International Journal of Science and Management Studies (IJSMS) E-ISSN: 2581-5946

DOI: 10.51386/25815946/ijsms-v4i4p118

Volume: 4 Issue: 4 July to August 2021 https://www.ijsmsjournal.org

Stock Valuation using Discounted Cash Flow Method with Free Cash Flow to Equity and Relative Valuation Approaches on State-Owned Banks Listed on IDX for 2021 to 2025 Period Projection

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Abstract *- This study aims to project the intrinsic value of state-owned banks listed on IDX for the 2021 to 2025 projection. This study uses the Discounted Cash Flow (DCF) method with the Free Cash Flow to Equity (FCFE) approach specifically for banks by looking at the regulatory capital. Meanwhile, it is also used the Relative Valuation method with the Price to Book Value (PBV) and Price Earnings Ratio (PER) approaches. This study uses three scenarios will be used, which consist of a pessimistic scenario (the average condition of the industry), a moderate scenario (the same condition as the company's growth), and an optimistic scenario (a condition above industry growth), which aims to project the stock value over the next five years. The data used in this study comes from historical data during the 2016 to 2020 period. Based on the results, the stock prices of state-owned banks using the FCFE method shows undervalued results for all scenarios. Meanwhile, using the relative valuation method, PBV in the optimistic scenario only shows BBNI undervalued conditions. In addition, in moderate and pessimistic scenarios, only BBRI shows overvalued conditions. Furthermore, PER shows undervalued results for all scenarios.*

Keywords — *Valuation, FCFE, Discounted Cash Flow (DCF), state-owned banks, Relative Valuation*

I. INTRODUCTION

The role of banks contributes a lot in advancing the economy of a country since almost all sectors are related to finance, so banks are one of the primary institutions in a country [21]. In addition, the bank is an institution that is very important for all levels of society, so that the bank is also referred to as an intermediary institution [14]. Furthermore, banks are one of the industries that have the most interest in shares in the capital market, both domestic and foreign investors [15].

In 2015, the IDX Composite declined due to the influence of the banking sub-sector, which became the biggest crusher in influencing several sectors and companies, one of which was state-owned banks including Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), Bank Mandiri, and Bank Tabungan Negara (BTN). Then, in 2019, the IDX Composite showed a positive performance. However, this was not in line with the condition of state-owned banks that showed declining performance. The graph of the development of the IDX Composite and state-owned banks from 2015 to 2020 is as follows:

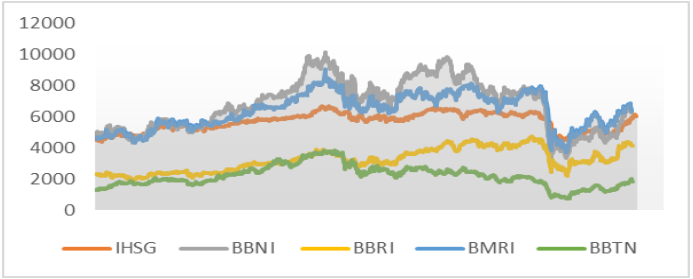

Fig 1. Graph of IDX Composite Movements and State-Owned Banks Price Movements

DOI: 10.51386/25815946/ijsms-v4i4p118

Volume: 4 Issue: 4 July to August 2021 https://www.ijsmsjournal.org

Figure 1 shows the condition of the IDX Composite and shares of state-owned banks. According to the price movements of the IDX Composite and state-owned banks, the movement condition is very volatile so that it becomes a phenomenon that needs further investigation. Therefore, fluctuating stock prices causes fluctuating stock returns. Movements of the IDX Composite and state-owned banks returns are as follows:

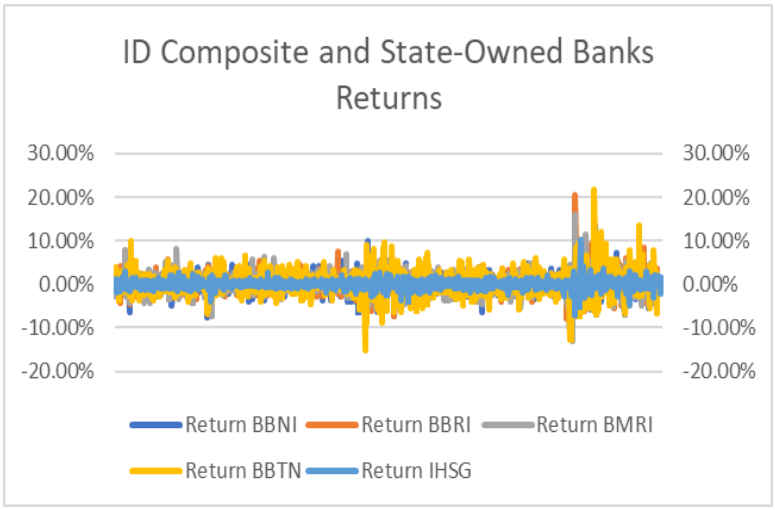

Fig 2. Graph of IDX Composite and State-Owned Banks Return

According to the data of the four state-owned banks consisting of BNI (BBNI), BRI (BBRI), Mandiri (BMRI), and BTN (BBTN), there is a fluctuating condition of returns. High and low return conditions indicate uncertainty in the future. In particular, the return conditions in 2020 showed very volatile movements from the 2016 to 2020 period. The Covid-19 pandemic occurred in 2020 and various news about state-owned companies became one of the causes of stock price volatility so that stock returns were in a very volatile condition. Erratic return conditions affect stock performance, causing the stock value in the market not to match the fair value of the stock or its intrinsic value [22].

Based on the occurred phenomenon in the research object during the research period, the condition of fluctuating stock prices and several previous studies showed that the market value did not match the intrinsic value based on the valuation analysis. This research is intended to assist investors in assessing the shares of state-owned banks through the calculation of the intrinsic value of the stock to resolve investment decisions.

II. LITERATURE REVIEW

A. Previous Research

Nuzula and Rachmawati analyze the stock fair value in 18 companies listed on the LQ-45 index at the Indonesia Stock Exchange during the August 2017-January 2018 period. The results showed that using the DCF method with the FCFF approach, nine companies are undervalued and nine other companies are overvalued. As for PER approach, the results showed that four companies are undervalued while 14 other companies are overvalued [12].

Another research was conducted by Kramadibrata and Damayanti which examined the stock fair price performance of PT Cakra Mineral in 2011-2015. The results showed that CKRA is considered to be overvalued in moderate, optimistic, and pessimistic scenarios. Moreover, the research concluded that the company should focus more on zircon sand mining and improving the mining assets [18].

In addition, research conducted by Ivanovska, Ivanovski, and Narasov examined stock fair price in a company listed on the Macedonian Stock Exchange Market (MSE) during the 2006-2010 period. The results showed that the stock valued assessed using Discounted Free Cash Flow Model (DFCF) is close to the fundamental value or average market value [13].

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Research conducted by Riko Hendrawan, Susilowati, and Kristanti analyzed the stock fair price of Bank Pembangunan in the Indonesia Stock Exchange during the 2013-2018 period. The result of this research specify that using FCFE valuation, BJBR and BJTM are overvalued in all scenario, while BEKS is undervalued in all scenario. The relative valuation method with the PER and PBV approaches shows that all samples in this research are within the industry average, meaning that the calculation results are correct [17].

Previous research conducted by Zemba & Hendrawan analyzed the stock fair values in companies engaged in the health sector listed on the IDX during the 2013-2017 period. The results of this research showed that MIKA, SAME, and SRAJ stocks are overvalued in all scenarios and methods used. However, SILO stock prices are overvalued in optimistic and moderate scenarios [19].

Research conducted by Hendrawan & Himawan analyzed the stock fair value in companies engaged in agriculture listed on the IDX during the 2013-2017 period. The results of this research indicate that with the DCF-FCFF method in the three industries, the value of AALI and LSIP is overvalued, and SIMP is undervalued. By implementing the relative assessment method using the PBV and PER approaches, the AALI, SIMP, and LSIP values are still within the industry range according to the IDX in the 2018 quarter [16].

Research conducted by Cahyono & Hendrawan analyzed the fair value of stock prices from coal companies listed on the IDX for the 2013-2017 period. The findings of this research indicate that using the DCF-FCFF method, the fair values of ADRO, BYAN, and PTBA are undervalued in all scenarios. Furthermore, the relative valuation method shows that all samples of this research are within the industry range, which means the calculation results are correct [1].

Research conducted by Silva & Pereira analyzed the fair value of five different cases at banks in Portugal over the next five years. This research used the DCF-FCFE approach. The results of this research indicate that the intrinsic value is overvalued based on calculations using the FCFE method [10].

Research conducted by Gardner, Mcgowan, and Moeller analyzed the fair value of Coca-Cola with historical data from 2000-2007. The results of the valuation using the FCFE method for super normal growth period in five years from 2008 to 2012 are $21.502 million and the present value of the terminal value is $106,165. The total value of Coca-Cola is $129,643 million [9].

