VALUATION OF PT BANK TABUNGAN NEGARA (PERSERO) TBK FOR ACQUISITION

Fatimah Nur Zuhrah and Arson Aliludin
School of Business and Management
Institut Teknologi Bandung, Indonesia
nur.zuhrah@sbm-itb.ac.id

Abstract-The purpose of this final project is to estimate the company value of PT Bank Tabungan Negara (Persero) Tbk or BTN as short, which is an Indonesian government-owned Bank in the form of a limited liability company and is engaged in the country's mortgage loans sector, housing, banking financial services and Islamic banking. Its vision is to be the leading bank in housing finance in Indonesia. At the beginning of February 2014 there was an issue that PT Bank Tabungan Negara (Persero) Tbk or BTN will be acquired. Many banks were deemed to acquire BTN, but Bank Mandiri shows the most interest. Although the plans of acquiring BTN by Bank Mandiri were recently informed to have failed, Bank Mandiri claimed to still hold interest to acquire BTN and that the acquisition is highly possible even if it doesn't happen in year 2014. In 2013, BTN was reviewed to have shown good performance in the business, but unexpectedly news about BTN going to be acquisitioned arise. Some viewed that the acquisition is not necessary. Up until now there are no banks that have a good position like BTN who focuses well on housing finance for the middle to low class market. The process of acquisition by another bank with a different business focus would make BTN lose its core focus; as a fact BTN now controls nearly 98% lower intermediate housing market. Therefore, the purpose of this final project is to examine the company value of BTN assuming it will be acquisitioned. The author will use valuation using numbers from BTN's financial report and a review of its financial performance from year 2009 to 2013 using the valuation principles and methods specifically for valuing Banks which are: dividend discount model, cash flow to equity model, excess return model and relative valuation model. The values of equity per share generated from all four models respectively are Rp 823, Rp 1,489, Rp 857, Rp 869 compared to the actual market value per share of BTN by the end of year 2013 of Rp 870. Seeing that in actual BTN is currently performing well in the stock exchange, there is no need for an acquisition. Merely based on the calculations in this research, BTN is actually worth below its market value which is an advantage for the acquirer.

Introduction

There are various reasons why valuation is needed, such as for investment analysis, capital budgeting, merger transactions, acquisition transactions, litigation, etc. In finance, valuation is the process of estimating how much something is worth. Items that are usually valued are a financial asset such as shares or liability such as bonds issued by a company.

According to Aswath Damodaran in his book titled Investment Valuation 3rd Edition, valuation plays a key role in many areas of finance such as in corporate finance, in mergers and acquisitions and in portfolio management. For example in corporate finance, the objectives of valuation are maximizing the value of firm, the relationship between making financial decisions, and the corporate strategy. Valuation is often made because firms want to know how to increase their value.

But even at the end of most comprehensive and detailed valuation, there will be uncertainties about the final numbers, due to assumptions made about the future of the company and of course the condition of the economy.

For this research, the methods to estimate the company value of BTN will be used from the book by Aswath Damodaran titled Investment Valuation 3rd Edition. For a financial service firm, it is better to value equity directly rather than the whole firm. The author shall value the equity by discounting cash flows to equity at the cost of equity.

There are many considerations when acquisitioning a financial service firm (in this research: a bank). Investors in a company that are aiming to take over another company or firm must determine whether the purchase will be beneficial to them or not. The seller will tend to value the company as high as possible, while the buyer will try to get the lowest price possible.

In this research, the researcher encountered an issue; which is the acquisition of BTN. Acquisition means taking over a company by another company from different or the same field of business, or by interested investors. When there is an acquisition, certainly the acquired company requires a valuation to determine how much the company is really worth.

The goal of this research is to estimate the company value of PT Bank Tabungan Negara (Persero) Tbk.

