The 1st Proceeding of The International Conference on Economics and Business
Vol.3, No.1 January-June 2024
e-ISSN: 2963-3370; p-ISSN: 2963-3656, Page 13-24

Valuation Of SR018-T3 And SR018-T5 Series Bond For Investment Purposes

Tyta Ripal[1], Ardhi Goeliling[2], NI Nyoman Devi[3], Abdul Rahim Amin[4], Arya Bayu Peringga Putra[5], I Gede Arya Pering Arimbawa[6], A. Fadel Muhammad[7]

[1,2]Universitas Negeri Makassar, [3,4,5]Pasca Sarjana Universitas Bosowa
[6]Poltekpar Bali, [7]Universitas Padjajaran
Email: tytaripalss@gmail.com[1], creaturehouse8427@gmail.com[2], ninyomandevi45@gmail.com[3], aimrahim.abd77@gmail.com[4], aryabayu110@gmail.com[5], arya.pering@gmail.com[6], fadel22007@unpad.ac.id[7]

Abstract. *Retail Government Sukuk (Retail Sukuk) is a sharia investment product offered by the government to individuals. These bonds have the prospect of benefits and interest from investors. This makes this bond product interesting to study. The assessment of Retail Government Sukuk (Retail Sukuk) will provide an overview for investors and increase confidence in making investment decisions. This research describes the analysis process in assessing government bonds with a case study of bonds series SR018-T3 and SR018-T5. The method used in this research is descriptive case study. The data used is secondary data obtained through PHEI. It is hoped that the presentation of the assessment process presented will increase the knowledge of individuals or investors in calculating the value of bonds. The results of this research show that the SR018-T5 value is lower than the nominal value of the SR018-T3 bonds*

Keywords: *Bonds, Investment, YTM*

INTRODUCTION

The capital market is a meeting between parties who have excess funds and parties who need funds by buying and selling securities (Tandelilin, 2017:25). For capital providers, the capital market has a strategic role as an investment vehicle for society, including small and medium investors (Sholikah, Putri, & Djangi, 2022). Meanwhile, for capital seekers, the capital market is a source of financing for the business world, including medium and small businesses for business development.

The capital market according to the law is stated in the Capital Market Law no. 8 of 1995 (Rachmadini, 2020) activities related to public offerings and securities trading, public companies related to the securities they issue, as well as institutions and professions related to securities. The capital market has two functions, namely an economic function and a financial function. It can be classified as an economic function which provides vehicle facilities that have 2 interests, namely excess funds (investors) and required funds (issuers). Meanwhile, the financial function of the capital market is the possibility and opportunity to obtain rewards (returns) for fund owners, according to the investment chosen. In the capital market there are securities instruments that are popular in the community, namely shares and bonds. From year to year, trading in the bond market is now starting to increase between these two types of investments. However, when compared with shares, growth is still quite slow. Capital market

Received: April 15, 2024; Revised: May 17, 2024; June 30, 2024
*Tyta Ripal, tytaripalss@gmail.com

players use bond market conditions that are not ideal, and the general public does not understand bond instruments.

Bonds are a type of financial asset and capital instrument (debt) which is classified as Fixed-Income Capital Market Securities (fixed-income securities) which are bought and sold in the capital market. According to the Indonesian Stock Exchange report (2010), bonds are transferable medium-long term debt securities which contain a promise from the issuing party to pay compensation in the form of interest within a certain period and repay the principal at a predetermined time to the party purchasing the bond. .

According to Sunarjanto and Daniel (2013), investing in fixed income instruments or bonds is attractive for investors because of its advantages in terms of security when compared to shares, namely: (1) the volatility of shares is higher compared to bonds so that the attractiveness of shares is reduced, and (2) Bonds offer a positive rate of return and provide steady income. The returns that can be obtained by bond holders are coupons (interest) received regularly during the investment period until maturity, and potential profits obtained from selling bonds at a price higher than the purchase price. In general, bond prices will increase if savings interest rates decrease.

