



Credit Risk and Market Risk on Stock Prices (Study on the Banking Sector Listed on the IDX in 2019-2021)

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Abstract

This study aims to determine effect of credit risk and market risk on stock price. This research was conducted on bank sector listed on Indonesia Stock Exchange in 2019-2021. The research method used is descriptive and verification with a quantitative approach. The sampling method is purposive sampling method, obtained 37 companies with 111 observations. The data analysis technique used in this research is panel data regression analysis with E-Views 12 software. The results of this study show that either partially or simultaneously credit risk and market risk has a significant effect on stock prices.

Keywords: credit risk, market risk, NPL, NIM, stock price

Introduction

The Covid-19 pandemic has significantly impacted the Indonesian economy, particularly the capital market. Investors and analysts are concerned about the potential for a recession and economic crisis due to the economic slowdown. Temporary closures of companies can also affect the capital market. Companies experiencing significant revenue declines may experience a decline in stock prices due to the pandemic. This decline can impact the global economy, particularly large companies and finance-related companies. The stock market in Indonesia experienced a sharp drop in share prices, with the Composite Stock Price Index (JCI) decreasing in 2020 and increasing in 2021. This indicates a decrease in the JCI during the pandemic. It can be seen in Figure 1 that the Composite Stock Price Index (JCI) in 2019 of IDR6,299.54 decreased in 2020 by IDR5,979.07 and increased in 2021 by IDR6,581.48. This shows a decrease in the JCI in 2020 when the pandemic occurred.

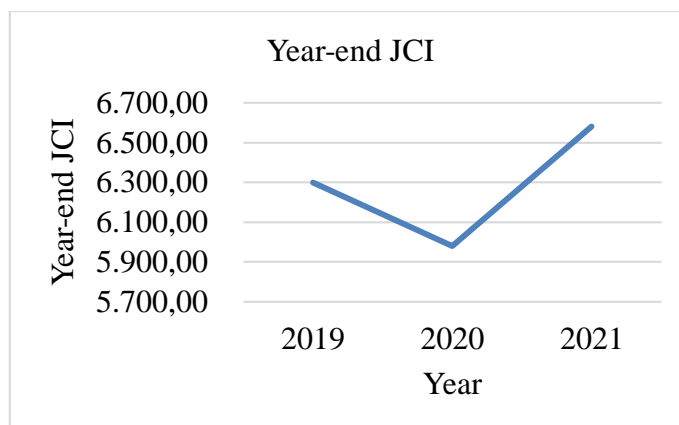


Figure 1 JCI Chart 2019-2021

Source: idx.co.id (data processed)

The stock market in Indonesia before Covid-19 was quite stable as reflected by the JCI (Saragih et al. 2021). However, in March 2020 the JCI in Indonesia decreased significantly in line with the information that Covid-19 had entered Indonesia as shown in Figure 2.

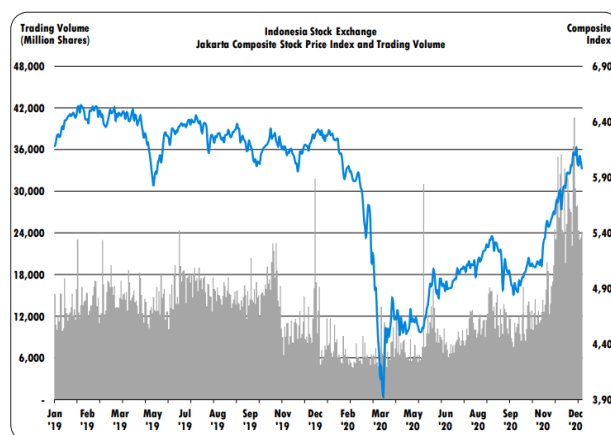


Figure 2 Chart of Jakarta Composite Stock Price Index and Trading Volume

Source: idx.co.id (2020)

One industry that is under pressure from the outbreak of the Covid-19 virus is the banking sector. Banking has a very large role in increasing economic growth and community welfare (Korompis, Murni, and Untu 2020). According to Piter Abdullah (2020) as Research Director of the Center of Reform on Economics (CORE) Indonesia stated that banking has a big role in driving the national economy (Kontan.co.id, 2020). It was further explained that the main drivers of the national economy are consumption, investment, and export and import activities where banks have a big role in these three activities. Piter Abdullah (2020) added that the biggest role of banks in the economy is as intermediary institutions, namely providing financing in consumption and production activities (Kontan.co.id, 2020). Since the presence of the Covid-19 pandemic outbreak, the Bank has limited the amount of lending but needs to pay a service fee to deposit customers. This condition encourages banks to focus on reducing the risk of default by creditors, but the impact of government policies that impose social restrictions and regional quarantine has caused many businesses to experience difficulties in moving their business and potentially defaulting. Bank income is mostly earned through interest income

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from lending to the public. If interest income decreases and bank income experiences a slump, it will reduce the bank's share price (Putri 2020).

Based on Figure 3, it shows the average share price of the banking sector which has decreased in 2019-2021.