The objective of this research is to estimate and analyze the value of PT Bank Tabungan Negara (Persero) Tbk. The analysis of this research will be provided by:
1. Estimating value per share using discounted cash flow valuation (dividend discount models, cost of equity, payout ratios, expected ratios, stable growth), cash flow to equity models, and excess return models.
2. Estimating using relative valuation (price earnings ratios, and price to book value ratio).
3. Give subsequent recommendations related to acquisition activity.
4. Conclusion regarding the result after valuation.

Theoretical Foundation
To calculate the company value of BTN, the author will use valuation will be using numbers from BTN's audited financial report from year 2009 to 2013 using the valuation methods specifically for valuing financial service firms which are: dividend discount model, cash flow to equity model, excess return model and price-earnings ratio model.

Research Methodology
The author will use five steps in this research, which are: problem identification, literature review, data collection, data analysis, and conclusion and recommendation.

Data Analysis
Dividend Discount Model

The category of financial service firm in this research is a bank, which is PT Bank Tabungan Negara (Persero) Tbk or BTN. It is rather difficult to value a financial service firm. There are two reasons why; first, it's difficult to define the debt and reinvestment, therefore the cash flows might not be perfectly accurate. Secondly, financial service firms are highly regulated which affects the value. According to the book by Aswath Damodaran titled Investment Valuation, it only makes sense to value equity directly rather than the entire firm, therefore, its best to adapt three alternatives which are three models: dividend discount model, cash flow to equity model and excess return model. In addition to that, relative valuation method will also be used. To value the equity in BTN, dividends are used as cash flows to equity. The data used is BTN's audited financial report from year 2009 to year 2013.

Year	2013	2012	2011	2010	2009
EPS (Rp)	148	147	123	104	76
Dividends (in billion Rp)	469	409	224	275	43
# Shares in billions	11	10	9	9	6
DPS (Rp)	44	40	25	32	7
Payout ratio (%)	30	27	21	30	9
Beta	1.61	1.76	1.87	1.41	1.41
Market risk premium (%)	9.1	9.1	9.1	9.1	9.1
Rf (%)	5.0	5.0	8.0	8.0	8.0
Cost of equity (%)	19.7	21.0	25.0	20.7	20.7
Growth rate (%)	9.5	9.7	12.1	9.9	8.3
Payout ratio assuming ROE= Cost of equity (%)	51.9	53.9	51.5	52.0	59.9
Value per share (Rp)	823	766	552	554	399
Value of equity (in billion Rp)	8,700	7,900	4,900	4,800	2,500

In dividend discount model, the value of equity is the present value of the expected dividends. In this calculation, the author will use earnings per share, dividends paid, number of shares and etc from the historical market data and actual data from the company's audited financial report from year 2009 to year 2013.

The stock price at close by the end of 2013 is Rp 870, however after using the dividend discount model, the result brings a value per share in 2013 of Rp 823 which is slightly undervalued.

1. Dividends per share
   The dividend per share is calculated from dividends divided by number of shares. Therefore in year 2013, the dividend per share is estimated to be Rp 44 per share which is a fair increase from the previous year.

$$DPS_{2013} = \frac{?? \ ?? \ ?? \ ?? \ ??}{?? \ ?? \ ?? \ ??} = Rp\ 44.359\ per\ share \ \tilde{}\ Rp\ 44\ per\ share$$

2. Cost of equity

The cost of equity is calculated using risk-free rate, beta and market risk premium. The risk-free rate used in 2013 is assumed to be the same in year 2012 which is 5.023%. The market risk premium that is used is the Country Default Spreads and Risk Premium by Aswath Damodaran which is 9.10% stated as of January 2014. The beta used each year is calculated from the historical data of BTN's stock price from year 2009 to year 2013.

$$\text{Cost of equity}_{2013} = 5.023\% + (1.61 \times 9.10\%) = 19.67\%$$

3. Dividend payout ratio

The payout ratio is the dividend per share paid that year divided by the earnings per share. The dividend payout ratio in year 2013 is 29.97% which is a 3% increase from the previous year.

$$P_{0\ 2013} = \frac{??\ ??\ ?6?}{??\ ???} \times 100\% = 29.97\%$$

4. Expected Growth Rate

The growth rate above is calculated using the fundamental growth formula to find the expected growth rate in earnings per share summarized as follows.