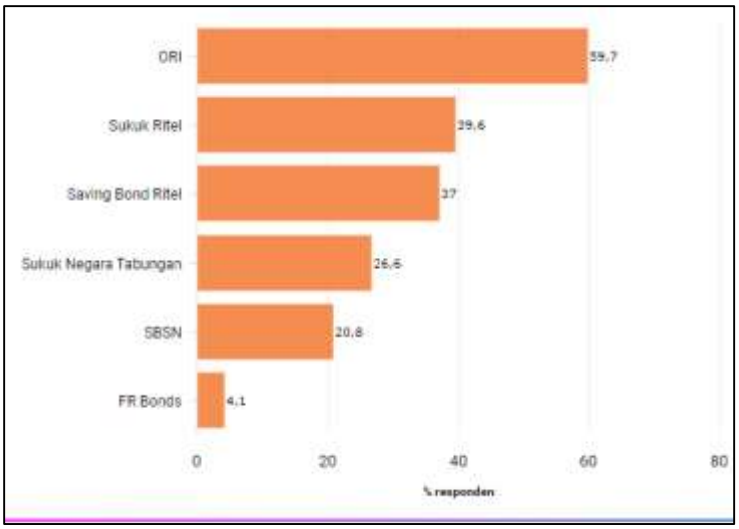
In bond investment, the company issuing the bond has an obligation to pay interest regularly according to a predetermined period of time and the principal at maturity. Bond interest payments may result in a change in the bond's rating. This change results in the possibility of default risk, which is the risk of possible losses caused by the issuer's weak ability to pay interest and bond principal, while changes in bond ratings are one of the factors that influence investment direction and are taken into consideration by investors when investing in the company. Therefore, bond ratings can be said to be an indicator of bond default risk. If there is a downgrade in the bond rating or receives a rating downgrade warning, the company will review several of its policies, for example debts that are increasing must be restrained. Thus, the company will apply accounting conservatism to strengthen financial reports so as to avoid large losses in the future.

Bonds can be used as collateral or collateral to get bank loans. Apart from that, bonds can also be used as collateral to buy shares on the stock exchange. Indonesian people prefer to invest in government bonds rather than corporate bonds. This is known from the investment behavior survey that was heldKatadata Insight Center(KIC) with Zigi.id and Sisi+.

The survey results showed that 86.1% of respondents bought government bonds, while only 26.6% bought corporate bonds. If you look at the type, the best-selling bonds were Indonesian Retail Government Bonds (ORI) which were bought by 59.7% of respondents.

e-ISSN: 2963-3370; p-ISSN: 2963-3656, Page 13-24

Retail Sukuk (SukRi) was the second best-selling government bond, with buyers reaching 39.6% of all respondents. Meanwhile Retail Saving Bonds (SBR) were purchased by 37% of respondents. Furthermore, Government Savings Bonds (ST) were purchased by 26.6% of respondents, and Government Sharia Securities (SBSN) were purchased by 20.8% of respondents. Lastly, fixed rate bonds were purchased by 4.1% of respondents. The total number of respondents in this survey was 1,939 people spread across 33 provinces of Indonesia. The survey was conducted online using a non-probability sampling method, with a margin of error in the range of 2.23%. It can be seen from the following table:



Source: Katadata.co.id, data as of 15 February 2022

To meet people's needs, it is important to invest in the sharia sector, considering that currently the sharia sector economy is experiencing high development, not only in Indonesia but in several Muslim countries such as Malaysia, Bahrain and other Muslim countries. (Nopijantoro, 2017) As the development of the sharia economy makes Indonesia a country with a predominantly Muslim population, Indonesia is in the 10th position in countries with a high level of sharia industrial sector, halal tourism including sharia investment in it. (Feby, 2019) with the increasing demand for the halal investment sector in 2000, the Jakarta Islamic Index (JII) was formed as a sharia capital market, there was a separation between the Indonesian Stock Exchange and the Jakarta Islamic Index so that the public could choose an investment forum that suited their individual wishes. each, because the two platforms have their own criteria according to the point of view of each party, monitored from a sharia perspective, the sharia capital market sector, namely as a tool to support muamalah activities. (Kusuma, 2017).