Research conducted by Aggelopoulos analyzed the case regarding the fair value of banking institutions for the next nine years. The results of this research using the ECF method indicate that the current value of bank equity (329 bank units in Patras, Greece) is four times greater. Therefore, the result is overvalued [7].

Research conducted by Afriani & Asma analyzed manufacturing companies during the 2012-2016 period. The results showed that using the PER method, four companies are overvalued, one company is undervalued, and seven companies are undervalued. On the other hand, with FCFE the result is four companies are overvalued, while eight companies are undervalued. Meanwhile, if using FCFF the result is one company is overvalued and 11 companies are undervalued [6].

Lastly, research conducted by Rikumahu & Marenda analyzed and compared the stock prices of state-owned banks during the 2011-2016 period on the LQ45 index. The results showed that there are overvalued results using PBV, and the PBV results did not show significant results in calculating intrinsic value using a statistical test, while PER showed significant results [4].

B. Banks Valuation

The basics of the discounted-cash-flow (DCF) approach described, apply equally to banks. The equity cash flow version using the DCF method is the most appropriate for valuing banks, because operating and financial cash flows from these organizations are interconnected with each other, given that banks are expected to create value from financing and lending operations. Therefore, banks are very appropriate to be used to assess or evaluate shares using the Discounted Cash Flow (DCF) method with the Free Cash Flow to Equity (FCFE) approach [20].

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C. Regulatory Capital

Banking regulations or regulatory capital have been regulated by the Basel Committee which has determined the minimum capital that must be in every bank, which functions to maintain capital determination and the interests of the community in the bank. Regulatory capital has been determined in rules called Basel I, Basel II, and Basel III [8].

Regulatory capital is one of the key aspects in bank valuation. This is due to regulatory capital as a juridical rule in determining the risk weight of banking assets. The health of the bank is very important for the sustainability of the bank, so that the bank must maintain the level of risk, in order to maintain and meet the level of adequacy of core capital and other capital. based on the results of the study, that the risk of liquidity, credit, and others greatly affect the viability of the bank. The results showed that the Minimum Capital Adequacy Ratio (KPMM) for the 2015-2020 period was obtained by all BPRs in very healthy condition with a fulfillment ratio greater than 12 percent. The Minimum Capital Adequacy Ratio (CAR) is closely related to risk [14]. The risk weight of assets in banking is called Risk Weighted Assets (RWA), namely assets on and off the balance sheet which are given a certain weight to determine the amount of risk of the asset. In this study, RWA will be used for bank valuation, where the percentage of tier 1 capital considers the RWA value of each bank [11].

III. METHOD

This study used four state-owned banks in Indonesia as the object of research. They are BNI, BRI, Mandiri, and BTN. These banks were selected based on the phenomenon and research objectives. Moreover, this research used the purposive sampling technique method in selecting research objects, which are DCF-FCFE, PER, and PBV.

There are several stages in conducting bank valuations. The first step is (1) classification of historical data as a basis for projections, (2) Calculating cash flow with Discounted cash flow (DCF) – FCFE, (3) Calculating the estimated cost of capital (Cost of equity) and terminal value, (4) Calculating the company's equity value, (5) Calculate the intrinsic value of shares per share in three (3) pre-determined scenarios of conditions (optimistic, moderate, pessimistic). (6) Furthermore, to validate the FCFE calculation and compare it with the industry, the PER and PBV approaches are used to ensure the calculation is valid.

The data resources used in this study is secondary data for references. The following are the sources of data used in this study:

1. Financial and annual reports of state-owned banks listed on the IDX that have been audited from the 2016 to 2020 period from the website of each company.
2. Previous research supported, such as credible journals or articles.
3. Historical data on stock prices of state-owned banks listed on the IDX from the 2016 to 2020 period obtained from the Yahoo Finance website.

IV. RESULTS

Valuation is one of the fundamental analyses performed by discounting cash flows or using certain or predetermined ratios that aim to analyze the intrinsic value of shares [3].

The intrinsic value of state-owned banks' shares is calculated due to the fluctuating stock price conditions in the market. Therefore, it requires an analysis of the intrinsic value of the stock price in the market. The method used in this research was DCF with FCFE approach and relative valuation with PER and PBV approach.

This study assumed stock prices into three scenarios. They were optimistic, moderate, and pessimistic conditions according to their intrinsic value. The calculation of the intrinsic value used the DCF method with the FCFE approach and relative valuation with the PER and PBV approaches. The FCFE approach used in this study is slightly different from the FCFE formula in general, which focuses on the capital adequacy side, or tier 1 capital after considering Risk-Weighted Assets (RWA).

