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Behavioral Financial Perspective of Government Bonds During Covid 19 Pandemic

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ABSTRACT

The COVID-19 pandemic causes changes in social and economic life. Research on the impact of Covid 19 on various aspects continues to be carried out, including on investor behavior and its impact on the capital market, but very few discuss the impact of Covid 19 on debt instruments such as government bonds. This study tries to examine the impact of Covid 19 in terms of financial behavior by using Covid 19 fear as a psychological element using data from Google Trends, also testing the number of Covid 19 deaths and the number of Covid 19 cases on Indonesian government bond yields. The results show that fear of covid 19 and death of covid 19 positively affected yield, and the cases of covid 19 negatively affected yield. Investors are trying to take advantage of the negative sentiment from the Covid 19 by buying government bonds which causes an increase in bond price and a decrease in yield. This study contributes to behavioral finance theory on fixed-income investment, especially government bonds.

KEYWORDS: Bonds, Government Bonds, Yields, Covid 19, Behavioral Finance

1. INTRODUCTION

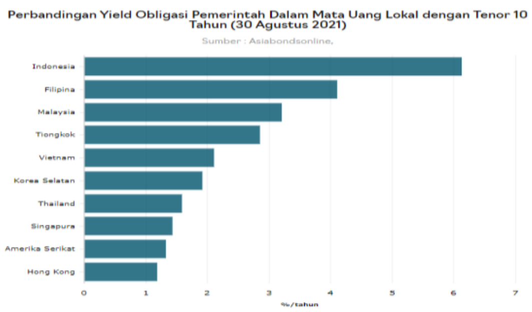
Currently, there are various types of investment instruments, both in the real sector such as property, commodities (gold), equity (shares), deposits, and debt instruments (bonds) both government and corporate. The bond market plays an important role as an alternative source of financing in today's growing world economy, for investors by buying bonds they can earn fixed income in the form of bond coupons that are paid every period before maturity. Nowadays, government bonds are becoming one of the investment instruments that are increasingly in demand because their investment capital is very affordable. One Indonesia Government bond namely Surat Berharga Negara (SBN)/ government securities issued since 2002 recorded a total order of up to Rp 76.75 trillion. The largest nominal occurred when the Retail Sukuk series SR013 was issued in August-September 2020 which reached Rp. 25.66 trillion (Pryanka, 2020).

Meanwhile, the yield on the 10-year tenor government bond on June 11, 2020, rose 0.22% or 1.60 basis points (bps) to 7.294%, 100 bps equivalent to 1%. The increase in yield indicates the price of this instrument is falling. The development of the COVID-19 virus became the main focus of investors which ultimately affected investors' psychology. Therefore, it is natural for investors to be a bit anxious. This concern was shown by releasing assets in the Indonesian financial market. Foreign capital flows are reluctant to enter Indonesia as long as data and perceptions have not improved (Haryanto, 2020).

In September 2020 the yield of SBN (government securities) with a tenor of 10 years, which is the benchmark for yields on government bonds, decreased by 0.10 basis points to the level of 6.949% while the price closed higher. Yield moves in the opposite direction of price, so a decrease in yield indicates rising bond prices. And vice versa, when the price decrease, the yield increase which indicates an increase in the risk for the bond (Pranata, 2020).

From Asiabondsonline.com, the yield of Indonesian government bonds in local currency (10-year tenor) was 6.12% as of August 30, 2021. This value is higher than bonds issued by governments of countries in Asia. The yield on Surat Utang Negara (SUN)/government bonds is also higher than the United States (US) government bonds, which are the reference for global investors.

Figure 1
Comparative Government Bonds Yield-Tenor 10



Source: katadata.co.id

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The emergence of the Covid 19 virus in 2020 was an unexpected event that was never imagined before. The existence of this virus has not only shaken the health side but also the economic and business side. The nature of the virus, which spreads very quickly, has caused governments in various parts of the world to take action to prevent the spread of the virus, such as a lockdown policy or large-scale social restrictions (PSBB) policy in Indonesia. This causes the economy to slow down due to limited physical activity, many employees being laid off, rising unemployment, and declining international trade which ultimately puts countries in an economic recession (Boettke & Powell, 2021). The negative sentiment of Covid 19 is also reflected in the financial world and the economic system ((Phan & Narayan, 2020).

