURE REVIEW

According to research conducted in Indonesia (Ye & Dela, 2023), green financing is financing or loans provided to companies that operate in an environmentally friendly manner. Alternative financing and business loans are supported by green financing policies. Investment and funding aimed at sustainable development is driven by green finance, which reduces negative impacts on the environment and promotes improvements in environmental quality.

Undoubtedly, one of the greatest threats facing humanity today is climate change. By weakening the foundations of business, climate change can impact both financial and non-financial sectors. Public knowledge about the dangers of climate change has increased public pressure on environmental sustainability and performance. As a result, businesses are more vulnerable to carbon risks. Therefore,

in recent years, policymakers around the world have sought to reduce emissions as awareness of the dangers of climate change has increased.(Khurram et al., 2023)

National or international public policies should encourage private or public organizations to seek alternative ways of funding sustainable projects. One alternative available is the issuance of green bonds. Investors should consider that the green bond market is more profitable than regular bonds because there are incentives from the supply side (De Deus et al., 2022).

Green bonds are financial instruments issued by governments, financial institutions, or companies to fund projects that have a positive impact on the environment, such as environmentally friendly or sustainable projects. These projects are generally funded to reduce carbon emissions, increase energy efficiency, or conserve natural resources.(Bachelet et al., 2019). There are several characteristics of a green bond, including:

1. Coupon

The coupon is the interest value that bond holders receive regularly, usually paid every three or six months. This interest is expressed as an annual percentage.

2. Maturity

Maturity is the date on which the bond holder will receive payment back for the entire value of the bond or the total. Bond maturities vary from one year to five years.

3. Green Bond Rating (Rating)

One of the most important components in determining greenium is credit rating, which is defined as the difference between the yield of a green bond and a conventional bond with the same features (Zerbib, 2018). Credit rating is an evaluation carried out by a credit rating agency on the intrinsic credit capacity of a prospective debtor. Credit ratings can implicitly estimate the probability of a debtor defaulting.

Macroeconomic growth is one of the domestic factors that influences bond market movements, which influences bond price movements and interest rates. Macroeconomics can be used to analyze policies such as economic growth, inflation, employment, and consistent balance of payments in uncertain global economic conditions (Sianturi & Sihombing, 2020).

1. Rupiah exchange rate (exchange rate)
   The exchange rate, also known as the currency exchange rate, is the price that shows the value of one country's currency to obtain the price of another country's currency. The exchange rate used can use JISDOR.JISDOR is the USD/IDR spot price, which is prepared based on the USD/IDR transaction rate against the rupiah between banks on the Indonesian foreign exchange market, through the Foreign Exchange Transaction Monitoring System against the Rupiah (SISMONTAVAR) at Bank Indonesia in real time. JISDOR is intended to provide a representative market price reference for USD/IDR spot transactions on the Indonesian foreign exchange market
2. Bank Indonesia Reference Interest Rate (BI Rate)
   The Bank Indonesia interest rate, also known as the BI Rate, is the interest rate announced periodically by Bank Indonesia for one month. As the new policy interest rate, the BI 7-Day (Reverse) Repo Rate instrument is used because it can influence the money market, banking and real sector quickly and has a stronger relationship with the benchmark interest rate than the previous policy interest rate. Bank Indonesia's reference interest rate can be accessed viawww.bi.go.idor via the BI Mobile application.
3. Inflation
   Inflation is a general increase in prices where prices are determined by supply and demand over a certain period of time. This has the effect of increasing interest rates along with inflation.

METHOD

The research method is based on quantitative data regarding the characteristics of green bonds and macroeconomics in Indonesia. Data is taken from the Company's financial reports by accessing the official Bank Indonesia website, namelywww.bi.go.idor via the "BI Mobile" application and the Indonesia Bond Pricing Agency (IBPA) by visiting PHEI (Indonesian Securities Price Appraisal PT) at the Indonesian Stock Exchange Building.

Variable measurements in this research used descriptive statistical analysis which was processed using the Excel program. This research was conducted using data on the first date of issuance of green bonds and

macroeconomics in Indonesia in the period 2018 to 2023. Descriptive statistical analysis will provide information regarding the development of Green Bonds in Indonesia by looking at the characteristic variables of green bonds along with the macroeconomic variables in Indonesia.Green bonds issued by governments and corporations were selected as samples from companies with complete financial reports. This research aims to determine the character of green bonds in the form of Maturity, Rating and Coupon variables and macroeconomic factors in the form of BI Rate, Inflation and Exchange Rate variables.