A. Bank Negara Indonesia (BBNI)

BNI historical data or stock code BBNI was used as data and basis of assumption for FCFE projection, which is presented in Table 1. The projection results of FCFE are presented in Table 2 and the analysis results are presented in Table 3.

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Table 1 . Historical Data of BNI (In Million Rupiah)

Information	2016	2017	2018	2019	2020	Average
Total Revenue	59.327.945	66.556.253	71.748.629	78.402.963	74.915.951	
Revenue Growth	20.88%	12.18%	7.80%	9.27%	-4.45%	9.14%
Net Income	11,410,196	13.770.592	15.091.763	15.508.583	3.321.442	
RWA	435.354.000	514.477.000	563.440.000	598.484.000	614.633.000	
Ratio Modal tier 1	18.30%	17.50%	17.40%	18.70%	15.70%	
Regulatory capital	79.645.000	89.765.000	98.014.000	111.672.000	98.481.000	
Percentage change regulatory capital	1.30%	-0.80%	-0.10%	1.20%	-2.90%	-0.26%

Table 2 . Projection Data of BNI FCFE (In Million Rupiah)

Scenario	2021	2022	2023	2024	TV	Equity value
Optimistic (9.31%)	12.112.764	11.290.751	12.568.940	13.974.798	332.507.699	213.274.772
Moderate (9.14%)	12.091.098	11.258.565	12.524.476	13.916.065	330.430.749	212.028.041
Pessimistic (8.81%)	12.049.042	11.196.162	12.438.412	13.802.596	327.779.101	210.405.507

Table 3 . Analysis Result of BNI

DCF FCFE			
Scenario	**Intrinsic Value**	**Market Price on 4 January 2021**	**Condition**
Optimistic	11.567	6.375	Undervalued
Moderate	11.502		Undervalued
Pessimistic	11.414		Undervalued
RV-PER			
Scenario	**PER Company**	**PER Industry**	**Condition**
Optimistic	15.31	38	Undervalued
Moderate	15.25		Undervalued
Pessimistic	15.18		Undervalued
RV-PBV			
Scenario	**PBV Company**	**PBV Industry**	**Condition**
Optimistic	1.89	2.78	Undervalued
Moderate	1.87		Undervalued
Pessimistic	1.86		Undervalued

Based on the projection results, the intrinsic value of BBNI in the optimistic scenario was 11.567, moderate was 11.502, and pessimistic was 11.414. It shows undervalued conditions compared to the market price on January 4, 2021, which is 6.375. Moreover, using PER approach, the optimistic scenario was 15.31, moderate was 15.25, and pessimistic was 15.18. It shows undervalued conditions compared to PER industry, which was 38. As for the PBV approach, the optimistic scenario was 1.89, moderate was 1.87, and pessimistic was 1.86. It shows undervalued conditions compared to the PBV industry, which was 2.78.

B. Bank Rakyat Indonesia (BBRI)

BRI historical data or stock code BBRI were used as data and basis of assumption for FCFE projection, which are presented in Table 4. The projection results of FCFE can be seen in Table 5 and the analysis results can be seen in Table 6.

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Table 4 . Historical Data of BRI (In Million Rupiah)

Information	2016	2017	2018	2019	2020	Average
Total Revenue	114.475.680	125.779.324	139.186.447	155.569.163	152.605.067	
Revenue Growth	15.79%	9.87%	10.66%	11.77%	-1.91%	9.24%
Net Income	26.227.991	29.044.334	32.418.486	34.413.825	18.660.393	
RWA	648.968.643	704.515.985	854.223.268	910.850.467	939.153.033	
Ratio Modal tier 1	21.54%	21.71%	20.18%	21.65%	20.09%	
Regulatory capital	139.786.475	159.087.145	172.358.004	197.219.352	188.648.185	
Percentage change regulatory capital	4.86%	0.17%	-1.53%	1.47%	-1.56%	0.68%

Table 5 . Projection Data of FCFE (In Million Rupiah)

Scenario	2021	2022	2023	2024	TV	Equity value
Optimistic (9.45%)	17.302.872	19.192.591	21.256.133	23.542.316	1.328.566.512	859.198.111
Moderate (9.24%)	17.236.034	19.095.108	21.122.861	23.367.417	1.317.196.822	852.026.396
Pessimistic (8.81%)	17.099.174	18.895.791	20.850.930	23.011.386	1.243.110.237	837.460.247