With the emergence of Covid 19, many topics for research on the impact of Covid 19 have emerged in various aspects, including the economic field. Several studies have shown the influence of Covid 19 on capital markets in the world such as Liu, et al (2020), He, et al (2020) Sutrisno et al., (2021), Buszko et al., (2021), as well as research in Indonesia was conducted by Nia (2020), Saraswati (2020). This is a real study of the impact of Covid 19 on capital markets in various countries.

The high rate of cases and deaths due to Covid 19 causes fear in itself for the community which ultimately causes anxiety in various aspects of life (Aslam, Mohti, et al., 2020). Several researchers tried to use a new proxy of Covid 19 as fear of Covid 19 on the stock market such as Lyocsa et al., (2020) and Salisu & Akanni (2020), while Al Awadi & Alhamdi (2020) examined the effect of the number of cases and Covid 19 deaths on stock price index. Fear of Covid-19 was also investigated on government bonds by Vianez et al., (2021) and Andries et al., (2020) examining the case and death rates of sovereign credit default swaps. Involving the fear of Covid 19 in financial research is an attempt to consider behavioral/psychological factors in financial research.

Research on Covid 19 in Indonesia using a proxy for the number of cases and deaths of Covid 19 was carried out by Retnoningsih and Naufa (2021) in the Indonesian capital market. However, to the best of our knowledge, research on the impact of fear of COVID-19, which is a psychological factor in Indonesia, has not been studied, either on the capital market or state bonds. Even though the level of fear of Covid 19 also has an impact on the behavior of investors who are psychologically affected.

The majority of research on the impact of Covid 19 in Indonesia is carried out on the capital market or financial performance, no one has tried to test research on bonds, especially government bonds. Research on government bonds, which is an important part of global trading, is still rare (To et al., 2022). Even though, the study of government bond yields is very crucial from a capital markets perspective, it affects investors' returns and portfolio rebalancing strategies (Papavassiliou, 2021).

So in this study, we analyze the rate of cases and deaths of Covid 19 and add the impact of fear of Covid 19 on government bond yields. We start with the assumption that these fears should increase the country's risk perception due to the negative effect of the pandemic on fiscal fundamentals. The higher the risk that is expected to increase the yield required to invest in public debt (bonds), especially government bonds.

2. LITERATURE REVIEW

2.1 Behavioral Financial Theory

The behavioral financial theory is a study about how psychological phenomena affect financial behavior. Before the emergence of behavioral finance theory, there were traditional theories or fundamental economics that linked finance with economic theory with the assumption that all participants had the same information in the market (Abdullah et al., 2020). In addition, most of the internal factors that because irrational actions are psychological (Sahi et al., 2013) and also become the basis for desires, motivations, and sources of error due to possible overconfidence, misperceptions, illiteracy, and incompetence to control emotions, especially negative ones (Michailova & Schmidt, 2016; Meier & De Mello, 2019).

Behavioral finance attempts to explain and improve understanding of the patterns of investor reasoning as well as the emotions involved and levels in the decision-making process. Making financial decisions, especially investments, apart from being influenced by fundamental factors, is also influenced by various psychological biases of each investor (Yuningsih and Taufiq, 2019).

From a behavioral finance perspective, investor sentiment is a factor that goes beyond traditional explanations based on the information content of bond structures and macroeconomic factors (Vianez et. al., 2021). Laborda and Olmo (2014) find that the risk premium of bonds can be explained by dynamic investor sentiment as a predictive factor that becomes more relevant during periods of recession.

The emergence of the Covid-19 pandemic is also to be a consideration for investors to make investments, whether it is investments in real assets, the capital market, or debt instruments (bonds). This study provides new literature regarding the fear of COVID-19 among investors in government bonds.

2.2 Bonds Yield

Bonds are debt securities that promise to provide periodic payments within a certain period (Mishkin, 2017), while according to Abundanti and Vikaria (2013) Bonds are an investment instrument in the form of a letter issued by a party to obtain a certain amount of funds and will be returned when maturity with periodic interest/coupon payments according to the specified agreement.