Table 1. List of Green Bonds registered with the Indonesia Bond Pricing Agency (IBPA)

No	Bond Code	Bond Name	Issued Date	Maturity Date	Coupon	Rating	BI Rate	Inflasi	Kurs
1	PBSG001	SBSN Seri PBSG001	22-Sep-22	9/15/2029	6.625%	-	4.25%	5.95%	15033
2	SNI0323	Eurobonds Indonesia, 2023-4	1-Mar-18	1-Mar-23	3.750%	BBB-	4.25%	3.40%	13793
3	SNI0625	Eurobonds Indonesia, 2025-3	23-Jun-20	23-Jun-25	2.300%	BBB	4.25%	1.96%	14265
4	SNI0632	Eurobonds Indonesia, 2032-2	6-Jun-22	6-Jun-32	4.700%	BBB	3.50%	4.35%	14462
5	SNI0651	Eurobonds Indonesia, 2051-2	9-Jun-21	9-Jun-51	3.550%	BBB	3.50%	1.33%	14262
6	SNI0824	Eurobonds Indonesia, 2024-4	20-Feb-19	20-Aug-24	3.900%	BBB-	6%	2.57%	14055
7	SNI1128	Eurobonds Indonesia 2028-3	15-Nov-23	15-Nov-28	5.400%	-	6%	2.86%	15503
8	SNI1133	Eurobonds Indonesia 2033-2	15-Nov-23	15-Nov-33	5.600%	-	6%	2.86%	15503
9	FRSDG001	Obligasi Negara Republik Indonesia Seri FRSDG001	27-Oct-22	15-Oct-30	7.375%	-	4.75%	5.71%	15573
10	BBNI01AGN	Obligasi Berwawasan Lingkungan (Green Bond) I PT Bank Negara Indonesia (Persero) Tbk Tahun 2022 Seri A	21-Jun-22	21-Jun-25	6.350%	AAA	3.50%	4.35%	14804
11	BBNI01BGN	Obligasi Berwawasan Lingkungan (Green Bond) I PT Bank Negara Indonesia (Persero) Tbk Tahun 2022 Seri B	21-Jun-22	21-Jun-27	6.850%	AAA	3.50%	4.35%	14804
12	BBRI01AGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap I Tahun 2022 Seri A	20-Jul-22	30-Jul-23	3.700%	AAA	3.50%	4.94%	14984
13	BBRI01AGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap II Tahun 2023 Seri A	17-Oct-23	27-Oct-24	6.100%	AAA	6%	2.56%	15718
14	BBRI01BGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap I Tahun 2022 Seri B	20-Jul-22	20-Jul-25	5.750%	AAA	3.50%	4.94%	14984
15	BBRI01BGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap II Tahun 2023 Seri B	17-Oct-23	17-Oct-25	6.350%	AAA	6%	2.56%	15718
16	BBRI01CGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap I Tahun 2022 Seri C	20-Jul-22	20-Jul-27	6.450%	AAA	3.50%	4.94%	14984
17	BBRI01CGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank BRI Tahap II Tahun 2023 Seri C	17-Oct-23	17-Oct-26	6.300%	AAA	6%	2.56%	15718
18	BMRI01AGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank Mandiri Tahap I Tahun 2023 Seri A	4-Jul-23	4-Jul-26	5.800%	AAA	5.75%	3.08%	15018
19	BMRI01BGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I Bank Mandiri Tahap I Tahun 2023 Seri B	4-Jul-23	4-Jul-28	6.100%	AAA	5.75%	3.08%	15018
20	GNSMII01ACN1	Green Bond Berkelanjutan I Sarana Multi Infrastruktur Tahap I Tahun 2018 Seri A	6-Jul-18	6-Jul-21	7.550%	AAA	5.25%	3.08%	14409
21	GNSMII01BCN1	Green Bond Berkelanjutan I Sarana Multi Infrastruktur Tahap I Tahun 2018 Seri B	6-Jul-18	6-Jul-23	7.800%	AAA	5.25%	3.08%	14409
22	OPPM01AGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap I Tahun 2023 Seri A	12-Oct-23	22-Oct-24	6.500%	A+	6%	2.56%	15702
23	OPPM01AGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap II Tahun 2023 Seri A	12-Dec-23	22-Dec-24	7.000%	A+	6%	2.61%	15631
24	OPPM01BGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap I Tahun 2023 Seri B	12-Oct-23	12-Oct-26	10.500%	A+	6%	2.56%	15702
25	OPPM01BGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap II Tahun 2023 Seri B	12-Dec-23	12-Dec-26	10.500%	A+	6%	2.61%	15631
26	OPPM01CGNCN1	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap I Tahun 2023 Seri C	12-Oct-23	12-Oct-28	11.000%	A+	6%	2.56%	15702
27	OPPM01CGNCN2	Obligasi Berwawasan Lingkungan Berkelanjutan I OKI Pulp & Paper Mills Tahap II Tahun 2023 Seri C	12-Dec-23	12-Dec-28	11.000%	A+	6%	2.61%	15631
28	SKSMFP01SOCN1	Sukuk Musyarakah Berwawasan Sosial Berkelanjutan I Sarana Multigriya Finansial Tahap I Tahun 2023	22-Dec-23	22-Dec-28	6.900%	AAA	6%	2.61%	15489
29	SMFP01SOCN1	Obligasi Berwawasan Sosial Berkelanjutan I Sarana Multigriya Finansial Tahap I Tahun 2023	22-Dec-23	22-Dec-28	6.900%	AAA	6%	2.61%	15489

