CHAPTER IV

RESULT AND DISCUSSION

A. General Overview of Indonesia Stock Exchange (IDX)

1. A Brief History of Indonesia Stock Exchange (IDX)

Stock exchange is a market that relates with selling and buying transactions of company's securities. Stock exchange owned by Indonesia is Indonesian Stock Exchanges (IDX). Indonesia Stock Exchange is the result of a merger between Jakarta Stock Exchange and Surabaya Stock Exchange. The government purpose to combine the stock exchanges is related to operational effectiveness and transactions. Indonesia Stock Exchange is started operate on December 1, 2007.

Historically, stock exchange in Indonesia already exists before the Independence of Indonesia. The first stock exchange in Indonesia was established on 1912 in Batavia during the Dutch colonial era. The purpose of the Dutch government to establish a stock exchange is to raise funds used to support the expansion of plantation business owned by the Dutch in Indonesia. Besides in Batavia, the Dutch government opened the stock exchange in Surabaya and Semarang.

During that era, stock exchange in Indonesia became inactive because of several conditions such as World War I and II. Due the political issued (World War II) stock exchange in Surabaya and Semarang was closed and securities trading focus in Jakarta. Then in 1940, the stock exchange in Jakarta was closed too.

The stock exchange operated again on 10 August 1977 and inaugurated by Soeharto as President of Indonesia. The stock exchange was operates under the management of Capital Market Supervisory Agency (Badan Pengawas Pasar Modal or BAPEPAM).Trading in the stock exchange was dull, because the number of issuers on the stock exchanges reached only 24 listed companies until 1987.

In 1988, the government tried to improve the situation by providing convenience for companies to go public and several positive policies related to the growth of the capital market. The Stock Exchange in Surabaya also start to operate on 16 June 1989, it was managed by PT. Bursa Efek Indonesia Surabaya.

The stock exchange in Indonesia that has been merged into Indonesia Stock Exchange (IDX) continues to grow, along with government incentives and regulatory support. A brief history of the Indonesia Stock Exchange which has been summarized can be seen in **Table 4.1** as follows:

Table 4.1 A brief history of the Indonesia Stock Exchange (IDX)

Year	Event
December 1912	The first Stock Exchange in Indonesia was built in Batavia (currently known as Jakarta) by Dutch East Indies.
1914 – 1918	The Batavia Stock Exchange was closed during the World War I.
1925 – 1942	The Batavia Stock Exchange was re-opened, and new stock exchanges were established in Semarang and Surabaya.
The beginning of 1939	Due to political issues (World War II) the Stock Exchange in Semarang and Surabaya Closed.
1942 – 1952	Jakarta Stock Exchange (JSX) was re-closed during the World War II

Continued 4.1

1956	SX was reactive by issue of the Capital Market Emergency Regulation 1952 by the Minister of Justice of Indonesia (Prof. Dr. Sumitro Djojohadikusumo). The only product traded in the Exchange at the time was the Indonesia Government bond (1950)
1956 – 1977	- Due the nationalism programs on Dutch's companies by the Indonesian Govenment, JSX became stagnant. - During this period, JSX became inactive.
10 August 1977	The Exchange was re-activeted by the President Soeharto. It was supervised under the management of Capital Market Supervisory Agency (Badan Pengawas Pasar Modal or BAPEPAM). The re-activation of the capital market was also marked by the go public of PT Semen Cibinong as the first issuer listed in the JSX. July 10th is celebrated as the anniversary of the Capital Market in Indonesia.
1977 – 1987	The activity of stock trading in JSX was dull. There was only 24 listed companies in JSX. Most people preferred to invest their oney in Banks rather than the Capital Market.
1987	PAKDES 87 (December Package 1987) wasissued to give ways for companies to go public and foreign investors to invest their money in Indonesia.
1988 – 1990	Deregulations packages in Banking and Capital Market were made. JSX welcomed foreign investor. The activities of JSX were improving.
2 June 1988	Indonesia Pararel Bourse started to operate and managed by the Securities and Money Trading Organization. It consisted of brokers and dealers.
December 1988	The government issued PAKDES 88 to give ways for companies to go public and some other regulation that bought positive impact on the capital market growth were made.
16 Juni 1989	Surabaya Stock Exchange started to operate and was managed by Surabaya Stock Exchange inc.