Bonds can be issued by companies (corporate bonds) and by the government (government bonds). Government bonds are the main reserve asset for central banks and a very popular investment asset for retail and institutional investors

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(Vasileiou, 2021). For a country, bonds are one of the important financing alternatives besides bank financing through loans. Bonds help a country raise development funds. Investors who invest in bonds will get returns, which are known as yields. The risk contained in a bond will affect the level of return expected by investors, known as bond yields.

Bond yield is the return that investors get from investing a certain amount of funds in a bond. Bonds that have a greater risk tend to get a higher yield when compared to bonds that have a lower risk. The bond yield rate that will be received by these investors will change in line with changes in economic conditions, both micro and macro. The yield of these bonds reflects the performance of a bond which will later be useful as information in decision-making by investors. A declining yield indicates low investment risk in bonds, thereby increasing bond prices, and vice versa. Before investing in bonds investors should know the determinant yield, such as maturity, nominal value, coupon, and market interest rates (Mita Nia & Hamzah, 2021).

This study uses 10-year government bonds as a reference for an overall yield of government bonds.

2.3 Covid 19

After WHO announced Covid 19 as a global pandemic, the economy in various parts of the world experienced a decline which led to government intervention (Zaremba et al., 2020). The rapid spread of the COVID-19 virus and the high mortality rate creates fear and panic over the world (Nicomedes & Avila, 2020). Keyword searches related to Covid 19 increased sharply on internet search sites, and there was even a scarcity of masks in the market due to impulsive purchases from the public.

In a short time, many types of research have emerged on the impact of the Covid-19 pandemic on various aspects such as sharing economy (Batool et al., 2020), and socio-economic (Nicola et al., 2020a), health policy (Nicola et al., 2020b). Research analyzing the impact of Covid 19 on the financial performance of companies was investigated by Esomar and Christianty (2021), Siswati (2021), Ilhami, and Thamrin (2021), or how COVID-19 affects the credit portfolio of financial institutions (Yarovaya et al., 2020a).

The impact of Covid 19 on financial markets is an interesting topic to discuss for academics. Several studies have analyzed the impact of Covid 19 on the capital market (Al-Awadhi et al., 2020; Baker et al., 2020; Gao et al., 2021). Research on Covid 19 on the capital market and capital market policies in Indonesia was researched by Retnoningsih and Naufa (2021), impact of Covid 19 on the financial performance of companies on the Indonesia Stock Exchange and the Indonesian capital market was also carried out by several other researchers, such as by Sutrisno, et al (2021), Saraswati (2020), and Haryanto (2020). However, this effect is rarely analyzed in the fixed income market although Grund (2020) notes that the emergence of COVID-19 caused the sovereign bond spread to increase rapidly. Andries et al. (2020) considering the increase in the number of deaths due to COVID-19-related infections and quarantine measures, there is an increase in the risk premium for sovereign bonds. Meanwhile, Ettmeier et al. (2020) show an increase in interest rates along the yield curve.

So far, Covid-19 research is considered an external factor that affects financial markets, but in fact, it can also be studied from a behavioral perspective (Vianez et. al (2021). Fear of Covid 19 causes psychological effects on the community which can also be considered in terms of behavior that will affect financial markets, this has been proven by Samuel et al., (2020).

Based on previous studies, it can be seen that there are a few types of research on the impact of Covid 19, both on equity instruments and some on bonds. As far as we know, research in Indonesia on the impact of Covid 19 is mostly done on the capital market, no one has researched the impact of Covid 19 on a fixed income like bonds. Whereas government bonds are also one of the investment options that are no less attractive. So this study will examine the effect of Covid 19 on 10-year government bonds. In this study, the Covid 19 proxy was in the form of the number of Covid 19 cases and deaths as in the research of Retnoningsih and Naufa (2021) and Andries, et al. (2020), and added a psychological perspective for financial behavior that fear of Covid 19 proxied by volume of data searches with terms related to Covid 19 such as coronavirus, covid 19, coronavirus, in Indonesia using Google Trends (Vianez, et al. (2021) This is the difference and novelty of this research that has never existed in Indonesia.