Source: Indonesian Bond Pricing Agency

DISCUSSION AND DISCUSSION

Green bonds were first issued in Indonesia in 2018 by PT Sarana Multi Infrastruktur (Persero). However, since then, several other issuers have also issued green bonds as part of efforts to support environmentally friendly projects. From 2018 to 2023, there were 29 green bonds issued. The following is the development of the number of green bonds issued for the 2018-2023 period.

Table 2. Number of Green Bonds Issued for the 2018-2023 period

Information	2018	2019	2020	2021	2022	2023	Total

Number of Green Bonds	3	1	1	1	8	15	29

Source: Indonesian Bond Pricing Agency

Table 2. Descriptive statistics describe data with minimum, maximum, average values (mean). The maximum and minimum values are used to indicate the highest and lowest values for each variable, and the mean value is used to indicate the average value of each variable (Ghozali 2018). The following are the results of descriptive statistics for each variable:

Table 3. Descriptive Statistical Analysis of Research Variables for the 2018-2023 Period

Variable	Min	Max	Mean	Standard Deviation	Number of Green Bonds
Maturity	1	30	5.24	5.30	29
Ratings	1	6	4.31	1.89	29
Coupons	2.3%	11%	6.56%	2.16%	29
BI Rate	3.5%	6%	5.10%	1.08%	29
Inflation	1.33%	5.95%	3.28%	1.14%	29
Exchange rate	13,793	15,718	15,103	589.34	29

Source: Microsoft Excel Data Processing

The results of descriptive statistical exploration for 2018-2023 with a total of 29 green bonds issued show that Maturity was found to have a minimum value of 1 year. This value shows that from 2018 to 2023, the maturity value with the green bond codes BBRI01AGNCN1, BBRI01AGNCN2, OPPM01AGNCN1, and OPPM01AGNCN2 is low, while the maximum value of 30 years comes from the maturity value with the high value green bond code SNI0651. According to(Bachelet et al., 2019), the maturity date also known as the life of a green bond, is the date on which bondholders will receive repayment of the principal or face value of their bonds. Green bonds have terms ranging from 365 days to more than 5 years. Maturity risk is present in all green bonds, and is related to the maturity period of green bonds, generally the longer the maturity of the green bond, the greater the level of uncertainty associated with the maturity of the green bond. The statement states that the maturity value with the green bond code SNI0651 has a term of 30 years, there is a large level of uncertainty related to the maturity of green bonds. The average value (mean) is 5.24 with a standard deviation of 5.30. If the standard deviation is the same as the mean value, the variation in the data in the sample is very low. In this context, each data value tends to be close to the mean value, indicating that the data has little variation, this indicates that the data tends to be more homogeneous or uniform. The average value shows that there are 24 issuers issuing green bonds with a low level of uncertainty regarding the maturity of green bonds. Meanwhile, issuers with a high level of uncertainty are related to the maturity of green bonds, namely with the green bond codePBSG001, SNI0632, SNI0651, SNI1133, and FRSDG001.

According to (Abhilash et al., 2023) green bond ratings are usually given by credit rating agencies and indicate how well green bonds meet sustainability and environmental impact standards. The green bond rating in the descriptive statistical analysis of this research uses a code, where a green bond with an AAA rating has a value of 6, an AA rating has a value of 5, an A+ rating has a value of 4, a BBB rating has a value of 3, a BBB- rating has a value of 2, and no rating has a value of 1. Rating Green bonds were found to have a minimum value of 1 which came from the green bonds sampled. This value shows that from 2018 to 2023, green bonds that do not have a rating with green bond codes PBSG001, SNI1128, SNI1133, and FRSDG001 have low value, this will result in small net profits obtained so that the quality of the green bonds will be less good. the low value green bond rating is government green bonds, while the maximum value of 6 comes from corporate green bonds with green bond codes BBNI01AGN, BBNI01BGN, BBRI01AGNCN1, BBRI01AGNCN2, BBRI01BGNCN1, BBRI01BGNCN2, BBRI01CGNCN1, BBRI01CGNCN2, BMRI01AGNCN1, BMRI01BGNCN1, GNSMII01ACN1, GNSMII01BCN1, SKSMFP01SOCN1 and SMFP01SOCN1, where the company