Continued 4.1

13 July 1992	JSX was privatized and as a result, the function of BAPEPAM changed to become the Capital Market Supervisory Agency (BAPEPAM_LK). This date is celebrated as the anniversary of Jakarta Stock Exchange.
22 May 1995	JSX introduced its computerized Jakarta Automatic Trading System (JATS).
10 November 1995	The Government of Indonesia issued Regulation No. 8 year 1995 on capital market. This regulation was effective on January 1996.
1995	Indonesia Pararel Bourse was mergered into Surabaya Stock Exchange.
2000	Scripless trading implement the remote trading system.
2002	JSX started to implement the remote trading system.
2007	Surabaya Stock Exchange was merged into Jakarta Stock Exchange. As a result, JSX changed its name into the Indonesia stock Exchange.
2 May 2009	The launching of JATS next-G, IDX New Trading system.

Source: www.idx.co.id/home/aboutus/history.aspx

2. Vision and Mission of Indonesia Stock Exchange (IDX)

Vision and mission of Indonesia Stock Exchange (IDX) as follow:

Vision

To become a competitive and credible exchange on the world class level.

Mission

Develop an accessible stock exchange and facilitate long term financing, for all kinds and states of industries. It is not only in Jakarta, but also throughout Indonesia. It is not only for Institutions, but also for individuals

qualified for distribution of wealth through ownership. And also, improve IDX reputation through consistent excellent service for all stakeholders.

Beside that, Indonesia Stock Exchange has core value and core competencies to support their vision and mission, there are:

Core Values

a) Teamwork

b) Integrity

c) Professionalism

d) Service Excellence

Core Competencies

a) Building Trust

b) Integrity

c) Strive of Excellence

d) Customer Focus

B. General Overview of Sample Companies

1. PT. Adaro Energy Tbk. (ADRO)

PT. Adaro Energy Tbk was established July 28th, 2004. Adaro Energy is a Indonesian energy group that focuses on coal mining trough subsidiaries. It owns subsidiaries along the length of its coal supply chain from pit to port to power, including in mining, barging, ship loading, dredging, port services, marketing and power generation. The company has a purpose to creating sustainable value from Indonesian coal and providing reliable energy to help build Indonesia. The principal location of company is at

Tabalong district in South Kalimantan and the company's head office is domiciled in Jakarta and located at Menara Karya. Adaro Energy operates under a first-generation CCA (coal co-operation agreement) with the Indonesian Government valid until 2022.

2. **PT. AKR Corporindo Tbk. (AKRA)**

PT. AKR Corporindo Tbk was established in Surabaya on 28 November 1977 under the name PT Aneka Kimia Raya engaging in basic chemicals trading. Currently, the company has transformed into a company that is recognized in the country, particularly in the infrastructure, supply chain and logistics sectors. The company operates its business not only in Indonesia, but also in China. AKR Corporindo is domiciled at Wisma AKR, Jakarta and the Company also has a representative office in Guigang, China. The Company's scope of activities comprises of chemical industry, general trading and distribution of primarily chemical products and petroleum products and gas. Company has transformed into one of the largest distributors of petroleum and basic chemicals in Indonesia. For subsidized fuel, in 2016, the company has been reassigned to distribute subsidized petroleum for motor vehicles and fishermen.

3. **PT. Astra International Tbk. (ASII)**

PT. Astra International Tbk. was established in 1957 as PT. Astra International Incorporated. In 1990, the company changed its name to PT. Astra International Tbk followed by listing its shares on the Indonesia Stock Exchange under the ticker code ASII. Astra International had 202

subsidiaries and the total employees have reached 214.835 employees. The company has developed its business by implementing a business model based on synergies and diversification within seven business segments, consisting of: Automotive, Financial Services, Heavy Equipment and Mining, Agribusiness, Infrastructure and Logistic, Information Technology and Property. Astra International runs business activities by a balanced combination of the business' commercial interests and non-business contributions through ongoing social responsibility programs focused on four basic areas: education, environment, small and medium enterprises (SME) development and health.