Based on the description above, the hypotheses of this research are:

H1: There is an effect of fear of Covid 19 on government bond yields

H2: There is an effect of the number of cases and deaths of Covid 19 on government bond yield

3. METHODOLOGY

3.1 Research Design

This research is a quantitative study with an explanatory approach that explains the effect of Covid 19 on the yield of 10-year government bonds. The data collection method is documentation. The type of research data is secondary data. The population of this research is government bonds with a tenor of 10 years because the government bonds with a tenor of 10 years are the reference bonds for all types of bonds. The research sample is the weekly yield of 10-year government bonds for a period of January 1, 2020, to December 31, 2020. The data analysis technique used is multiple linear regression testing using the Views 12.

3.2 Variable Operational Definition

Government bond yield is proxied by the weekly yield of 10-year government bonds from January 1, 2020, to December 31, 2020. The data are obtained from investing.com, worldgovernmentbond.com, and asianbondsonline.adb.org.

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Fear of Covid 19 proxied by search volume of a historical term like "covid 19", "virus corona", and "corona" in Indonesia area using Google Trends (https://trends.google.com/trends/) during the period January December 2020. The use of Google Trends is one of the big data in this study. Meanwhile, cases and death of Covid 19 proxied by the amount of cases and deaths in Indonesia obtain from ourworldindata.org

Table 1
Determination Coefficient

R-squared	0.848936	Mean dependent var	6.970904
Adjusted R-squared	**0.839494**	S.D. dependent var	0.588867
S.E. of regression	0.235918	Akaike info criterion	0.023142
Sum squared resid	2.671561	Schwarz criterion	0.173238
Log likelihood	3.398300	Hannan-Quinn criter.	0.080685
F-statistic	89.91535	Durbin-Watson stat	0.842484
Prob(F-statistic)	0.000000		

Table 2
Hypothesis Testing (T-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.702346	0.078147	85.76610	**0.0000**
Fear of COVID19	0.008025	0.000768	10.44873	**0.0000**
Deaths	0.000131	4.40E-05	2.967591	**0.0047**
Cases	-5.25E-06	1.35E-06	-3.893411	**0.0003**

4. RESULT

4.1 Determination Coefficient

Based on table 1, the number of Adjusted R-Square (R2) is 0.839 or 83.9%. This shows that the percentage of the contribution of the independent variable fear of Covid 19 (X1), the number of deaths (X2), and the number of cases (X3) on the Yield variable (Y) is 83.9%. While the remaining 16.1% is influenced by other factors outside the regression model.

4.2 Hypothesis Testing Results

The data has been tested for classical assumptions and normality tests with the results passing the classical assumptions and normality tests.

Based on the regression results in table 2, the following regression equation can be formulated:

Yield = 6,702346 + 0,008025 fear of Covid19 + 0,000131 deaths – 5,25x10-6 cases + ε

The results of the hypothesis testing in this study can be explained as follows:

1. Variable Fear of Covid 19 (X1)

The results of the regression analysis test show that the probability value is 0.0000, meaning that it is smaller than 0.05, so H1 is accepted. This means that the fear of the Covid 19 variable has a significant influence on Yield.

2. Variable Number of deaths (X2)

The results of the regression analysis test show that the probability value is 0.0047, meaning that it is smaller than 0.05, so H2 is accepted. This means that the variable number of deaths has a significant influence on Yield.

3. Variable Number of cases (X3)

The results of the regression analysis test show a probability value of 0.0003, meaning that it is smaller than 0.05, so H2 is accepted. This means that the variable number of cases has a significant influence on Yield.

5. Discussion

The results of the fear of COVID-19 test have a positive effect on the yield of 10-year government bonds. The fear of COVID-19 variable was obtained from Google Trends by using the search keywords "Covid 19", "Corona", and "Virus Corona" in Indonesia. This is in line with previous research by Vianez, et al., (2020) and Andries et al., (2020). The impact of fear of Covid 19 on the yield of government bonds was supported by Naeem et al., (2021) which shows fear is associated with bond markets. In addition, this result is explained by market uncertainty causes a lack of investor purchasing power of bonds which causes a decrease in bond prices and increasing yield (Mita Nia & Hamzah, 2021). The results of this study provide new evidence that fear of Covid 19 does not only affect stock investment instruments but also government bond investments which increase government bond yields.