has a AAA green bond rating in the research year period. The average or mean value is 4.31 with a standard deviation of 1.89. If the standard deviation value is less than the mean value, it indicates that most of the data tends to be close to the mean value, this indicates that the data distribution has less variation compared to the mean value, which indicates that there is consistency or lack of dispersion in the data. With an average value of 4.31, it shows that 14 green bonds were issued with a AAA green bond rating.

A green bond coupon reflects the regular interest payments due to the bondholder over the life of the bond. The proceeds from the sale of green bonds generate funds for investment in environmentally friendly or sustainability projects. The coupon value was found to have a minimum value of 2.3%. This value shows that from 2018 to 2023, the coupon value with the green bond code SNI0625 is low, while the maximum value of 11% indicates that the coupon value with the green bond code OPPM01CGNCN1 and OPPM01CGNCN2 is high. According to the Ministry of Finance of the Republic of Indonesia, a coupon is the amount of interest in the form of a percentage of the nominal value of a bond that must be paid regularly. Each coupon is a form of return on the bond issuer's loan to investors which is paid based on the agreed value. The agreed value based on the interest rate then becomes the coupon exchange rate. The higher the bond coupon value, the higher the bond yield. As a result, demand for bonds increases so that bond prices will rise. The coupon value was found to have an average (mean) value of 6.56% with a standard deviation of 2.16%. If the standard deviation value is less than the mean value, it indicates that most of the data tends to be close to the mean value, this indicates that the data distribution has less variation compared to the mean value, which indicates that there is consistency or lack of dispersion in the data. There are 12 green bonds published with a coupon value above average, namely with the green bond code PBSG001, FRDG001, BBNI01BGN, GNSMII01ACN1, GNSMII01BCN1, OPPM01AGNCN2, OPPM01BGNCN1, OPPM01BGNCN P01SOCN1, and SMFP01SOCN1.

According to(Tu et al., 2020), interest rates in the overall financial market, including green bonds, are influenced by these interest rates. Changes in BI interest rates can impact the interest rates offered by green bonds, thereby affecting the value and attractiveness of investments for green bond holders and their issuers. The BI Rate value on the first date of green bond issuance has a minimum value of 3.5% with green bond codes SNI0632, SNI0651, BBNI01AGN, BBNI01BGN, BBRI01AGNCN1, BBRI01BGNCN1, and BBRI01CGNCN1 low value while the maximum value is 6% with green bond codes SNI0824, SNI1128, SNI1133, BBRI01AGNCN2, BBRI01BGNCN2, BBRI01CGNCN2, OPPM01AGNCN1, OPPM01AGNCN2, OPPM01BGNCN1, OPPM01BGNCN2, OPPM01CGNCN1, OPPM01CGNCN2, SKSMFP01SOCN1, and SMFP01SOCN1 are of high value. The Bank Indonesia reference interest rate (BI rate) is the interest rate issued by Bank Indonesia to control the money supply (JUB) in society and also as an instrument for controlling inflation. The reference interest rate in this research variable uses the BI 7 Days Reverse Repo Rate (BI 7 DRR) interest rate set by Bank Indonesia on the first date of green bond issuance. BI Rate data is taken via the official Bank Indonesia website or via the "BI Mobile" application. According to (Rosanti & Sihombing, 2021), BI interest rates vary depending on the country's economy and have an impact on commercial interest rates. Therefore, investors often use interest rates as a measure of their desired level of return and as a reference for making investment decisions. Determination of bond yields by bond sellers refers to the interest rate issued by Bank Indonesia to determine the amount of bond yields. In interest rate theory, when interest rates increase, bond issuers will provide higher yields to bond investors. Conversely, when interest rates fall, bond issuers will provide lower yields to bond investors. The average value (mean) is 5.13% with a standard deviation of 1.07%. If the standard deviation value is less than the mean value, it indicates that most of the data tends to be close to the mean value, this indicates that the data distribution has less variation compared to the mean value, which indicates that there is consistency or lack of dispersion in the data.