Along with the development of the Islamic economy in Indonesia, the Sukuk instrument has become one of the financial instruments that is currently developing, and now sukuk is the most powerful Islamic financial instrument. (Haneef, 2009) The presence of sukuk not only

appears in the domestic market, but sukuk instruments also participate in international investment activities. Indeed, sukuk are considered instruments. Sharia finance is able to support global Sharia economic growth.

In this research, the types of State sukuk that will be discussed are retail sukuk SR018-T3 and SR018-T5, where retail sukuk can be used as an investment vehicle for the community to invest their capital individually.

LITERATURE REVIEW

Bond

1. Definition of Bond

Husaini and Saiful (2003) state that a bond is a certificate of proof of debt issued by a limited liability company or certain institutions, both government and other institutions, in order to obtain funds or capital, traded in the public, the issuer agrees to pay a fixed amount of interest for a certain period of time and will repay the principal at maturity.

Bonds can be interpreted as fixed income securities which are issued as proof that bond holding investors provide debt loans to the bond issuer. Bond issuers are generally accompanied by interest coupons that will be paid regularly until the bond matures. Coupons are bond interest income based on the nominal value. (Irawan and Pramono, 2017).

Bonds as an alternative source of funds for companies contain the consequences of periodic interest payments and repayment of bond debt at maturity. Bonds are defined as publicly traded fixed income debt securities where the issuer agrees to pay a fixed amount of interest for a specified period of time and will repay the principal amount at maturity.

Bonds are investment instruments that offer a fixed income to their holders and play an important role in the allocation of funds in financial markets. In an investment context, bonds also provide a different alternative to stock investments, with different risks and potential returns. Bond issuance is a suitable alternative for companies or entities that require funding for long-term projects.

2. Types of Bonds

Based on data from the Financial Services Authority report (2023), the types of bonds in general are:

1) Government Bonds, namely bonds in the form of Government Debt Instruments issued by the Indonesian Government. The government issues bonds with fixed coupons (FR-Fixed Rate series), bonds with variable coupons (VR -Variable Rate series) and bonds with sharia principles/Government Sukuk.

e-ISSN: 2963-3370; p-ISSN: 2963-3656, Page 13-24

2) Corporate Bonds, namely bonds in the form of debt securities issued by Indonesian Corporations, both BUMN and other corporations. Just like government bonds, corporate bonds are divided into bonds with fixed coupons, bonds with variable coupons and bonds with sharia principles. There are Corporate Bonds that have been rated or those that are not rated.
3) Retail Bonds, issued by the Government which are sold to individuals or individuals through selling agents appointed by the Government. Usually there are several types, namely ORI or Retail Sukuk.

3. Bond Characteristics

According to Krisnila (2007), the general characteristics listed on a bond are almost similar to the characteristics of debt loans in general, namely:

1) Bond issuance value (amount of loan funds) In issuing bonds, the issuer will clearly state how much funds are needed through bond sales. The existing term is known as "bond issuance amount". If the company needs IDR 400 billion in funds, bonds worth the same amount will be issued. Determining the size of the bond issuance amount is based on the company's cash flow capabilities and business performance.
2) Bond Term Every bond has a maturity period. The maturity period for most bonds is 5 years. Government bonds can have a term of more than 5 years to 10 years. The shorter the term of the bond, the more attractive it will be to investors because the risk is considered to be smaller. At maturity, the bond issuer is obliged to pay off the principal of the bond.
3) Bond interest rates (coupons) To attract investors to buy these bonds, incentives are given in the form of attractive interest rates, for example 17%, 18% per year. Determining interest rates is usually determined by comparing banking interest rates in general. The term bond interest rate 20 is usually known as the bond coupon. Coupon types can be in the form of fixed rates and variable rates for alternative choices for investors.
4) Interest rate payment schedule The obligation to pay coupons (bond interest rates) is carried out periodically according to previous agreements, which can be done quarterly or semi-annually. The timeliness of coupon payments is an important aspect in maintaining the reputation of the bond issuer