Table 6 . Analysis Result of BRI

DCF FCFE			
Scenario	**Intrinsic Value**	**Market Price on 4 January 2021**	**Condition**
Optimistic	7.007	4.310	Undervalued
Moderate	6.949		Undervalued
Pessimistic	6.830		Undervalued
RV-PER			
Scenario	**PER Company**	**PER Industry**	**Condition**
		38	
Optimistic	24.66		Undervalued
Moderate	24.50		Undervalued
Pessimistic	24.18		Undervalued
RV-PBV			
Scenario	**PBV Company**	**PBV Industry**	**Condition**
		2.78	
Optimistic	4.30		Overvalued
Moderate	4.26		Overvalued
Pessimistic	4.19		Overvalued

Based on the projection results, the intrinsic value of BBRI in the optimistic scenario was 7.007, moderate was 6.949, and was is 6.839. It shows undervalued conditions compared to the market price on January 4, 2021, which was 4.310. Moreover, using PER approach, the optimistic scenario was 24.66, moderate was 24.50, and pessimistic was 24.18. It shows undervalued conditions compared to PER industry, which was 38. As for the PBV approach, the optimistic scenario was 4.30, moderate was 4.26, and pessimistic was 4.19. It shows overvalued conditions compared to the PBV industry, which was 2.78.

C. Bank Mandiri (BMRI)

Bank Mandiri historical data or stock code BMRI was used as data and basis of assumption for FCFE projection, which are presented in Table 7. The projection results of FCFE are presented in Table 8 and the analysis results are presented in Table 9.

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Table 7. Historical Data of Bank Mandiri (In Million Rupiah)

Information	2016	2017	2018	2019	2020	Average
Total Revenue	105.374.054	112.108.358	119.007.122	129.129.138	127.897.359	
Revenue Growth	5.91%	6.39%	6.15%	8.51%	-0.95%	5.20%
Net Income	14.650.163	21.443.042	25.851.937	28.455.592	17.645.624	
RWA	643.379.490	707.791.497	799.235.097	882.904.767	827.461.178	
Ratio Modal tier 1	20.26%	20.57%	19.82%	20.29%	18.81%	
Regulatory capital	130.356.495	145.616.420	158.442.446	179.161.161	155.646.179	
Percentage change regulatory capital	4.11%	0.31%	-0.75%	0.47%	-1.48%	0.53%

Table 8. Projection Data of Bank Mandiri (In Million Rupiah)

Scenario	2021	2022	2023	2024	TV	Equity value
Optimistic (8.81%)	12.580.186	13.844.448	15.238.065	16.773.086	1.015.427.867	657.886.460
Moderate (5.02%)	12.184.400	12.440.048	12.687.311	12.923.648	785.0711.321	512.920.737
Pessimistic (3.40%)	11.283.086	11.091.872	10.856.185	10.571.209	644.297.539	423.132.849

Table 9. Analysis Result of Bank Mandiri

DCF FCFE			
Scenario	Intrinsic Value	Market Price on 4 January 2021	Condition
Optimistic	14.109	6.500	Undervalued
Moderate	11.000		Undervalued
Pessimistic	9.074		Undervalued
RV-PER			
Scenario	**PER Company**	**PER Industry**	**Condition**
Optimistic	25.22	38	Undervalued
Moderate	19.97		Undervalued
Pessimistic	17.07		Undervalued
RV-PBV			
Scenario	**PBV Company**	**PBV Industry**	**Condition**
Optimistic	3.39	2.78	Overvalued
Moderate	2.65		Undervalued
Pessimistic	2.18		Undervalued

Based on the projection results, the intrinsic value of BMRI in the optimistic scenario was 14.109, moderate was 11.000, and pessimistic was 9.074. It shows undervalued conditions compared to the market price on January 4, 2021, which was 6.500. Moreover, using PER approach, the optimistic scenario was 25.22, moderate was 19.97, and pessimistic was 17.07. It shows undervalued conditions compared to PER industry, which was 38. As for the PBV approach, the optimistic scenario was 3.39, moderate was 2.65, and pessimistic was 2.18. It shows overvalued conditions for the optimistic scenario compared to the PBV industry, which was 2.78. On the other hand, in the moderate and pessimistic scenario, the PBV was undervalued.

D. Bank Tabungan Negara (BBTN)

Bank Tabungan Negara historical data or stock code BBTN was used as data and basis of assumption for FCFE projection, which are presented in Table 10. The projection results of FCFE are presented in Table 11 and the analysis results are presented in Table 12.