4. **PT. Bank Central Asia Tbk. (BBCA)**

PT. Bank Central Asia Tbk. was established under the name N.V. Perseroan Dagang dan Industrie Semarang Knitting Factory on October 10th, 1955. The name has changed for several time, the last change was on May 21st, 1974, which is PT Bank Central Asia. Bank Central Asia (BCA) operates as a commercial bank. Bank engaged in banking and other financial services in accordance with the regulations applicable in Indonesia. Bank Central Asia (BCA) has direct and indirect ownership in subsidiaries: PT BCA Finance, BCA Finance Limited, PT Bank BCA Syariah, PT BCA Sekuritas, PT Asuransi Umum BCA, and PT Central Santosa Finance.

5. **PT. Bank Negara Indonesia (Persero) Tbk. (BBNI)**

PT. Bank Negara Indonesia (Persero) Tbk. was originally established in Indonesia as a central bank under the name "Bank Negara Indonesia" dated

July 5th, 1946. Subsequently, Bank Negara Indonesia (BNI) became "Bank Negara Indonesia 1946" and changed its status to a state-owned commercial bank based on Law No.17 years 1968. BNI's scope of activity is to engage in general banking services. BNI was the first state-owned company to become a public company after listing its shares on the Jakarta and Surabaya Stock Exchanges in 1996. Currently, 60% of BNI's stocks are owned by the Government of the Republic of Indonesia, while the remaining 40% is owned by the public. BNI has direct ownership in the following subsidiaries: PT BNI Life Insurance, PT BNI Multi finance, PT BNI Securities and subsidiaries, BNI Remittance Ltd. and PT Bank BNI Syariah. All of the subsidiaries of BNI are domiciled in Jakarta, except for BNI Remittance Ltd. that is domiciled in Hong Kong.

6. **PT. Bank Rakyat Indonesia (Persero) Tbk. (BBRI)**

PT. Bank Rakyat Indonesia (Persero) Tbk is the oldest commercial bank in Indonesia, established on December 18, 1895, in Purwokerto, Central Java. The state-owned bank went public on November 2003 and the Indonesian government holds the majority of its stocks with 56.75%, followed by public. Since its establishment, Bank Rakyat Indonesia (BRI) consistently focuses on micro, small and medium enterprises (SMEs), and became the pioneer of microfinance in Indonesia. In 2013, BRI is the first to provide banking self-service in Indonesia through BRI Hybrid Banking and in 2016 BRI launched BRIsat. BRIsat making BRI be the first bank in the world that owns and operates its own satellite. BRI has Subsidiaries consisting of: PT

Bank BRI Syariah, PT Bank Rakyat Indonesia Agroniaga Tbk., BRI Remittance Co. Ltd. And PT Asuransi Jiwa Bringin Jiwa Sejahtera.

7. **PT. Bank Mandiri (Persero) Tbk. (BMRI)**

Bank Mandiri was formed on 2 October 1998, as part of the government of Indonesia's bank restructuring program. Bank Mandiri is the largest bank in Indonesia.The state-owned bank went public on Juli 2003 and 60% of stocks are owned by the Government of the Republic of Indonesia. On 31 December 2016, Bank Mandiri's asset value reached Rp1,000 trillion with the composition of the Client's Fund consisting of Current Accounts, Savings and Deposits. Bank Mandiri is the fourth largest state-owned bank in the world. The Company consistently focuses its business strategy on 3 (three) issues: strengthening leadership in the wholesale segment by deepening relationship with customers, constantly striving to become the preferred customer bank in the retail segment, and continuously seeking integration across all business lines of both the Company and Subsidiaries.

8. **PT. Bumi Serpong Damai Tbk. (BSDE)**

PT. Bumi Serpong Damai Tbk. was established on 16 January 1984. A business group under Sinar Mas Land, the company brought to Indonesia its flagship project, the BSD City. The company's purpose and objective is to engage in real estate development activities. The company is diversifying to Jakarta, Bekasi, Cibubur, Surabaya, Medan and Balikpapan, also expanding to Samarinda, Manado and Palembang. Since 2008, the Company has become a public company that listed in the Indonesia Stock Exchange In the

last of December 2016, the company's market capitalization has reached IDR33.78 trillion.

9. **PT. Gudang Garam Tbk. (GGRM)**

PT. Gudang Garam Tbk. previously named as PT Perusahaan Rokok Tjap "Gudang Garam" Kediri (PT Gudang Garam), was established on June 30th, 1971. The Company is a continuation of a Proprietorship which was established in 1958.Gudang Garam is a leading producer of kretek cigarettes, the clove cigarette synonymous with Indonesia and the dominant cigarette category, drawing on its unique reputation as a major centre of the spice trade. Based on Nielsen market research, the company has a market share of 20.8% of the domestic cigarette market at the end of 2016 and it is a major consumer brand recognized throughout the archipelago. Gudang Garam operates production facilities at two main sites each with its own primary and secondary kretek manufacturing operations. The first site is in Kediri where the company was founded and the second site located in Gempol, East Java is 50 kilometres away from Surabaya.