5) Bond guarantees that provide collateral in the form of company assets will be more attractive to potential bond buyers. In issuing bonds, the obligation to provide collateral does not have to be absolute. If you provide collateral in the form of company assets or company receivables, it can be an attractive alternative for investors.

Investment

According to Jogiyanto (2000), investment can be defined as postponing current consumption to be used in efficient production over a certain period of time. 2 Meanwhile, according to Sukirno, investment activities carried out by the community continuously will increase economic activity and employment opportunities, increase national income and increase level of societal prosperity. This role stems from three important functions of investment activities, namely

1. Investment is a component of aggregate expenditure, so an increase in investment will increase aggregate demand, national income and employment opportunities;
2. The increase in capital goods as a result of investment will increase production capacity;
3. Investment is always followed by technological developments,

Bond Valuation

One of the bond assessment factors is that it includes financial elements, so related to the issuance of bond ratings, companies tend to encourage managers to carry out earnings management to influence the acquisition of bond ratings (Sari, 2010).

According to the Financial Services Authority, maturity on a bond is defined as the date when the bond holder will receive repayment of the principal or nominal value of the bond they own. One of the characteristics of bonds is that they have intrinsic value. The intrinsic value of a bond is the theoretical value of a bond, therefore some authors often assess the intrinsic value of a bond as the value of the bond. Intrinsic value is obtained from the estimation of the current value (present value) of all bond cash flows in the future. The value of a bond is influenced by the coupon rate given the maturity date and the principal value. (Tandelilin, 2001:136).

Bonds are assessed in accordance with bond assessments in general, taking into account maturity and interest rates (Rohmat, 2012). The present value of a payment can be calculated by taking into account the nominal future receipts (FV), the number of receipt periods (n) and the discount rate (r). The general formula for present value is,

$$PV = FV \frac{1}{(1+r)^n}$$

Meanwhile, to calculate the present value of annuity payments, the following formula can be applied:

$$PVA = Annuity(\frac{1 - \frac{1}{(1+r)^n}}{r})$$

The discount rate will be a function of the expected cash flow risk, with a higher rate for riskier assets and a lower rate for safer projects. In order for investors to obtain maximum results, analysis is needed in estimating the bond value between the yield and the time to maturity. An analysis that explains the relationship between yield to maturity and bond maturity is called the term structure of interest rates.

Yield to maturity on government bonds is influenced by fundamental macroeconomic factors such as the consumer price index, interest rates, the rupiah exchange rate, and external factors of world oil prices. In addition, the bond interest income received is subject to income tax. The tax withholding rate based on Republic of Indonesia Government Regulation Number 9 of 2021 is 10% (ten percent).

RESEARCH METHODS

The research design applied was descriptive and the research included a case study. The data used is secondary data obtained from the Indonesian Securities Assessment Authority (PHEI) using present value data analysis techniques. The objects studied in this research are SR018-T3 and SR018-T5.

RESEARCH RESULT

Bond valuation is a technique for determining the theoretical fair value of a bond. Bond valuation includes calculating the present value of the bond's future interest payments, also known as its cash flows, and the value of the bond at maturity, also known as its face value or par value. Because the bond's nominal value and interest payments are determined, an investor needs to be observant in paying attention to the bond's rate of return (yield) to determine whether the investment decision is the right one. (Ambari, 2022)

Bond value takes into account two main things, namely the present value of the coupon that will be received, and the present value of the return of the bond purchase. SR018-T3 and SR018-T5 coupons are paid regularly monthly in the same amount (annuity). In calculating the present value, you can apply the annuity formula (PVA). Meanwhile, the return of bond

purchases is carried out once at maturity. Therefore, the determination of present value is calculated using the present value (PV) formula.