DOI: 10.51386/25815946/ijsms-v4i4p118

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Table 10. Historical Data of Bank BTN (In Million Rupiah)

Information	2016	2017	2018	2019	2020	Average
Total Revenue	18.421.641	20.877.513	24.923.352	27.829.726	27.620.387	
Revenue Growth	14.61%	13.33%	19.38%	11.66%	-0.75%	11.65%
Net Income	2.618.905	3.027.466	2.807.923	209.263	1.602.358	
RWA	99.431.853	117.092.266	128.137.749	134.844.273	129.249.781	
Ratio Modal tier 1	16.54%	15.99%	15.97%	15.6%	13.64%	
Regulatory capital	12.171.623	16.443.159	18.726.949	20.460.086	17.625.854	
Percentage change regulatory capital	1.67%	-0.55%	-0.22%	-0.37%	-1.96%	-0.25%

Table 11. Projection Result of Bank BTN (In Million Rupiah)

Scenario	2021	2022	2023	2024	TV	Equity value
Optimistic (13.07%)	3.148.100	3.632.224	4.177.785	4.797.190	94.608.347	58.886.983
Moderate (11.65%)	3.100.139	3.524.445	3.996.133	4.525.044	88.029.934	55.159.586
Pessimistic (8.81%)	3.004.217	3.312.974	3.646.457	4.011.057	75.839.676	48.223.086

Table 12. Analysis Result of Bank BTN

DCF FCFE			
Scenario	**Intrinsic Value**	**Market Price on 4 January 2021**	**Condition**
Optimistic	5.560	1.820	Undervalued
Moderate	5.208		Undervalued
Pessimistic	4.553		Undervalued
RV-PER			
Scenario	**PER Company**	**PER Industry**	**Condition**
		38	
Optimistic	15.42		Undervalued
Moderate	14.63		Undervalued
Pessimistic	13.12		Undervalued
RV-PBV			
Scenario	**PBV Company**	**PBV Industry**	**Condition**
		2.78	
Optimistic	2.95		Overvalued
Moderate	2.76		Undervalued
Pessimistic	2.41		Undervalued

Based on the projection results, the intrinsic value of BBTN in the optimistic scenario was 5.560, moderate was 5.208, and pessimistic was 4.553. It shows undervalued conditions compared to the market price on January 4, 2021, which was 1.820. Moreover, using PER approach, the optimistic was is 15.42, moderate was 14.63, and pessimistic was 13.12. It shows undervalued conditions compared to PER industry, which was 38. As for the PBV approach, the optimistic scenario was 2.95, moderate was 2.76, and pessimistic was 2.41. It shows overvalued conditions for the optimistic scenario compared to the PBV industry, which was 2.78, while the moderate and pessimistic scenario was undervalued.

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V. Discussion

A. Result Discussion

Based on the calculation results from the DCF method with the FCFE approach and relative valuation with the PER and PBV approaches, there are three scenarios, namely optimistic, moderate, and pessimistic scenarios.

1. BNI (BBNI)

According to the calculation, BNI was undervalued in all scenarios and methods with data deviation percentage of 80.29%. The data deviation of 80.29% indicates that there is a large gap between the intrinsic value and the stock price in the market, so this stock is highly recommended for investors to own. In addition, the PER industry average range was 331-652 and the PBV industry range was 0.33-38, which shows that the calculation of BNI's PER and PBV values was valid.

2. BRI (BBRI)

According to the calculation, BRI was undervalued in all scenarios with FCFE, PER, and PBV that was overvalued. Data deviation percentage was 61%. The value of deviation indicates that there is a large gap between the intrinsic value and the stock price in the market, so this stock is highly recommended for investors to own. In addition, the PER industry average range was 331-652 and the PBV industry range was 0.33-38, which shows that the calculation of BRI's PER and PBV value was valid.

3. Bank Mandiri (BMRI)

According to the calculation, Bank Mandiri was undervalued in FCFE, PER, and PBV moderate and pessimistic. On the other hand, the PBV optimistic was overvalued. Deviation percentage was 75%. The value of deviation indicates that there is a large gap between the intrinsic value and the stock price in the market, so this stock is highly recommended for investors to own. In addition, the PER industry average range was 331-652 and the PBV industry range was 0.33-38, which shows that the calculation of Bank Mandiri's PER and PBV values was valid.

4. BTN (BBTN)

According to the calculation, BTN was undervalued in FCFE, PER, and PBC moderate and pessimistic. On the other hand, the PBC optimistic was overvalued. Data deviation or intrinsic value percentage was 180.64%. The value of deviation indicates that there is a large gap between the intrinsic value and the stock price in the market, so this stock is highly recommended for investors to own. In addition, the PER industry average range was 331-652 and the PBV industry range was 0.33-38, which shows that the calculation of BTN's PER and PBV value was valid.