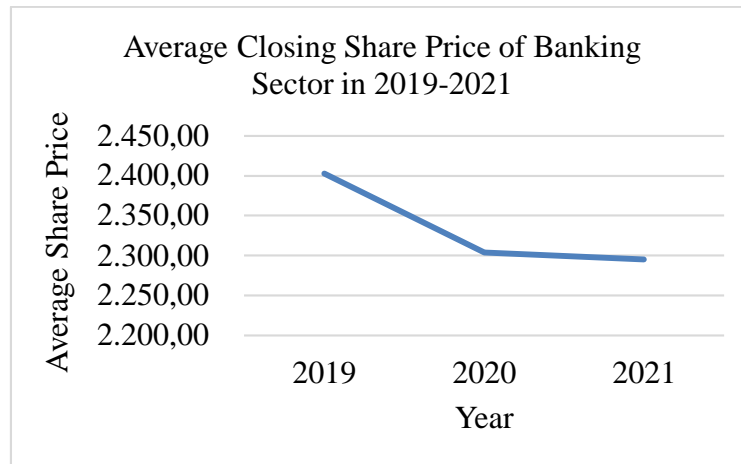


Figure 3 Graph of Average Banking Sector Closing Share Prices
Source: idx.co.id (data processed)

Based on Figure 4, it shows that the share prices of several banking sector companies have decreased due to the Covid-19 pandemic in 2020. Shares with the BBNI code in 2019 amounting to IDR 7,850 decreased in 2020 to IDR 6,175. Shares coded BBTN in 2019 amounting to 2,120 decreased in 2020 by Rp830. Shares with the code BBRI in 2019 amounting to Rp4,400 decreased in 2020 by Rp4,170. Shares with the code BBTN in 2019 amounting to Rp2,120 decreased in 2020 by Rp830. Shares with the code BDMN in 2019 amounting to Rp3,950 decreased in 2020 by Rp3,140. Shares with the code BMRI in 2019 amounting to Rp7,675 decreased in 2020 by Rp6,325. Shares with the code MAYA in 2019 amounting to Rp9,100 decreased in 2020 to Rp7,650.

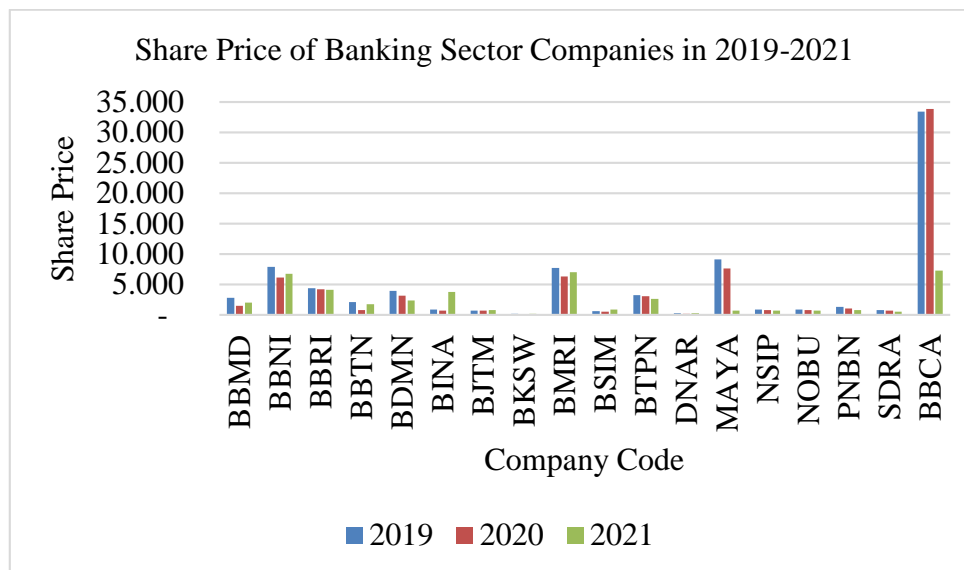


Figure 4 Graph of Average Closing Share Prices of Banking Sector Companies in 2019-2021
Source: idx.co.id (data processed)

The movement of stock prices can be influenced by one of the fundamental aspects (Taslim and Manda, 2021). It is further explained that fundamental aspects are aspects that determine the movement of stock prices because they provide an overview that has an analytical and explicit nature for shareholders on the realization of management in managing the company. These fundamental aspects are credit risk proxied by Non Performing Loan (NPL) and market risk proxied by Net Interest Margin (NIM).

One of the bank's jobs is to provide credit to customers with the consequence of credit risk or significant losses (Belo 2010). Nida Sahara in (Investor.id 2020) reveals that credit risk is caused by the inability of debtors to pay off their obligations in the form of interest and principal to the bank. In the midst of the Covid-19 pandemic, the banking sector is needed to help businesses that are under pressure both through credit restructuring and new lending so that the main challenge for banks this time is to maintain credit quality so as not to lead to bad credit or Non Performing Loan (NPL) (Kontan.co.id, 2020). Credit risk measurement can be projected using Non Performing Loan (NPL). Bank Indonesia No.13/3/PBI/2011 sets the maximum NPL ratio at 5% of total loans, which indicates that banks that have an NPL ratio below 5% are able to manage risk well because they can minimize their credit. The number of debtors struggling to repay loans increased during the COVID-19 pandemic (Tirto, 2020). NPLs in March were at 2.77%, up from the NPL level recorded in December 2019 at 2.53% (Kontan.co.id 2020).

Companies that have high NPLs cause higher credit risk, resulting in a decrease in profits (Harun, 2016). It is further explained that based on signaling theory, investors will receive signals regarding their interest in investing in shares in the company which will have an impact on the decline in stock prices.