10. **PT. Indofood CBP Sukses Makmur Tbk. (ICBP)**

PT. Indofood CBP Sukses Makmur Tbk was established on September 2nd, 2009. PT Indofood CBP Sukses Makmur Tbk or ICBP is an established and one of the market leading players in the consumer branded products sector. The company was the result of the spin-off of the Noodle Division and Food Ingredients Division of PT Indofood Sukses Makmur Tbk. In addition, the company also operates a packaging business, producing both flexible and

corrugated packaging to support our main businesses. The business operations of the company are supported by more than 50 plants located in key areas across Indonesia. Besides Indonesia, the products are also present in more than 60 countries around the world.

11. **PT. Indofood Sukses Makmur Tbk. (INDF)**

PT. Indofood Sukses Makmur Tbk was established in 1990 as PT Panganjaya Intikusuma. In 1994, the company was renamed as PT Indofood Sukses Makmur. Indofood is a leading Total Food Solutions Company with operation spanning from the production of raw materials and their processing, to consumer products in the market. In its business operations, Indofood capitalizes on economies of scale and a resilient business model with four complementary Strategic Business Groups namely: Consumer Branded Products (CBP), Bogasari, Agribusiness, Distribution. The total number of employees in the company at June 30th, 2016 was 83,744.

12. **PT. Indocement Tunggal Prakasa Tbk. (INTP)**

PT. Indocement Tunggal Prakarsa Tbk was incorporated on 16 January 1985. The Company's shares were first listed on the Indonesia Stock Exchange (IDX) on December 5, 1989. Indocement is a pioneer in the cement industry by applying state-of-art technology, producing high quality, strong and environmentally friendly cement.The scope of its activities comprises, among others, cement and building materials manufacturing, mining, construction and trading. In the last quarter 2016, Indocement launched Semen Rajawali. It is a new cement product with an affordable

price whilst maintaining a good quality. The company currently has 13 plants with a total annual production capacity of 24.9 million tons of cement. 10 plants are located in the Citeureup Factory Bogor, 2 plants in the Palimanan Factory Cirebon and 1 plant in the Tarjun Factory Kotabaru, South Kalimantan.

13. PT. Kalbe Farma Tbk. (KLBF)

PT. Kalbe Farma Tbk. was established on 10 September 1966. Kalbe Farma is a pharmaceutical company. The company expands its business through organic growth and mergers & acquisitions. Over the years, Kalbe Farma has expanded its business interests and transformed itself to become a provider of an integrated healthcare solution through its four business divisions consisting of: the prescription pharmaceuticals division, consumer health division, nutritionals division and distribution & logistic divisions. In the international market, the company has established its footprints in ASEAN and Africa countries, positioning Kalbe as a national pharmaceutical company with a competitive edge in the export market. Kalbe Farma is the largest publicly listed pharmaceutical company in Southeast Asia, with a market capitalization of Rp71,016 billion and Rp19,374 billion sales turnover by end of 2016.

14. PT. PP London Sumatera Tbk. (LSIP)

PT. PP London Sumatra Indonesia Tbk, also known as "Lonsum", was founded more than a century ago in 1906, when the Londonbased Harrisons & Crosfield Plc, a general trading and plantation management services firm,

established its first plantation in Indonesia near the city of Medan in North Sumatra.Lonsum became a public company in 1996. Since 2007, Lonsum became part of Indofood Group since when a subsidiary of PT Indofood Sukses Makmur Tbk (IndoAgri) which involved in agribusiness, became Lonsum's majority shareholders through its subsidiary in Indonesia, PT Salim Ivomas Pratama Tbk ("SIMP"). From the acquisition, Lonsum becomes part of the synergy with other companies in Indofood Group.The main products of the companies are crude palm oil and rubber, and small quantities of cocoa, tea and seeds. Currently, Lonsum is managing 114,461 hectares of nucleus plantation estates in Sumatra, Java, Kalimantan and Sulawesi. Lonsum also has partnership with palm oil farmers with access to around 35,000 ha in South Sumatra and East Kalimantan.