B. State-Owned Bank Conditions and Macroeconomic Projection

Regulatory capital is one of the requirements and aspects in valuing banks or other financial institutions. Regulatory capital pays attention to the adequacy of core capital or tier 1 capital. The developments of the four state-owned banks are as follows:

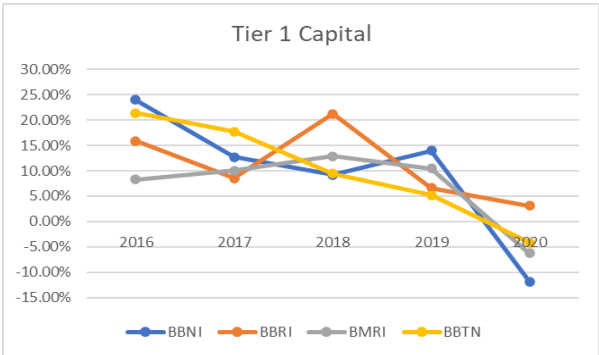

Fig 3. Common Tier 1 Capital Period 2016 - 2020

DOI: 10.51386/25815946/ijsms-v4i4p118

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Based on the results of the calculations in Figure 3, the trend of changes in tier 1 capital shows that fluctuating conditions tend to decrease. The average of the four banks shows the highest and lowest conditions in the same year. In addition, the current state of state-owned banks is influenced by several factors, one of which is the COVID-19 pandemic that has hit Indonesia and the rest of the world globally. According to a report from the World Bank, COVID-19 has caused the country's economy to weaken. In the middle of May 2021, statistical data stated that around 3.8 million people had died due to COVID-19, causing the weakening of Indonesia's economic conditions [5]. Despite showing the condition of an increase in COVID-19 cases in Indonesia, actual macroeconomic conditions have shown a more positive number in accordance with the projections made by the World Bank. The macroeconomic projection data are as follows:

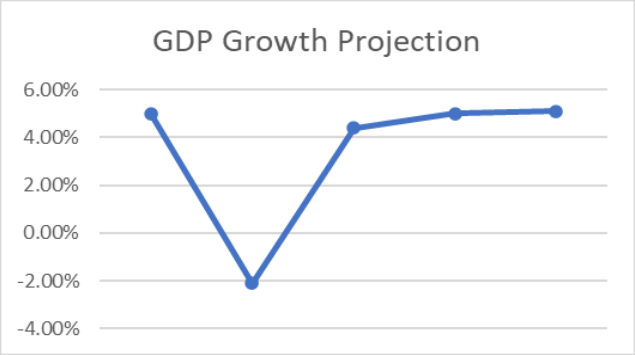

Fig 4. GDP Growth Projection 2020-2023

Macroeconomic factors are crucial because they can affect the financial performance of companies, especially companies included in the State-Owned Enterprises sector [2]. Based on the GDP data projection, although COVID-19 is still hitting Indonesia, real GDP growth shows a positive number. Although in 2020 it had touched the percentage of -2.1%, in 2021, it shows a positive condition with a percentage of 4.4%. In the following year, it is estimated that the GDP projection will increase.

VI. CONCLUSION

Based on research and the intrinsic value calculation, despite the significant difference between the results of the intrinsic value calculation and the current market value, the projected growth of real GDP continues to show a positive growth condition. The FCFE calculation results show undervalued conditions for all scenarios. Therefore, it is recommended to be owned by investors. Meanwhile, in relative valuation with the PER approach, all scenarios show undervalued conditions. As for the PBV with an optimistic scenario, only BBNI shows an undervalued condition. Meanwhile, the three state-owned banks show an overvalued condition. On the other hand, in the moderate and pessimistic scenario, only BBRI shows an overvalued condition. Even so, the existence of positive economic growth conditions caused the four shares of state-owned banks to be highly recommended to be owned.

REFERENCES

[1] A.Cahyono., & R. Hendrawan, "*Coal Mining Listed Companies and Their Value: Evidence from Indonesia Stock Exchange"* In Proceedings of the 2nd International Conference on Inclusive Business in the Changing World (ICIB 2019),2019,p. 35–44.

[2] A.Utamaningsih, "*Valuation of BUMN Construction Company Stock Prices At The Time of A Bullish At The Indonesian Stock Exchange",18*(3), p.511–521,2020.

[3] A. Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset* ,3rd edition, Hokoben:Wiley,2012.

[4] B.Rikumahu, & R.T.Marenda, "Valuation of Banking Stocks (BUMN) Included in LQ45 in 2013-2017 using Relative Valuation Methods: Price Earning Ratio and Price-Book Value", *International Journal of Science and Research (IJSR)*, *7*(6), 913–916, 2018.

[5] D.Setiawan, "*The World Bank: The Boosting Recovery*. Indonesia", IEP Publication and World bank group,2021.