Based on Table 1 Based on the table above, the NPL ratio with the BBNI company code in 2019 of 2.30% increased in 2020 by 4.30% and then decreased in 2021 by 3.70% along with a decrease in the 2019 share price of IDR 7,850 to IDR 6,175 in 2020 and an increase in the share price in 2021 of IDR 6,750. The company code BBRI with an NPL ratio in 2019 of 2.62% increased to 2.94% in 2020 and increased again in 2021 by 3.08% along with a decrease in the 2019 share price of IDR 4,400 to IDR 4,170 in 2020 and IDR 4,110 in 2021. The company code BMRI with an NPL ratio in 2019 of 2.39% increased in 2020 by 3.29%, decreased in 2021 by 2.81% along with a decrease in the share price in 2019 of IDR 7,675 to IDR 6,325 and increased in 2021 by IDR 7,025. This shows that bank health can be a benchmark for investors to buy shares in the company concerned.

Table 1 NPL and Stock Prices of Banking Sector Companies in 2019-2021

No	Code	NPL			Share Price		
		2019	2020	2021	2019	2020	2021
1	BBNI	2,30	4,30	3,70	7.850	6.175	6.750
2	BBRI	2,62	2,94	3,08	4.400	4.170	4.110
3	BMRI	2,39	3,29	2,81	7.675	6.325	7.025
4	BTPN	0,80	1,20	1,70	3.250	3.110	2.620
5	DNAR	2,95	3,52	3,00	236	173	292

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6	MAYA	3,85	4,09	3,93	9.100	7.650	660
7	NSIP	1,72	1,93	2,36	845	820	670
8	BBCA	1,30	1,80	2,20	33.425	33.850	7.300

Source: idx.co.id (data processed)

Another fundamental aspect that affects stock price movements is market risk proxied by Net Interest Margin (NIM). Market risk as a risk that occurs in companies that experience losses due to market price movements, price changes in fixed income instruments, equity instruments, commodities, currency exchange rates, and related off-balance sheet contracts (Greuning and Bratanovic, 2011). Market risk can be measured by NIM which can evaluate the bank's ability to manage interest rate risk, when interest rates change, interest income and interest expenses will change (Koch and Scott, 2006). It is further explained that NIM shows the ability of bank management in managing its productive assets to generate net interest income.

Companies that have a low NIM value, the less effective the company is in placing the company's assets in the form of credit so that the bank's interest income decreases (Kurniadi, 2012). It is further explained that based on signaling theory, investors will receive signals related to their interest in investing in shares in the company which will have an impact on the decline in stock prices. Based on Table 2, it shows that the NIM ratio of the BBNI code company decreased in 2019 by 4.90% to 4.50% in 2020 and increased by 4.70% in 2021 along with a decrease in the 2019 share price of IDR 7,850 to IDR 6,175 in 2020 and increased in 2021 by IDR 6,750. The company with the code BBTN with a NIM ratio of 3.32% in 2019 decreased to 3.06% in 2020, increased in 2021 by 3.99 along with a decrease in the 2019 share price of IDR 2,120 to IDR 830 and increased to IDR 1,730 in 2021. The company with the code BMRI with a NIM ratio of 5.46% in 2019 decreased in 2020 by 4.48%, increased in 2021 by 4.73% along with a decrease in the 2019 share price of IDR 7,675 to IDR 6,325 in 2020 and then increased in 2021 by IDR 7,025. This shows that bank health can be a benchmark for investors to buy shares in the company concerned.

Table 2 NIM and Stock Prices of Banking Sector Companies in 2019-2021

No	Code	NIM			Share Price		
		2019	2020	2021	2019	2020	2021
1	BBNI	4,90	4,50	4,70	7.850	6.175	6.750
2	BBTN	3,32	3,06	3,99	2.120	830	1.730
3	BKSW	2,56	1,61	2,34	180	106	192
4	BMRI	5,46	4,48	4,73	7.675	6.325	7.025
5	BSIM	7,31	6,25	5,79	585	505	875
6	DNAR	5,47	5,25	5,09	236	173	292
7	MAYA	3,61	0,47	0,69	9.100	7.650	660
8	NSIP	3,96	3,96	3,82	845	820	670
9	NOBU	3,93	3,62	3,46	890	825	710
10	BBCA	6,20	5,70	5,10	33.425	33.850	7.300

Source: idx.co.id (data processed)

Based on Table 1.1 NPL and Stock Prices of Banking Sector Companies in 2019-2021 and Table 1.2 NIM and Stock Prices of Banking Sector Companies in 2019-2021. It can be seen that the BBNI, BMRI, MAYA, NSIP, and BBCA stock codes show that when the NPL ratio increases, the NIM ratio decreases which is in line with the decline in stock prices that year. This shows that between NPL and NIM together are thought to have an effect on stock prices.

Research regarding each research variable has been reviewed by previous studies, but the coherence of each variable has not been comprehensively studied. Research related to credit risk on stock prices as conducted (Belo, 2010), shows that credit risk has a negative effect on changes in stock prices. Furthermore, researchers tested the relationship of credit risk partially to stock prices using the Non Performing Loan (NPL) proxy as a measurement. The research that has been done finds that NPL has a negative and significant effect on stock prices (Taslim and Manda, 2021; Brastama and Yadnya, 2020; Zuliyana and Valendra, 2021). This shows that the higher the NPL ratio, the lower the stock price so that it will be a signal for investors in making their investment decisions. In addition, companies that have a high NPL ratio value will increase costs, either the cost of productive asset reserves or other costs (Taslim and Manda, 2021). It is further explained that this will worsen the bank's performance and have an impact on stock prices.