The annuity size used is the coupon after being subject to Final Income Tax and n is the number of payment periods. The discount rate is the yield or compound rate of return that investors will return and receive. If the bond buyer holds the bond until maturity, the discount rate is the yield to maturity or often called YTM. In the secondary market, YTM data can be obtained from various sources, including those presented in Table 1. In the case of SR018-T3 and SR018-T5, the payment period (n) used in the calculation is in accordance with the remaining interest payment period. Meanwhile, the size of r is YTM divided by 12 (monthly coupon payment period). The calculation of SR018-T3 and SR018-T5 values with each YTM is presented in Table 3.

Table 1. YTM data for SR018-T3 and SR018-T5 calculations based on PHEI

No.	Product name	YTM
1.	SR018-T3	6.25%
2.	SR018-T5	6.40%

Source: PHEI, data as of 9 August 2023

SR018-T3 Assessment

Indonesia has issued 6 series of 4 types of Retail SBN, namely Retail Government Bonds (ORI), Retail Savings Bonds (SBR), Retail Sukuk (SR), Savings Sukuk (ST). One of the retail sukuk that has been issued is SR018-T3. SR018-T3 offering period 03 March 2023 on the secondary market. SR018-T3 was listed on 03 April 2023 with a maturity date of 10 March 2026. Other information regarding SR018-T3 is that the coupon rate is 6.250% per year, fixed, and the coupon is paid monthly with a tenor of 3 years.

From the SR018-T3 data, the bond value can be calculated. If an investor buys SR018-T3 with IDR 1,000,000.00, he will get a return until maturity. Calculation of coupons received each month by multiplying the coupon interest by the bond purchase nominal, then dividing by 12 months = (6.250% x IDR 1,000,000.00) / 12 = IDR 5,208.33 Coupon after being subject to 10% Final Income Tax becomes IDR 4,687, 5

Income until maturity is equal to the number of coupons obtained by purchasing the initial bond, namely by calculating: (tenor x 12 months x coupon after tax) + nominal bond purchase = (3 x 12 x IDR 4,687.5) + IDR 1,000,000 .00 = Rp. 1,168,750. Thus, if investors buy ORI023 for IDR 1,000,000.00 and hold it until maturity, then on March 10 2026 they will get a return of IDR 1,168,750.

SR018-T5 Assessment

The offering period for SR018-T5 is March 3 2023 - March 29 2023. The settlement date is April 5 2023 with a maturity date of March 10 2028. If investors buy SR018-T5 on the secondary market, amounting to IDR 1,000,000.00, they will get a return of up to maturity which consists of coupons and receipt of purchase returns. SR018-T5 is offered with a coupon rate of 6.40% per year, fixed, and the coupon is paid monthly with a tenor of 5 years.

Calculation of coupons received each month by multiplying the coupon interest by the bond purchase nominal, then dividing by 12 months = (6.40% x IDR 1,000,000.00) / 12 = IDR 5,333.33. Coupon after being subject to 10% Final Income Tax becomes IDR 4,799.97. Income until maturity is equal to the number of coupons obtained by purchasing the initial bond, namely by calculating: (tenor x 12 months x coupon after tax) + nominal bond purchase = (5 x 12 x IDR 4,799.97.) + IDR 1,000,000 .00 = Rp. 1,287,998.2.

Thus, if investors buy SR018-T5 for IDR 1,000,000.00 and hold it until maturity, then on March 10 2028 they will get a return of IDR 1,287,998.2. If we examine this figure, it does not show the value of the bond, because it does not show its present value. Bond valuation needs to take YTM into account. In the secondary market which is sold directly by the government, YTM is the same as the coupon rate. namely 6.40%. However, considering risks, especially market risk, some analysts present YTM that is different from the coupon rate, for example PHEI. As well as considering other risks, YTM levels can vary even though they are still in the secondary market. Therefore, potential investors need to pay attention to choosing the right YTM in the analysis.