[6] E. Afriani, & R.Asma, "Analisis Valuasi Harga Saham Dengan Price Earning Ratio, Free Cash Flow To Equity Dan Free Cash Flow To Firm Pada Perusahaan Manufaktur". *Sains Manajemen Dan Kewirausahaan*, *3*(2), 111–123, 2019.

[7] E.Aggelopoulos,"Understanding Bank Valuation: An Application of the Equity Cash Flow and the Residual Income Approach in Bank Financial Accounting Statements", *Open Journal of Accounting*, *06*(01), 1–10 ,2017.

DOI: 10.51386/25815946/ijsms-v4i4p118

Volume: 4 Issue: 4 July to August 2021 https://www.ijsmsjournal.org

[8] Ikatan Bankir Indonesia, Manajemen Risiko 2. Jakarta, 2015.

[9] J.C.Gardner, C.B. Mcgowan, & S.E. Moeller, "Valuing Coca-Cola Using The Free Cash Corporate Financial Management and Stock Valuation", *Journal of Business & Economics Research*, *10*(11), 629–636,2012.

[10] J.M.Silva, & J.A. Pereira, "Over-Valuation: Avoid Double Counting when Retaining Dividends in the FCFE Valuation", *International Journal of Financial Research*, *8*(4), 107,2017.

[11] M.Massari., Gianfrate.G., & Zanneti, L, *The Valuation of Financial Company*,*1st ed*, The Atrium, Southern Gate, Chichester, West Sussex, United Kingdom: John Wiley & Sons, Inc,2014.

[12] N.F.Nuzula, & R.Rachmawati," Stock Valuation Using Free Cashflow to Equity (FCFE): (Study at Companies Listed on LQ-45 Index in Indonesia Stock Exchange Period", *Jurnal Administrasi Bisnis*, *57*(2), 88–97,2018.

[13] N.Ivanovska, Z. Ivanovski, & Z.Narasanov," Fundamental Analysis and Discounted Free Cash Flow Valuation of Stocks At Macedonian Stock Exchange",*UTMS Journal of Economics*, *5*(1), 11–24,2014.

[14] N.M.T.Sari, N.M.Santini, M.P.Dewi,"Analysis of The Health Level of Rural Banks Based on The Risk Base Bank Rating Method in Gianyar Regency",International Journal of Scien and Management Studies (IJSMS), Vol.4 Issue 4, 72-81, July 2021.

[15] R.Hendrawan, & T.Z.Rahayu, "*Test of FCFE Model and Dividend Discount Model in Book 4 Banking Companies Listed on Indonesia Stock Exchange*",*117*(Gcbme 2018), 142–146,2020.

[16] R.Hendrawan.R, & E. Himawan, "*Assessing Free Cash Flow to Firm and Relative Valuation Method in Agriculture Plantation Companies Listed in Indonesia Stock Exchange in 2018"*, In Proceedings of the 2nd International Conference on Inclusive Business in the Changing World (ICIB 2019), 2019,p.85–93.

[17] R.Hendrawan, N.Susilowati, & F. Kristanti, "*Share Valuation of Indonesian Regional Development Bank using Free Cash Flow to Equity and Relative Valuation Methods"*, In Proceedings of the 2nd International Conference on Inclusive Business in the Changing World (ICIB 2019), 2019,p.35–44.

[18] S.Kramadibrata., & S.M.Damayanti, "*Financial Performance Analysis and Valuation of a Financially Distressed New Company in the Indonesian Mining Sector"*, *5*(1), 201–224,2016.

[19] S.Zemba, & R.Hendrawan, "Does Rapidly Growing Revenues Always Produce An Excellent Com pany ' s Value ? DCF & P / E Valuation Assessment on Hospital Industry" *E-Proceeding of Management*, 2018,*5*(2), 2045–2060.

[20] T.Koller, M.Goedhart., & D.Wessels , *Measuring and Managing the Value of Companies*,6th ed. Hokoben., New Jersey: John Wiley & Sons, Inc,2015.

[21] Y.Hariemufti, F.Titik, & D.P.Mahardika, "Analisis Pengaruh Risiko Kredit, Risiko Likuiditas, Dan Permodalan Terhadap Profitabilitas Perbankan (Studi Pada Perusahaan Bank Umum Yang Terdaftar Di Bei Tahun 2010-2014)", *E-Proceeding of Management*, *3*(2), 2016,p.1634–1640.

[22] Z.Bodie , A. Kane, & A.Marcus, *Investments (Eleventh edition)*. New York: McGraw-Hill Education,2018.