In contrast to (Fatma 2021; Nugroho, Halik, and Arif 2020; Ziliwu and Wibowo 2020) which found that NPL has a significant positive effect on stock prices which indicates that the higher the NPL the higher the stock price. This shows that the average increase in the percentage of banks is still at a reasonable level, which is below 5% (Medyawicesar, Tarmedi, and Purnamasari 2018). It is further explained that any increase in the NPL ratio is in line with the increase in stock prices so that investors do not question the ratio in making their investment decisions. The research that has been conducted found that NPL has a positive but insignificant effect on stock prices (Parapat, Erlina, and Tarmizi 2022).

As for research related to market risk proxied by Net Interest Margin (NIM) on stock prices, it has been found that NIM has a positive and significant effect on stock prices (Nugroho and Rachmaniyah, 2020; Purwanti, 2020; Taslim and Manda, 2021). This shows that the higher the NIM ratio, the higher the stock price. The NIM information provides a signal to investors in making investment decisions (Taslim and Manda, 2021). It is further explained that NIM is a source of bank income so that it will affect profits which will have a positive impact on stock prices. Further research found that NIM has a positive but insignificant effect on stock prices (Parapat et al, 2022).

In contrast to research that finds that NIM has a negative but insignificant effect on stock prices (Dinaa and Mandasari 2021; Hadi, Ambarwati, and Haniyah 2021; Indiani and Dewi 2016; Yudistira and Adiputra 2020). This shows that the more NIM increases, the lower the stock price. It is further explained that the ratio information does not affect investors' decisions to invest which makes the stock price increase (Dinaa and Mandasari 2021). A high NIM ratio cannot be a reference for banks to have high profits because it goes hand in hand with the high operating costs that must be incurred dikeluarkan (Indiani and Dewi 2016). In addition, several studies show that credit risk proxied by NPL and market risk proxied by NIM

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together have a significant effect on stock prices (Larasati, Isynuwardhana, and Muslih 2017; Medyawicesar et al. 2018; Nugroho and Rachmaniyah 2020; Taslim and Manda 2021; Zuliyana and Arista Valendra 2021).

Based on previous research that has been conducted, there are still differences in findings. This study contributes to the determinants of stock price movements during the Covid-19 pandemic event with credit risk and market risk which may have an influence on stock prices as a measure of company health in front of interested parties.

Based on the phenomena previously described, the researcher conducted a study entitled "The Effect of Credit Risk and Market Risk on Stock Prices (Study on the Banking Sector Listed on the IDX in 2019-2021)". This study has a problem formulation, namely whether credit risk and market risk partially and simultaneously have a significant effect on stock prices in banking sector companies listed on the IDX. The purpose of this study is to determine the effect of credit risk and market risk partially and simultaneously have a significant effect on stock prices in banking sector companies listed on the IDX.

This research aims to provide theoretical and practical benefits to investors by examining the relationship between credit risk and market risk to stock prices. It aims to increase knowledge and references for academics, enhance investor literacy, and provide input for companies to consider the variables in making decisions related to their capital market activities. The research's theoretical benefits will be useful in making investment decisions, while practical benefits will increase knowledge and references for researchers and investors.

Literature Review

Signal Theory

Spence (1973) who first suggested that signaling theory is a sender who provides a signal or signal containing information that describes the company's situation that is beneficial to the recipient. The signal sender is a management while the recipient is an investor. Signals or cues are management actions to find out more about the company's internal information and the company's prospects in the future to be submitted to investors. Information published by the company to investors will be reviewed and analyzed first whether it is indicated as a positive signal or a negative signal (Mustakini, 2010). Investors first analyze the published information whether it is a good signal or a bad signal.

Bank Health Level

According to Bank Indonesia Circular Letter No.6/23/DPNP 2004, the health level of a bank is the result of a qualitative assessment of various aspects that affect the condition or performance of a bank through an assessment of capital factors, asset quality, management, profitability, liquidity, and sensitivity to market risk. Bank health assessment consists of several aspects, one of which is the Risk Profile which consists of credit risk profile, liquidity risk profile, market risk profile, operational risk profile, legal risk profile, strategic risk profile, reputation risk profile, and compliance risk profile.

Credit Risk

Based on Bank Indonesia Circular Letter No.13/24/DPNP in 2011, credit risk is the risk that occurs due to the failure of debtors and/or other parties to fulfill obligations to banks (Surat Edaran Bank Indonesia, 2011). Credit risk can be proxied by the Non Performing Loan (NPL) ratio. Based on Bank Indonesia Regulation No. 13/3/PBI/2011, the maximum NPL ratio is 5% of total loans. If the NPL ratio is below 5%, it shows that the bank can manage its credit risk well because the company is able to minimize its credit which will have a good impact on the assessment of the bank's financial performance (Zuliyana & Arista Valendra, 2021).

Market Risk

Based on Bank Indonesia Circular Letter No. 13/24 / DPNP in 2011, market risk is the risk in balance sheet positions and administrative accounts including derivative transactions, due to changes in overall market conditions, including the risk of changes in option prices (Surat Edaran Bank Indonesia, 2011). Based on the standards set by Bank Indonesia, the minimum NIM ratio is 6% (Zuliyana & Arista Valendra, 2021). It is further explained that the greater the NIM ratio obtained by the company, the higher the interest income on productive assets managed by the company, which indicates that the bank's financial performance is getting better.

Share Price

Jogiyanto (2017) states that, the stock price is the price that occurs on the stock exchange market at a certain time determined by market participants and determined by the demand and supply of the shares concerned in the capital market. The stock price in this study is measured by the closing stock price. According to Jefferson and Sudjatmoko (2013), the closing price is an important price in stock analysis, because it describes all the information available to market participants at the end of stock trading. There are two approaches in analyzing stock price movements, namely fundamental and technical analysis.