15. PT. Tambang Batubara Bukit Asam (Persero) Tbk. (PTBA)

PT. Tambang Batubara Bukit Asam (Persero) Tbk. was established on 2 March 1981. On 2002, the company changed its name into PT Bukit Asam (Persero) Tbk. The company went public in 2001 and the Indonesian government holds the majority of its stocks with 65.02%, followed by public with 34.98%. PT Bukit Asam (Persero) Tbk operates in the sector of mineral especially coal mining which is in line with the prevailing regulations and laws by applying the principles of Limited Company. The business activities of the company include several business segments are Coal Mining, Investment, Mining Service, Steam-Powered Electric

Generators, Briquette Business. The company's head office is domiciled in Sumatera Selatan, Indonesia.

16. PT. Semen Indonesia (Persero) Tbk. (SMGR)

PT. Semen Indonesia (Persero) Tbk, previously named PT Semen Gresik (Persero) Tbk. is a company engaged in cement industry. Semen Indonesia is the largest cement producer in Indonesia and listed as the first State Owned Enterprise (SOE) to go regional. The company inaugurated in Gresik on 7 August 1957. Indonesian government holds its stocks with 51.01%, followed by public with 48.99%. Semen Indonesia produces several cement types. The main cement produced is portland cement type II-V (Non OPC). The company also produces specific types and mixed cement products for limited usage. The following lists all cement types are Portland Cement Type I (Ordinary Portland cement –OPC), Portland Cement Type II-V, Special Blended Cement (SBC), Portland Pozzolan Cement (PPC), Portland Composite Cement (PCC), Super Mansory Cement (SMC), Oil Well Cement (OWC) – Class G HRC, Super White Cement (SWC).

17. PT. United Tractors Tbk. (UNTR)

PT. United Tractors Tbk. was established on October 13th, 1972. PT United Tractors Tbk ("the Company", "United Tractors" or "UT") is a publicly-listed major corporation in Indonesia that focuses its business on heavy equipment distribution, mining contracting, mining activities and general contracting services. The company listed and first traded its shares on the

Jakarta Stock Exchange and the Surabaya Stock Exchange on 19 September 1989.United Tractor's portfolio is strategically offered through four major business lines consisting of: Construction Machinery, Mining Contracting, Mining and Construction Industry. United Tractor is servicing in 177 point of service, including a vast network of 20 branches, 22 site supports, 14 mine offices and 10 representative offices, across Indonesia. The company head office is based in Jakarta, Indonesia. United Tractors is a subsidiary of PT Astra International Tbk (Astra), a well-established and one of the largest business groups in Indonesia with proven experience of serving various industries and sectors.

18. PT. Unilever Indonesia Tbk. (UNVR)

PT. Unilever Indonesia Tbk was first established under the name Lever's Zeepfabrieken N.V. on 5 December 1933. In 1980, The company's name was changed to PT Unilever Indonesia. The company underwent a further change of name to PT Unilever Indonesia Tbk on 30 June 1997. Unilever Indonesia has been listed on the Indonesia Stock Exchange at Jakarta since 11 January 1982. As of the end of 2016, Unilever Indonesia was the fifth largest company by market capitalization on the Indonesia Stock Exchange. Unilever Indonesia has grown to be a leading company of Home and Personal Care as well as Foods and Ice Cream products in Indonesia. The Company is engaged in the manufacturing, marketing and distribution of consumer goods. The company has nine factories, located in the Jababeka

Industrial Zone, Cikarang and Rungkut, Surabaya, and moved to its new head office in Bumi Serpong Damai at the end of 2016.

C. Data Analysis and Interpretation

1. Free Cash Flow to Equity Approach (FCFE)

a) Calculate risk-free rate of return (R_f)

Risk-free rate of return is the minimum rate of return when beta is zero. it is needed to calculate cost of equity (Ke). Risk-free rate in this research is represented by interest rate of Bank Indonesia Certificates (SBI) and it is obtained from www.bi.go.id.