The results of the Covid-19 death rate have a positive effect on the yield of 10-year government bonds. This result shows that the rising Covid-19 death rate will cause rising in government bond yields. The higher Covid-19 death rate causes negative investor perceptions of economic conditions and tends to sell bonds to secure their assets so that bond prices fall which of course makes bond yields rise.

This study is in line with the results of research by To et al., (2022) which stated that Covid 19 cases and deaths have

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a significant relationship with volatility in the bond market. Suler & Polan's research (2021), shows the results that countries affected by Covid 19 are very strong, such as Italy, which has more stable yields than countries that are not as bad as Italy. This result also supported by Retnoningsih and Naufa (2021) showed that Covid 19 especially the new death has the biggest influence on the capital market.

The results of testing for the cases of Covid-19 harm the yield of 10-year government bonds. The Covid-19 case harms government bond yields. This shows that when COVID-19 cases rise, investors are looking for opportunities to get cheap investments by buying bonds, which causes bond prices to rise and yields to fall. Investors prefer to buy bonds when economic conditions are unstable because bonds tend to be less risky than stocks.

The results of the Covid 19 cases are contrary to the death of Covid 19 on the yield of 10-year tenor government bonds, which means that investors are trying to take advantage of the negative sentiment from the Covid 19 case by buying government bonds, in addition, the investor still has an expectation for. economic conditions. But when the Covid 19 case caused increased deaths, investors began to lower their expectations of the market which eventually took the opposite action, namely selling government bonds to secure their assets and causing bond yields to increase.

According to Mita Nia & Hamzah (2021), purchasing activities will increase bond prices and reduce yield in the short term. But in the long term, economic recovery by the government will increase inflation which marks an increase in economic activity. Bond prices will be distorted, especially high tenor bonds, and investors will begin to release bonds. An increase in yield will be demanded by investors as a risk compensation that must be borne.

This study is in line with Ashraf (2020) who provides empirical evidence that stock markets react more proactively to the growth in the number of confirmed cases than to the growth in the number of deaths. The number of cases could incorporate the expected losses in the economy, because the higher the COVID-19 cases, the lower the productivity and the fear of the investors, which leads to greater risk aversion.

From a behavioral finance perspective, this result supports previous studies such as Muldur et al. (2019) that sentiment in the risky bond can explain bond risk premiums. Naeem et al., (2021) also show that investors' sentiments toward vulnerable stock markets' behavior made their shift over time in asset allocation, including to the bond market.

These results show that behavioral factors, such as fear may be better indicators to explain investor decisions, and Google Trends as a big data may be a useful tool to proxy psychological factors quantitatively incorporate the behavioral influence on financial models (Vasileiou, 2021).

6. CONCLUSION

Since the COVID-19 pandemic, economic and social conditions have changed. The impact of COVID-19 on finance and the stock market has been carried out several times, both from a financial perspective and from a behavioral finance perspective. However, there is little literature that discusses its impact on debt securities markets, especially in bonds in Indonesia. This study tries to discuss the impact of Covid 19 from the perspective of financial behavior on debt securities like government bonds.

This study aims to empirically examine the effect of fear of Covid 19, deaths of Covid 19, and cases of Covid 19 on the yield of 10-year tenor government bonds. The results of the research empirically prove that the increasing fear of Covid 19 and the death of Covid 19 causes the increasing yield of 10-year government bonds to rise. However, the rising rate of Covid-19 cases caused the yield of 10-year government bonds to decline. During the Covid-19 pandemic which caused unstable economic conditions, investors needed to consider their investment portfolio by looking for low-risk investment instruments that still provide optimal returns, such as 10-year government bonds.

The findings of this study contribute to the behavioral finance theory that the Covid 19 factor which is a psychological factor also affects investor behavior in investing, including investing in government bonds that have low risk. This research on policymakers implies that policymakers need to improve health facilities to deal with the Covid 19 virus, including increasing the number of vaccinations in the community. On the other hand, policymakers need to stimulate the economy through both fiscal and monetary policies to make the economy more stable and gain public trust. Economic stimulation can also prevent increases in the debt financing cost by the government.

Recommendation for future research is to conduct research at the regional level such as in Southeast Asian countries. Another recommendation is included the efforts of policymakers in maintaining economic stability and can compare the impact of Covid 19 on other fixed-income investment instruments.

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