Effect of Credit Risk on Stock Price

Credit risk negatively impacts stock prices, leading to losses and reduced capital position, reducing the risk of capital adequacy and affecting a bank's health. Research shows that a negative Non-Performing Ratio (NPL) ratio lowers stock prices and signals poor operations. Companies with high NPL ratios also increase costs, worsening bank performance and impacting stock prices. However, research suggests that NPL has a significant positive effect on stock prices, aligning with increased stock prices and making it a reliable indicator for investors. Parapat et al. (2022) found that NPL has a positive but insignificant effect on stock prices. Overall, credit risk management is crucial for companies to achieve high returns and maintain a healthy capital position.

H1: Credit Risk affects Stock Price

The Effect of Market Risk on Stock Prices

Research on the impact of Net Interest Margin (NIM) on stock prices has shown that NIM has a positive and significant effect on stock prices. A higher NIM ratio leads to higher

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share prices, as it signals investors' investment decisions. NIM is a source of bank income, affecting profits and positively impacting stock prices. However, some studies found that NIM has a negative but insignificant effect on stock prices. The more NIM increases, the lower the stock price. The ratio information does not affect investors' decisions to invest, leading to an increase in stock prices. A high NIM ratio cannot be a reference for banks' high profits, as it aligns with high operating costs. Additionally, credit risk proxied by NPL and market risk proxied by NIM together have a significant effect on stock prices.

H2: Market Risk affects Stock Price.

The Effect of Credit Risk and Market Risk on Stock Prices

Previous research has found that the independent variables, namely credit risk (NPL) and market risk (NIM) simultaneously have a significant effect on stock prices (Larasati et al. 2017; Medyawicesar et al. 2018; Nugroho and Rachmaniyah 2020; Taslim and Manda 2021; Zuliyana and Arista Valendra 2021). The higher the NPL ratio, the lower the share price. A high NPL ratio will increase costs, either the cost of productive asset reserves or other costs that will worsen the bank's performance and have a negative impact on stock prices (Taslim and Manda 2021). The higher the NIM, the higher the stock price. The NIM ratio shows the source of bank income so that it will affect profits and have a positive impact on stock prices (Taslim and Manda 2021).

H3: Credit Risk and Market Risk simultaneously affect Stock Price.

The conceptual framework model is shown in the following figure:

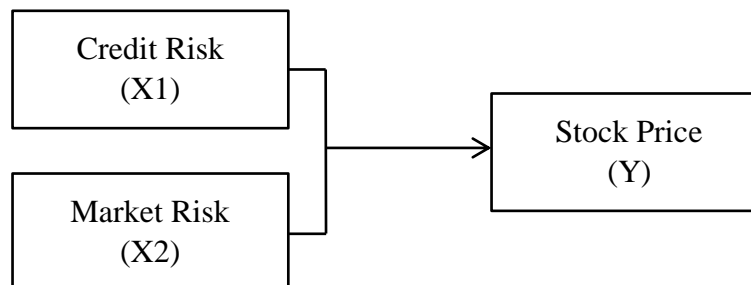


Figure 5 Framework of Thought

The relationship scheme between the independent variable and the dependent variable can be described as follows:

$$Y = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \varepsilon$$

Description:

Y = Stock Price

α = Constant

β_1 = NPL Regression Coefficient

β_2 = NIM Regression Coefficient

X_{1it} = NPL variable of company i in period t

X_{2it} = NIM variable of company i in period t

E = Error Term.

Research Method

The research method used is descriptive method, which is a method in the form of investigating a situation, an event, or other activities with a report as a result of exposure (Arikunto 2010). In addition, it uses a verification method which is carried out to determine the relationship between the independent variable and the dependent variable using hypothesis analysis for further testing (Sugiyono, 2017). Meanwhile, the data in this study are secondary data. Secondary data in this study were obtained from the annual reports of banking sector companies listed on the IDX in 2019-2021.

The independent variable in this study is credit risk proxied by Non Performing Loan (NPL) with the following formula (Anam 2018):

$$NPL = \frac{\text{Non - current loans}}{\text{Total credit}} \times 100$$

The next independent variable in this study is market risk proxied by Net Interest Margin (NIM) with the following formula (Taswan 2010):

$$NIM = \frac{\text{Net interest income}}{\text{Average earning assets}} \times 100$$

While the dependent variable in this study is the stock price proxied by the year-end closing price (Jogiyanto, 2017).

The population in this study were 43 companies. The sampling technique uses non-probability sampling type purposive sampling with the following sampling criteria:

1. Banking sector companies listed on the IDX during the 2019-2021 observation year.
2. Banking sector companies that present annual reports and stock price data during the 2019-2021 observation year.

There are 37 companies that meet the criteria as companies that can be sampled in this study with a total of 111 observations.

Result and Discussion

Based on the data that has been collected, the following is a descriptive statistical table of Share Prices, Credit Risk, and Market Risk of banking sector companies listed on the IDX in 2019-2021.