Fundamental Growth Rate in Earnings per Share					
Year	2013	2012	2011	2010	2009
Net Income (in billion Rp)	1,600	1,400	1,100	900	500
Total Equity (in billion Rp)	11,600	10,300	7,300	6,400	5,400
ROE (%)	13.5	13.3	15.3	14.2	9.1
Dividends (in billion Rp)	469	409	224	275	43
# Shares in billions	11	10	9	9	6
DPS (Rp)	44	40	25	32	7
EPS (Rp)	148	147	123	104	76
Payout ratio (%)	30	27	21	30	9
Retention ratio (%)	70.0	73.1	79.4	69.7	91.1
Expected growth rate (%)	9.5	9.7	12.1	9.9	8.3

The expected growth in earnings per share is written as a function of ROE and retention ratio. And so the growth rate used in the first table each year respectively from year 2009 to year 2013 is 8.28%, 9.90%, 12.13%, 9.70% and 9.47%.

$$\text{Retention ratio}_{2013} = 1 - 29.97\% = 70.03\%$$

$$\text{Expected growth rate}_{2013} = 13.52\% \times 70.03\% = 9.47\%$$

5. Return on equity

The return on equity (ROE) is the net income of the year divided by the total equity of the same year. The ROE in year 2013 is 13.52%, only a very slight increase from year 2012 which was 13.27%.

$$ROE_{2013} = \frac{??\ ???\ ??\ ??\ ??}{??\ ???\ ??\ ??\ ??} \times 100\% = 13.52\%$$

In 2013, the stock price at close was IDR 870. Since assuming a growth rate of 9.47% following the fundamental growth rate in earnings per share and a payout ratio of 29.97%. The ROE is 13.52% and the cost of equity is 19.67% therefore implicitly the ROE is lower than the cost of equity. If BTN is able to maintain an ROE equal to its cost of equity of 19.67%, it should be able to pay out considerably more dividends and still convey the same expected growth rate. Therefore the payout ratio assuming return on equity is equal to the cost of equity is as follows.

Payout ratio assuming ROE is 19.67% = 1 – (9.47%/19.67%) = 51.887% ˜ 52%

Applying the payout ratio to earnings in 2013 to the dividend discount model formula would have resulted in a value per share of IDR 823 from:

$$V_0 = \frac{?? \quad ?? \quad ? ?? ?60 \quad ? ??? ?60 \quad ?}{?? ?60 \quad ? ???0}$$
= Rp 823.47 per share ˜ Rp 823 per share

Cash Flow to Equity Model

The next method in this valuation is using the cash flow to equity model. Valuing the equity using this model is basically making a forecast up to five years ahead. To conduct the forecast, the author only uses the data and ratios from 2013. The main idea of cash flow to equity model is to find the value of expected potential dividends of BTN in the upcoming five years. The assumptions used in the free cash flow to equity model are:

1. The growth of current asset over the next five years each year is 18.21% based on the arithmetic average growth calculations which are as follows:

Year	Total Asset (Rp)	% change in growth
2013	131,169,730,000,000	
2012	111,748,593,000,000	14.8
2011	89,121,459,000,000	20.3
2010	68,385,539,000,000	23.3
2009	58,447,667,000,000	14.6
	Average growth	18.2

2. The ROE growth rate over the next five years each year is stable, using the latest ROE in 2013 which is 13.52%.
3. The capital ratio (CAR) in 2013 is 15.62% however in this calculation the author assumes that the CAR will reach 8% by the end of the fifth year following the minimum CAR regulation from Bank Indonesia, therefore the CAR growth each year declines 1.52% to reach 8% by the end of the fifth year.
4. Stable growth rate after the end of the fifth year is the expected fundamental growth rate in 2013 which is 9.47%.
5. The risk-free rate is 5.023% according to the financial report in year 2013.
6. The market risk premium uses the Country Default Spreads and Risk Premium by Aswath Damodaran which is 9.10% stated as of January 2014.
7. The beta coefficient is assumed to decrease 0.067 each from the previous beta in 2013, which is 1.61. By the end of five year the beta will be 1.54 based on the calculation which are as follows:

Year	2013	2012	2011	2010	2009
Beta	1.61	1.76	1.87	1.41	1.41
Growth each year	-0.15	-0.11	0.46	0	
Average growth	0.067				

The average growth of beta from year 2009 to 2013 is 0.67 therefore the beta is expected to decrease by the next five year is 0.67 each year and reaches the beta of 1.54 by the end of year five.

Finally the table below summarizes the estimation of net income, potential dividends, and the present value of the expected dividends over the next five years.

From the table below, the regulatory capital is calculated by multiplying current asset and CAR. The net income is regulatory capital multiply by return on equity. The potential dividend is net income subtracts the regulatory capital. The free cash flow to equity is the potential dividends. The table below shows the forecast of potential dividends five years ahead and also its present value.

Year	2013	2014F	2015F	2016F	2017F	2018F
Current Asset (in trillion Rp)	137	162	191	226	268	316
CAR (%)	15.6	14.1	12.6	11.1	9.5	8.0
Regulatory Capital (in trillion Rp)	21.4	22.8	24.1	25.0	25.5	25.3
Change in regulatory capital (in trillion Rp)		1.4	1.2	0.9	0.6	(0.2)
ROE (%)	13.5	13.5	13.5	13.5	13.5	13.5
Net Income (in trillion Rp)	1.6	3.1	3.3	3.4	3.4	3.4
-Investment in regulatory capital (in trillion Rp)		1.4	1.2	0.9	0.6	(0.2)
Potential dividend (in trillion Rp)		1.7	2.0	2.5	3.0	3.6
PV @ cost of equity 19.67% (in trillion Rp)		1.4	1.4	1.4	1.5	1.5

After using the cash flow to equity model, the value of equity per share resulted in Rp1,489 which is overvalued compared to the stock price at close at the end of 2013. It is overvalued due to the assumptions that have already been adjusted. Now, the value of equity per share using the cash flow to equity model is summarized as follows:

Value per share using Cash Flow to Equity Model	
Cost of equity (%)	19.1
Return on equity equals cost of equity (%)	19.1
Stable payout ratio (%)	50.4
Expected dividends in year 6 (Rp)	1,884,723,813,773
Terminal value at the end of year 5 (Rp)	19,629,487,145,910
Discounting PV of terminal value at the cost of equity from previous period growth (Rp)	7,996,683,677,753
Sum of PV of potential dividends (Rp)	7,732,008,100,076
Value of equity (Rp)	15,728,691,777,829
Number for shares end of year 2013	10,564,853,500
Value of equity per share (Rp)	1,489

The cost of equity can be calculated using the assumed beta. Below is the calculation of cost of equity:

$$k = 5.023\% + (1.54 \times 9.10\%) = 19.07\%$$

The author also assumes that the ROE will have a stable growth after year 5 and is equal to the cost of equity of 19.067% using the assumed beta of 1.54. To find the value of equity per share, first calculate the stable payout ratio by dividing the stable growth to the cost of equity:

$$P_0 = 1 - \frac{?\,??}{??\,??} = 50.36\%$$

The value of equity at the end of year 5 can be estimated by first finding the terminal value at the end of year 5 which is as follows:

$$\text{Terminal value} = \frac{??\ ?\,??\ ??\ ??\ ??\ ?\,??\,?\,??\ ?\,?\,??\ ??}{??\,??\ \ ?\,?\,??}$$
$$= \text{Rp } 19,629,487,145,910$$

Discounting the terminal value back at the cost of equity for the previous period growth where the cost of equity was 20.378% in year 2013.

$$\text{PV of terminal value} = \frac{??\ ??\,??\ ??\ ??\ ??}{??\,?\,??\,??\ ?}$$
$$= 7,996,683,677,753$$