According to (Tu et al., 2020), inflation is a general and continuous increase in the prices of goods and services over a certain period of time. An increase in the price of just one or two goods cannot be called inflation unless the increase spreads or results in an increase in the prices of other goods. Inflation on the first date of green bond issuance was found to have a minimum value of 1.33% which came from the inflation value on the first date of green bond issuance. This value shows that from 2018 to 2023, the inflation value with the green bond code SNI0651 is low, while the maximum value of 5.95% comes

from the inflation value with the high value green bond code PBSG001. According to Suparmoko (1990), if the inflation rate is mild (<10%), investors will be interested in investing in this sector, including green bonds. Green bond yields increase due to investors' expectations of the inflation rate. The increase in yields was triggered by profit taking from investors. Rising inflation which has a high risk is a reason for investors to take advantage by demanding high returns. Therefore, when inflation increases, it will also be followed by an increase in green bond yields, in line with research by Kurniasih, Augustina and Yulia Restika (2015) and Santosa and Sihombing (2015). The average value (mean) is 3.28% with a standard deviation of 1.14%. If the standard deviation value is less than the mean value, it indicates that most of the data tends to be close to the mean value, this indicates that the data distribution has less variation compared to the mean value, which indicates that there is consistency or lack of dispersion in the data. The average value (mean) shows that 20 green bonds were issued below the average inflation value and there were 9 green bonds issued above the average inflation value with green bond codes PBSG001, SNI0323, SNI0632, FFRSDG001, BBNI01AGN, BBNI01BGN, BBRI01AGNCN1, BBRI01BGNCN1, and BBRI01CGNCN1.

For green bonds, the rate refers to the current market price of the bond. Green bond rates can reflect financial market conditions and investor interest in environmentally friendly projects. The exchange rate on the first date of green bond issuance has a minimum value of IDR 13,793 with the green bond code SNI0323 while the maximum value is IDR 15,718 with the green bond codes BBRI01AGNCN2, BBRI01BGNCN2, and BBRI01CGNCN2. The effect of changes in exchange rates will cause a country's currency to strengthen or weaken. The strengthening of developing countries' exchange rates against the US dollar, including the Rupiah exchange rate, has an impact on foreign investors' interest in placing their funds in capital markets such as shares and bonds. So changes in exchange rates will affect the price of green bonds. One of the factors causing the depreciation of the rupiah is the decline in production activities due to social restriction policies. The decline in production activities causes a decline in the income of companies that drive the economy, coupled with capital outflows from Indonesia. The exchange rate used in this research uses JISDOR which is set by Bank Indonesia and announced to the public on the first date of issuance of green bonds for the period 2018 to 2023. JISDOR is the USD/IDR spot price, which is prepared based on the USD/IDR transaction rate against the rupiah between banks in the Indonesian foreign exchange market, through the Foreign Exchange Transaction Monitoring System against the Rupiah (SISMONTAVAR) at Bank Indonesia in real time. JISDOR is intended to provide a representative market price reference for USD/IDR spot transactions on the Indonesian foreign exchange market. The average value (mean) is IDR 15,103 with a standard deviation of IDR 589.34. If the standard deviation value is smaller than the mean value, it indicates that most of the data tends to be close to the mean value, this indicates that the data distribution has less variation compared to the mean value, which indicates that there is consistency or lack of dispersion in the data.

CONCLUSIONS AND RECOMMENDATIONS

From the results of descriptive statistical analysis of 29 green bonds issued for the 2018-2023 period, it shows that green bonds on the first date of issue with the codes BBRI01AGNCN1 and BBRI01AGNCN2 had the best maturity and rating values with a maturity value of 1 year and a green bond rating value of 1 year. AAA. Good maturity has a maturity value of less than 5 years because the longer the green bond maturity, the greater the level of uncertainty associated with the maturity of the green bond. If you look at the coupon value, the green bond coupons on the first date of issue that have the largest value are green bonds with the codes OPPM01CGNCN1 and OPPM01CGNCN2. Large coupons can provide higher returns but may come with a higher level of risk due to changes in interest rates or market conditions. It is important to consider your investment goals, risk tolerance, personal financial situation before choosing between small or large coupon green bonds.

Thus, it is hoped that this research can provide information that can be used in making decisions about the benefits that green bonds can provide to company managers who want to save funds by issuing them. Investors are also advised to analyze the company's financial performance and prospects first before investing in green bonds.

The author realizes that this research is still far from perfect because it only discusses descriptive analysis regarding the characteristics of Green Bonds and macroeconomic variables to see the development of Green Bonds in Indonesia. However, other financial instruments can be used to face the threat of climate change, and the authors hope that future research can test other financial instruments.

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