Table 3 Descriptive Statistics of Share Prices of Banking Sector Companies in 2019-2021

No	Code	Stock Price (Rp)		
		2019	2020	2021
1	AGRO	198	1035	1810

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2	AGRS	135	204	166
3	ARTO	3.100	4.300	16.000
4	BABP	50	50	186
5	BBHI	125	424	7.075
6	BBKP	224	575	270
7	BBMD	2.800	1.500	2.000
8	BBNI	7.850	6.175	6.750
9	BBRI	4.400	4.170	4.110
10	BBTN	2.120	830	1.730
11	BBYB	284	298	2.630
12	BCIC	450	700	206
13	BDMN	3.950	3.140	2.350
14	BGTG	66	74	244
15	BINA	860	690	3.810
16	BJBR	1.185	1.550	1.335
17	BJTM	685	680	750
18	BKSW	180	106	192
19	BMAS	358	430	1.730
20	BMRI	7.675	6.325	7.025
21	BNBA	322	378	3.240
22	BNGA	965	995	965
23	BNII	206	346	332
24	BNLI	1.265	3.020	1.535
25	BSIM	585	505	875
26	BSWD	1.750	1.750	1.750
27	BTPN	3.250	3.110	2.620
28	BVIC	84	114	204
29	DNAR	236	173	292
30	INPC	61	69	127
31	MAYA	9.100	7.650	660
32	MCOR	129	139	116
33	MEGA	6.350	7.200	8.475
34	NISP	845	820	670
35	NOBU	890	825	710
36	PNBN	1.335	1.065	770
37	SDRA	830	740	565
MIN		50	50	116
MAX		9.100	7.650	16.000
MEAN		1.754	1.680	2.278
STANDAR DEVIASI		2.419	2.141	3.196

Source: Data processed, 2022

Based on Table 3, the minimum value of the share price in 2019 and 2020 is IDR 50 owned by a company with the BABP code. In 2021, the minimum value of the share price is IDR116 owned by a company with the code MCOR. According to Listing Rule Kep-00059/BEI/07-2019, the share price of IDR 50 is the lower limit of the share price allowed in transactions on the IDX. The maximum value of the share price in 2019 is IDR 9,100 and in 2020 is IDR 7,650 owned by a company with the code MAYA. In 2021 it is Rp. 16,000 which is owned by a company with the code ARTO. The standard deviation has decreased in 2020 and increased in 2021 and the standard deviation value tends to be higher than the average value which indicates that there is a wide range of data variation. The average share price decreased by 4% in 2020 and increased in 2021 by 36%.

Table 4 Descriptive Statistics of Credit Risk (NPL) of Banking Sector Companies in 2019-2021

No	Code	NPL		
		2019	2020	2021
1	AGRO	7,66	4,97	3,98
2	AGRS	11,68	5,14	2,07
3	ARTO	2,05	0,00	0,58
4	BABP	5,78	5,69	4,42
5	BBHI	10,16	2,76	0,52
6	BBKP	5,99	10,16	10,66
7	BBMD	2,26	1,69	1,18
8	BBNI	2,30	4,30	3,70
9	BBRI	2,62	2,94	3,08
10	BBTN	4,78	4,37	3,70
11	BBYB	4,32	4,05	1,75
12	BCIC	1,49	4,97	3,90
13	BDMN	3,00	2,80	2,70
14	BGTG	2,28	5,49	5,13
15	BINA	4,76	1,43	2,62
16	BJBR	1,58	1,40	1,24
17	BJTM	2,77	4,00	4,48
18	BKSW	5,63	4,66	0,08
19	BMAS	2,34	1,93	1,67
20	BMRI	2,39	3,29	2,81
21	BNBA	1,53	2,63	3,04
22	BNGA	2,79	3,62	3,46
23	BNII	3,33	4,00	3,69
24	BNLI	2,80	2,90	3,20
25	BSIM	7,83	4,75	4,64
26	BSWD	4,22	4,95	9,08
27	BTPN	0,80	1,20	1,70
28	BVIC	6,77	7,58	7,27

29	DNAR	2,95	3,52	3,00
30	INPC	3,39	4,58	3,39
31	MAYA	3,85	4,09	3,93
32	MCOR	2,52	2,94	4,39
33	MEGA	2,46	1,39	1,12
34	NISP	1,72	1,93	2,36
35	NOBU	2,09	0,21	0,58
36	PNBN	3,02	3,01	3,54
37	SDRA	1,64	1,12	0,93
MIN		0,80	0,00	0,08
MAX		11,68	10,16	10,66
MEAN		3,77	3,53	3,23
STANDAR DEVIASI		2,46	2,00	2,22

Source: Data processed, 2022

Based on Table 4, the minimum NPL value in 2019 of 0.80 is owned by a company with the BTPN code, in 2020 it is 0.00 owned by a company with the ARTO code, and in 2021 it is 0.08 owned by a company with the BKSJ code. The value of the NPL ratio which is less than 5% according to BI Regulation No. 13/3 / PBI / 2011 shows that banks can manage credit risk well so that it has a good impact on the assessment of the bank's financial performance. The maximum value of NPL in 2019 of 11.68 is owned by a company with the code AGRS, in 2020 of 10.16, in 2021 of 10.66 is owned by a company with the code BBKP. The standard deviation of NPL tends to be smaller than the average value, which indicates that the smaller the data distribution in the study. The average value decreased in 2020 by 7% and in 2021 it decreased by 8%.