Table 2. Government Retail Bond Yield Data

No.	Series	Maturity	Yield (%)
1.	ORI018	0.18	5.8010
2.	ORI019	0.52	5.8242
3.	ORI020	1.19	5.6967
4.	ORI021	1.52	5.7618
5.	ORI022	2.19	5.8827
6.	ORI023-T3	2.93	5.9776
7.	ORI023-T6	5.94	6.1649
8.	SR013	0.09	5.7945
9.	SR014	0.59	5.8287
10.	SR015	1.09	5.9391
11.	SR016	1.59	5.6392
12.	SR017	2.09	5.9295

Source: PHEI, data as of 09 August 2023

In calculating the value of the SR018-T5 bond by taking into account market risk, you can use the YTM rate on a type of bond that is similar to SR018-T5, namely Indonesian government retail bonds. In this case, Indonesian government retail bonds on the market consist

of several series as presented in the previous table. Taking into account the maturity of SR018-T5 on March 10 2028 (5 year tenor), based on PHEI data, the government retail bond series closest to SR018-T5 is ORI023-T6 with a maturity of 5.94 years and a yield of 6.1649%. Then the closest SR018-T3 is ORI023-T3 with a maturity of 2.93 years and a yield of 5.9776%.

With this data, we can determine the YTM for calculating the bond value, based, among other things, on PHEI data of6.1649% And5.9776%, as well as coupon rate values of 6.2500% and 6.400%. The calculation of SR018-T3 and SR018-T5 values with each YTM is as follows:

Table 3. Data from calculated values for SR018-T3 and SR018-T5

No.	Product name	YTM	PVA (RP)	PV (RP)	SR018-T3 & SR018- T5 values
1.	SR018-T3	6.25%	Rp. 14,874.14	Rp. 851,258.60	Rp. 866,132.74
2.	SR018-T3	5.97%	Rp.14,276.94	Rp. 857,230.64	Rp.871,507.57
3.	SR018-T5	6.40%	Rp. 25,364.50	Rp.746,355.03	IDR 771,719.53
4.	SR018-T5	6.165%	Rp. 24,560.50	Rp.754,359.02	Rp. 778,955.52

Source: Data processed

Based on the table above, section SR018-T3, it can be seen that the value of SR018-T3 with a Yiel to Maturity (YTM) of6.25%is Rp.866,132.74. Meanwhile, the SR018-T3 value with a YTM value of5.97%is Rp.871.507.57. This shows that SR018-T3 has a smaller value compared to the nominal value of the bond, where the nominal value is IDR 1,000,000.

Similar to the value of SR018-T3, the value of SR018-T5 is also smaller than the nominal value of the bond. Where is the SR018-T5 value with Yield to Maturity6.40%is IDR.771,719.53Meanwhile, the SR018-T5 value is yield to Maturity6.165%amounting to Rp778,955.52In addition, the value of SR018-T5 is smaller than SR018-T3. This shows that the higher the Yield to Maturity (YTM) discount rate, the lower the bond value will be. The low value of SR018 can be caused by several factors, namely: interest rates, liquidity, ratings, coupons and maturity.

Based on the calculations above, the resulting bond value indicates that the value of SR018-T3 and SR018-T5 is lower than the nominal value of the bond. Based on the data indicating the bond value, data center size can be used using the mean (average). The market value of SR018-T3 on the secondary market on August 9 2023, calculated using the mean (average), is IDR 868,820,155. Meanwhile, the market value of SR018-T5 on the secondary market on August 9 2023 is calculated using a mean of IDR 775,337,525. This can be a reference for potential investors in purchasing SR018-T3 and SR018-T5 on the secondary market.