Adding the present value of potential dividends to this number yields the value of equity for BTN in 2013:

$$\text{Value of equity} = \text{Rp } 7,732,008,100,076 + \text{Rp } 7,996,683,677,753$$
$$= \text{Rp } 15,728,691,777,829$$

Dividing by the number of shares in 2013 which amounts to 10,564,853,500 then the value of equity per share can be obtained:

$$\text{Value of equity per share} = \frac{?? \ ?? \ ?? \ ?? \ ?? \ ??}{?? \ ?? \ ?? \ ??}$$
$$= \text{Rp } 1,488.775 \text{ per share}$$
$$\tilde{} \ \text{Rp } 1,489 \text{ per share}$$

Excess Return Model

The next model used to value the equity of BTN is excess return model. Similar to cash flow to equity model, this model forecast five years ahead using the data and ratios from 2013. In the excess return model, the book value of equity is being forecasted. To value BTN using excess return models, the author made three assumptions:
1. The cost of equity is assumed stable at 19.67% using the cost of equity in year 2013.
2. The ROE is assumed stable at 13.52% using the ROE in year 2013.
3. The payout ratio is 29.97%.

Therefore assuming BTN is able to maintain its ROE, cost of equity, and payout ratio at the numbers in 2013 for the next five years, the excess returns and the present value are summarized as follows:

Year	1	2	3	4	5
Net Income (in trillion Rp)	1.6	1.7	1.9	2.0	2.2
-Equity cost (in trillion Rp)	2.3	2.5	2.7	3.0	3.2
Excess equity return (in trillion Rp)	(0.7)	(0.8)	(0.9)	(0.9)	(1,022)
Present Value (in trillion Rp)	(0.6)	(0.6)	(0.5)	(0.5)	(0.4)
Beginning BV of equity (in trillion Rp)	12	13	14	15	17
Cost of equity (%)	19.7	19.7	19.7	19.7	19.7
Equity cost (in trillion Rp)	2.3	2.5	2.7	3.0	3.2
ROE (%)	13.5	13.5	13.5	13.5	13.5
Net Income (in trillion Rp)	1.6	1.7	1.9	2.0	2.2
Payout ratio (%)	30	30	30	30	30
Dividends (in trillion Rp)	0.5	0.5	0.6	0.6	0.7
Retained earnings (in trillion Rp)	1.1	1.2	1.3	1.4	1.6

The net income each year is computed by multiplying the ROE each year by the beginning book value of equity. The book value of equity is calculated by adding both previously the beginning book value of equity with retained earnings. For BTN in this calculation, the author assumes that after the fifth year, the ROE will be equal to the cost of equity. Therefore the value of equity can be found by adding three components which are the book value of equity currently invested, the present value of excess equity returns over the next five years, and the present value of the terminal value of equity. Assume that the present value of the terminal value of equity is zero.

Value of equity using Excess Return Model	
Book value of equity currently invested (Rp)	11,556,753,000,000
PV of equity excess return - next five years (Rp)	(2,507,021,337,888)
Value of equity (Rp)	9,049,731,662,112
Number of shares in 2013	10,564,853,500
Estimated value per share (Rp)	857

The positive aspect of this model is that it focuses on excess return. A firm that invests its equity and earns the fair-market rate of return on these investments should see the market value of it equity assemble on the equity capital invested in it. The other point that has to be emphasized is that this model considers expected future investments as well.

Relative Valuation Model

The author will use price-earnings ratio for the relative valuation model. The price-earnings ratio is the ratio of the market price per share to the earnings per share. The summary of BTN's PER from year 2009 to year 2013 are as follows.

Year	Market price per share (Rp)	EPS (Rp)	PER
2009	769.010	76	10.1
2010	1,451.055	104	14.0
2011	1,368.303	123	11.1
2012	1,271.185	147	8.7
2013	870	148	5.9

In 2013, BTN's PER is 5.88 which is a decrease from the previous year.

$$PER_{2013} = \frac{?? \ ??}{??} = 5.88$$

Using the PER result, now the value of equity per share can be calculated. The table that summarizes the value of equity per share in 2013 are as follows.