Table 5 Descriptive Statistics of Market Risk (NIM) of Banking Sector Companies in 2019-2021

No	Code	NIM		
		2019	2020	2021
1	AGRO	3,01	2,40	3,87
2	AGRS	2,46	2,08	2,62
3	ARTO	2,05	4,74	7,42
4	BABP	4,17	4,01	3,80
5	BBHI	4,21	2,44	4,63
6	BBKP	2,08	0,61	1,00
7	BBMD	6,45	6,66	6,54
8	BBNI	4,90	4,50	4,70
9	BBRI	6,98	6,00	6,89
10	BBTN	3,32	3,06	3,99
11	BBYB	4,86	4,03	5,15
12	BCIC	0,39	0,22	0,82
13	BDMN	8,30	7,40	7,50

14	BGTG	4,60	3,77	3,02
15	BINA	3,78	3,40	2,25
16	BJBR	5,75	5,39	5,84
17	BJTM	6,11	5,55	5,11
18	BKSW	2,56	1,61	2,34
19	BMAS	4,14	3,50	2,83
20	BMRI	5,46	4,48	4,73
21	BNBA	3,72	4,17	4,32
22	BNGA	5,31	4,88	4,86
23	BNII	5,07	4,55	4,69
24	BNLI	4,50	4,60	4,00
25	BSIM	7,31	6,25	5,79
26	BSWD	4,41	2,68	2,95
27	BTPN	6,90	6,10	6,60
28	BVIC	1,07	0,82	2,36
29	DNAR	5,47	5,25	5,09
30	INPC	4,77	2,99	3,62
31	MAYA	3,61	0,47	0,69
32	MCOR	3,83	2,82	3,12
33	MEGA	4,90	4,42	4,75
34	NISP	3,96	3,96	3,82
35	NOBU	3,93	3,62	3,46
36	PNBN	4,83	4,62	5,10
37	SDRA	3,40	3,82	4,16
MIN		0,39	0,22	0,69
MAX		8,30	7,40	7,50
MEAN		4,39	3,83	4,17
STANDAR DEVIASI		1,68	1,74	1,70

Source: Data processed, 2022

Based on Table 5, the minimum NIM value in 2019 is 0.39; in 2020 it is 0.22 owned by a company with the code BCIC, and in 2021 it is 0.69 owned by a company with the code MAYA. According to the standards set by Bank Indonesia, the NIM ratio is less than 6%, which indicates that the bank management's ability to manage its productive assets to generate net interest income is not good. The maximum value of NIM in 2019 of 8.30 decreased in 2020 by 7.40 and increased in 2021 by 7.50 owned by a company with the code BDMN. The standard deviation of NIM which tends to be smaller than the average value indicates that the smaller the data distribution in the study. The average value of NIM decreased in 2020 by 13% and increased in 2021 by 9%.

Panel Data Regression Model Selection

Before testing is carried out, the dependent variable data transformation, namely the stock price, is first carried out using the Natural Logarithm Transformation because the

dependent variable data is not evenly distributed. The panel data regression model estimation can be done through two tests, namely the chow test and the hausman test.

Chow Test Results

Table 6 Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.291798	(36,72)	0.0000
Cross-section Chi-square	192.133164	36	0.0000

Source: E-Views 12 output, 2022

Based on Table 6, the value of Prob. Cross-section Chi-square value of 0.0000 which indicates that the value is less than 0.05. Then H₀ is rejected so that between the Common Effect Model and the Fixed Effect Model, the model chosen is the Fixed Effect Model.

Hausman Test Results

Table 7 Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.673031	2	0.4332

Source: E-Views 12 output, 2022

Based on Table 7, the probability value is 0.4332 which indicates that the value is greater than 0.05. Then H₀ is accepted so that between the Fixed Effect Model and the Random Effect Model, the selected model is the Random Effect Model.

Classical Assumption Test Results

Some of the advantages of panel data imply that not all classical assumption tests must be carried out, but only multicollinearity and heteroscedasticity (Basuki 2016). The multicollinearity test results show the correlation value between the NPL and NIM variables of -0.379731 which is less than 0.8 so it is free from multicollinearity. The results of the heteroscedasticity test using the Glejser test resulted in a probability value of the NPL variable of 0.4888 and the NIM variable of 0.8973 which indicates that the value of both is greater than 0.05 so that the regression model in this study is free from heteroscedasticity.

Multiple Linear Regression Analysis Results

Table 8 Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.425491	0.426284	15.07325	0.0000
NPL?	-0.143601	0.042606	-3.370437	0.0010
NIM?	0.186132	0.077702	2.395471	0.0183
Random Effects (Cross)				
AGRO--C	0.332699			
AGRS--C	-0.765622			

ARTO--C	1.357804
BABP--C	-1.845840
BBHI--C	0.088584
BBKP--C	0.373995
BBMD--C	0.195565
BBNI--C	1.821111
BBRI--C	0.990076
BBTN--C	0.739892
BBYB--C	-0.363419
BCIC--C	-0.019947
BDMN--C	0.514616
BGTG--C	-1.660038
BINA--C	0.529845
BJBR--C	-0.063016
BJTM--C	-0.332059
BKSW--C	-1.161409
BMAS--C	-0.290591
BMRI--C	1.724069
BNBA--C	-0.215963
BNGA--C	-0.004010
BNII--C	-1.009828
BNLI--C	0.614424
BSIM--C	-0.309373
BSWD--C	1.159151
BTPN--C	0.480205
BVIC--C	-0.740683
DNAR--C	-1.364770
INPC--C	-1.965252
MAYA--C	1.820801
MCOR--C	-1.534324
MEGA--C	1.644524
NISP--C	-0.192125
NOBU--C	-0.251208
PNBN--C	0.060797
SDRA--C	-0.358681

	Effects Specification	S.D.	Rho
Cross-section random		1.082278	0.7434
Idiosyncratic random		0.635885	0.2566
Weighted Statistics			
Root MSE	0.626283	R-squared	0.167268
Mean dependent var	2.149386	Adjusted R-squared	0.151847
S.D. dependent var	0.689419	S.E. of regression	0.634922
Sum squared resid	43.53756	F-statistic	10.84681
Durbin-Watson stat	1.588482	Prob(F-statistic)	0.000051
Unweighted Statistics			
R-squared	0.226512	Mean dependent var	6.690926

Sum squared resid	167.0594	Durbin-Watson stat	0.413976
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Source: E-Views 12 output, 2022

Based on Table 8, the panel data regression equation is obtained as follows:

$$\text{LOGHS} = 6.425491 - 0.143601 (\text{NPL}) + 0.186132 (\text{NIM}) + \varepsilon$$

Description:

LOGY = Natural Logarithm Transformation of Stock Price

α = Constant

NPL = Non Performing Loan

NIM = Net Interest Margin

ε = Error Term

The coefficient of determination is seen in the R-Squared value of 0.167268 which shows that the stock price variable can be explained by the credit risk and market risk variables by 17% while the rest is explained by other variables not examined in this study.