Bond valuation considers YTM figures from various sources and ensures that the data sources are accurate. On the agreed valuation date, the final value of the bonds can be considered based on the average of the resulting value indications. One way potential investors can make their investment decisions is by generating market value through bond valuation. Prospective investors can consider the results of the assessment when the purchase decision is made and negotiate with the selling agent.

CONCLUSION

There are differences in yield levels (Yield to Maturity/YTM) which cause different values for these bonds. In SR018-T3, with a YTM value of 6.25%, a PV (Present Value) value of IDR 851,258.60 was obtained and an annuity PV value of IDR 14,874.14. After calculations, the final value of the SR018-T3 bond is IDR 866,132.74.

Meanwhile, in the case of SR018-T5 with a YTM value of 6.40%, a PV value of IDR 746,355.03 was obtained and an annuity PV value of IDR 25,364.50. After calculations, the final value of the SR018-T5 bond is IDR 771,719.53.

From these data it can be concluded that changes in the rate of return (YTM) have an impact on bond valuation. The difference in YTM between SR018-T3 and SR018-T5 results in different final values for both. This shows the importance of understanding and calculating YTM accurately in assessing the value of a bond, because changes in YTM can directly affect the intrinsic value of the bond.

BIBLIOGRAPHY

Ambari, CF, & Anisah, F. (2022). Valuation of Government Bonds for Investment Purposes. Indonesian Rich Journal, 3(1), 54-60.

Indonesia stock exchange. Indonesian Capital Market Directory 2007-2010. Jakarta: Indonesian Stock Exchange

Haneef, R. (2009). From “asset-backed” to “asset-light” structures: The complicated history of sukuk. ISRA International Journal of Islamic Finance, 1(1), 103-126.

Husaini and Saiful (2003), "The Effect of Bond Issuance on Stock Risk and Returns", Journal of Management and Business, Vol. 5 No. 1, p. 35-46.

Irawan, I., & Pramono, C. (2017). Determinants of Financial Company Bond Price Factors on the Indonesian Stock Exchange.

Jogianto. 2000. Portfolio Theory and Investment Analysis, second edition BPFE. Yogyakarta.

Krisnilasari, M. (2007). Analysis of the Effect of Bond Liquidity, Coupons and Bond Maturity Period on Changes in Bond Prices on the Surabaya Stock Exchange (Doctoral dissertation, Diponegoro University Postgraduate program).

Nopijantoro, W. (2017). Government Sharia Securities Project Based Sukuk (SBSN PBS): An Alternative Instrument for Public Participation in Infrastructure Financing. Substance, 1(2), 390-406.

Financial Services Authority. Definition and Types of Bonds. Accessed at the linkhttps://sikapiuangmu.ojk.go.id/FrontEnd/CMS/Article/364, August 9, 2023

Rachmadini, VN (2020). Legal Protection for Investors in the Capital Market According to the Capital Market Law and the Financial Services Authority Law. Pen Justisia: Communication Media and Legal Studies, 18(2).

Rohmat. 2012. Teaching Materials for Business Assessment for the Diploma III Finance Specialization Program in State Treasury. BOOTH.

Sari, SRK (2010). Earnings Management Practices Related to Bond Ratings. XIII National Accounting Symposium Vol, 1.

Sholikah, FP, Putri, W., & Djangi, RM (2022). The Role of the Capital Market in the Indonesian Economy. ARBITRATION: Journal Of Economics And Accounting, 3(2), 341.

Sunarjanto, NA, & Tulasi, D. (2013). The ability of financial ratios and corporate governance to predict bond ratings for consumer goods companies. Journal of Finance and Banking, 17(2).

Tandelilin, E. (2017). Capital Markets Portfolio & Investment Management (G. Sudibyo, Ed.). Yogyakarta: PT Kanisius

Tandelin, Eduardus, (2001) "Investment Analysis and Portfolio Management", First Edition, Kanisius, Yogyakarta 2001.