Year	Net Income (Rp)	P/E Ratio	Value of equity (Rp)	# Shares	Value of equity per share (Rp)
2013	1,562,161,000,000	5.8	9,182,973,445,946	10,564,853,500	869

To find the value of equity, the PER is multiplied by the net income in year 2013 which results to Rp 9,182,973,445,946. To find the value of equity per share, the value of equity is divided by the number of shares in 2013.

$$\text{Value of equity per share} = \frac{?? \ ??? \ ?? \ ?? \ ??}{?? \ ?? \ ?? \ ?? \ ??} = \text{Rp } 869.2 \text{ per share}$$
$$\approx \text{Rp } 869 \text{ per share}$$

Using the PER method, the estimated value of equity per share of BTN is Rp 869 per share which is not a significant difference compared to the stock price at close per share of BTN in 2013 which is Rp 870 even if its undervalued.

Book Value and Market Value Comparison
The results show that the value of equity per share from three out of four models is slightly undervalued compared to the actual value per share of BTN in the end of 2013. The author tries to analyze this by comparing the book value and market value of BTN from the past years of 2009 to 2013.

Year	2009	2010	2011	2012	2013
Book Value (Rp)	849	740	829	993	1,094
Market Value (Rp)	840	1,640	1,210	1,470	870
MV/BV	0.99	2.22	1.46	1.48	0.80

If the MV/BV is above 1 that means BTN's performance is good but if it's below 1 then it's not good. The table above shows that BTN's performance declined from 2012 to 2013 where the market value is lower than the book value although since 2009 it's has constantly increased.

Conclusion and Recommendation

If the MV/BV is above 1 that means BTN's performance is good but if it's below 1 then it's not good. The table above shows that BTN's performance declined from 2012 to 2013 where the market value is lower than the book value, although since 2009 it constantly increased. One way a company's performance can be viewed well or bad is by looking at their market value. A market value that is lower than the book value may happen due to many reasons. Perhaps BTN have been too much exposed in the media or maybe BTN have gone through a change in their management, and other reasons.

No	Method	Valuation 2013		Actual Value 2013		
		Value of firm (Rp)	Value Per Share (Rp)	Book Value Per Share (Rp)	Market Value Per Share (Rp)	Book Value of firm (Rp)
1	SDDM	8,699,837,551,427	823	1,094	870	11,556,753,000,000
2	FCFE	15,728,691,777,829	1,489			
3	Excess Return	9,049,731,662,112	857			
4	Relative Valuation	9,182,973,445,946	869			

The result using the four models above shows that BTN currently have a fair value of its stock because three out of four models results in a value that doesn't have a significant difference with the book value and market value of BTN in 2013. The book value in 2013 is Rp 1,094 calculated from total equity in 2013 divided by number of shares in 2013, and the market value at close by the end of 2013 is Rp 870. One model shows a result that is way above the book value and market value of BTN, however, keep in mind that there are several assumptions made by the author that were adjusted in the calculations which results in these amounts.

Valuing a company isn't limited based on calculations, but also considers the intangible calculations. For acquisition, both parties must consider the overall performance of the company.

Based on the conclusion, there are several recommendations the author have made:

1. BTN's Market Value should be higher than its Book Value. But in 2013, BTN's Market Value is below its Book Value. This is a decline from the previous year. It shows that BTN is had a slump in the business. The reason for that is perhaps because of the change in BTN's management which made changes in the stock exchange. However, overall, BTN is currently performing well; therefore there is no need for an acquisition.

2. From the acquirer perspective, merely based on the estimated value from the four methods which only had a slight difference from the actual value, BTN is actually worth below its market value which is an advantage for the acquirer; therefore the acquirer should acquire BTN. But to see whether a firm is worth acquiring, the acquirer should also consider other aspects.

For further research, the author suggests that to value a bank, it is wiser to also consider other aspects such as management system of the bank, its human capital and business performance as whole.