Hypothesis Test Results

Effect of Credit Risk on Stock Price

Based on Table 8, the results of testing the effect of Credit Risk (NPL) on Stock Prices show a significant negative effect as seen from the probability value of 0.0010 which is smaller than the significance level of 0.05 which indicates that the alternative hypothesis is accepted. The result of the NPL coefficient is negative which indicates that the higher the NPL the lower the stock price.

The results of this study are in line with previous research which found that credit risk has a negative effect on changes in stock prices indicating that the higher the credit risk the lower the stock price (Belo 2010). It is further explained that a high risk will be faced by the company if it wants a high return. So if the management of credit risk is not good, it will result in losses that cause the capital position to decrease which will reduce the risk of capital adequacy so that the health of the bank decreases. This causes a decrease in public trust and an increase in financing funds. The results of this study are in line with the findings which state that NPL as a proxy for credit risk has a negative effect on stock prices (Brastama and Yadnya 2020; Taslim and Manda 2021; Zuliyana and Arista Valendra 2021). It shows that the higher the NPL ratio, the lower the stock price. Companies that have a high NPL ratio value will increase costs, either the cost of productive asset reserves or other costs that will worsen bank performance and have an impact on stock prices (Taslim and Manda 2021).

The results of this study are not in line with previous research which found that NPL has a significant positive effect on stock prices (Fatma 2021; Medyawicesar et al. 2018; Nugroho et al. 2020; Ziliwu and Wibowo 2020). It is further explained that any increase in the NPL ratio is in line with the increase in stock prices, which indicates that this ratio is not an assessment of investors in making their investment decisions. The results of this study are not in line with previous research which states that the NPL ratio has no significant effect on stock prices (Sambul et al., 2016). It is further explained that although high NPLs cause investors to

be uninterested in buying shares because the profits to be obtained are small, this does not apply to banks that have large assets because investors will still feel safe even though the ratio is high which shows that NPLs are not a benchmark for investors in making their investment decisions.

The Effect of Market Risk on Stock Prices

Based on Table 8, the results of testing the effect of Market Risk (NIM) on Stock Prices show a significant positive effect as seen in the probability value of 0.0183 which is smaller than 0.05 so that the alternative hypothesis is accepted. The NIM coefficient result is positive which indicates that the higher the NIM, the higher the stock price.

The results of this study are in line with previous research which found that NIM has a significant positive effect on stock prices (Nugroho and Rachmaniyah 2020; Purwanti 2020; Taslim and Manda 2021). This shows that the higher the NIM ratio, the higher the stock price. Taslim and Manda (2021) state that NIM ratio information provides signals to investors in making their investment decisions. It is further explained that the NIM ratio is a source of bank income so that it will affect profits and have a positive impact on stock prices.

The results of this study are not in line with previous research which found that NIM has a negative and insignificant effect on stock prices (Dinaa and Mandasari 2021; Hadi et al. 2021; Indiani and Dewi 2016; Yudistira and Adiputra 2020). This shows that the higher the NIM ratio, the lower the stock price. It is further explained that NIM ratio information does not affect investors' decisions in making their investment decisions (Dinaa and Mandasari 2021). A high NIM ratio is in line with the high operating costs that must be incurred so that this ratio cannot be a reference for banks to have high profits (Indiani and Dewi 2016).

The Effect of Credit Risk and Market Risk on Stock Prices

Based on Table 8, the results of testing the effect of Credit Risk (NPL) and Market Risk (NIM) on Stock Prices show a significant effect as seen in the probability value of 0.000051 which is smaller than 0.05 which indicates that the alternative hypothesis is accepted.

The results of this study are in line with previous research which found that the independent variables, namely the NPL ratio as a proxy for credit risk and the NIM ratio as a proxy for market risk, simultaneously have a significant effect on the dependent variable, namely stock prices (Larasati et al. 2017; Medyawicesar et al. 2018; Nugroho and Rachmaniyah 2020; Taslim and Manda 2021; Zuliyana and Arista Valendra 2021). The higher the NPL ratio, the lower the stock price because a high NPL ratio will increase costs, either the cost of productive asset reserves or other costs that will worsen bank performance and have an impact on stock prices (Taslim and Manda 2021). The higher the NIM ratio, the higher the stock price because the NIM ratio shows the source of bank income so that it will affect profits and have a positive impact on stock prices (Taslim and Manda 2021).

Conclusion

Based on the results of the research and discussion previously described, it can be concluded that the study reveals that credit risk, proxied by NPL, has a partial negative effect

on stock prices, with smaller NPLs leading to higher prices. Market risk, proxied by NIM, has a partial positive effect, with smaller NIMs leading to lower prices. Both credit and market risk simultaneously affect stock prices, suggesting that they can affect stock prices together. The study's conclusion should address the study's limitations and provide recommendations for future research.

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