The increasing risk-free of return is indicated by the rise in bank interest rates. The high interest rates of banks will influence investors' investment decision. Investors will tend to choose to invest in assets that offer zero risk (risk free) with a higher rate of return. Thus, it affects the growth of investment in the capital market. The risk-free rate of return (R_f) during period 2013-2015 is:

Table 4.2 Interest rate of SBI period 2013-2015

No	Period		SBI (%)	SBI (decimal)
	Year	Month		
1		January	5,75%	0,0575
2		February	5,75%	0,0575
3		March	5,75%	0,0575
4		April	5,75%	0,0575
5	2013	May	5,75%	0,0575
6		June	6,00%	0,0600
7		July	6,50%	0,0650
8		August	7,00%	0,0700
9		September	7,25%	0,0725

Continued Table 4.2

No	Period		SBI(%)	SBI (decimal)
	Year	Month		
10		October	7,25%	0,0725
11		November	7,50%	0,0750
12		December	7,50%	0,0750
13	2014	January	7,50%	0,0750
14		February	7,50%	0,0750
15		March	7,50%	0,0750
16		April	7,50%	0,0750
17		May	7,50%	0,0750
18		June	7,50%	0,0750
19		July	7,50%	0,0750
20		August	7,50%	0,0750
21		September	7,50%	0,0750
22		October	7,50%	0,0750
23		November	7,75%	0,0775
24		December	7,75%	0,0775
25	2015	January	7,75%	0,0775
26		February	7,50%	0,0750
27		March	7,50%	0,0750
28		April	7,50%	0,0750
29		May	7,50%	0,0750
30		June	7,50%	0,0750
31		July	7,50%	0,0750
32		August	7,50%	0,0750
33		September	7,50%	0,0750
34		October	7,50%	0,0750
35		November	7,50%	0,0750
36		December	7,50%	0,0750
			Total	2,5850
			Average	0,07181

Source: Data processed by Researcher, 2017

Based on the table above, the lowest level of interest rate of SBI is 5,75% or 0,0575. In December 2014 until January 2015, this is the highest level

during research period that reach 7,75% or 0.0775. Mostly the fluctuation of risk-free rate are changing about 0,25%. There is only once of the time it changes about 0,5%, that is from June to July 2013.

The average of interest rate of SBI is used to calculate the risk-free rate of return period 2013-2015. This value will be divided by the total of month in a year. Thus, the calculation of risk-free rate period 2013-2015 as follows:

$$R_f = \frac{\sum R_f \text{ (SBI)}}{N}$$

$$= \frac{0.07181}{12} = 0,005984$$

The value of risk-free rate of return (R_f) in this research is 0,005984.

b) Rate of individual stock return (R_i)

Rate of individual return (R_i) is the return that earned from the change of the market price from stock trading. This rate calculated using monthly closing price data. The dividend in this research is based on the payment date, when the dividend from previous period will be count if the payment date is included in research period (January 2013 – December 2015). The rate of individual stock return can be calculated using the formula as follows:

$$R_{i,t} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$$

Source: Jogiyanto (2014:237)

The formula is used to calculate the rate of individual stock return monthly. The calculation example for ADRO 2013 is as follow:

$$R_i \text{ February2013} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}} = \frac{1570 - 1.650 + 0}{1.650} = -0,04848$$

Where:

P_t = Current stock price (closing price on February 2013)

P_{t-1} = Previous stock price (closing price on January 2013)

D_t = Dividend (dividend on February 2013)

Using the similar calculation, the researcher then calculates all rate of individual stock return (R_i) monthly for each company. Then, the researcher calculates total R_i by adding up all the R_i monthly. Rate of individual stock return (R_i) in period 2013-2015 is known from the total R_i divided by the number of months in 3 years. The calculation as follows:

$$\text{ADRO: } R_i = \frac{-0,85374}{36} = -0,02372$$

The table below is the result of the calculation of the rate of individual stock return. The complete calculation can be seen on **Attachment 3.**

Table 4.3 Rate of individual stock return (R_i) period 2013-2015

No	Emiten Code	R_i
1	ADRO	-0,02372
2	AKRA	0,02334
3	ASII	-0,00044
4	BBCA	0,01188
5	BBNI	0,01466
6	BBRI	0,01656
7	BMRI	0,00517
8	BSDE	0,01307
9	GGRM	0,00592
10	ICBP	0,01850
11	INDF	0,00005
12	INTP	0,00769
13	KLBF	0,00858
14	LSIP	0,00077
15	PTBA	-0,02208
16	SMGR	-0,00380
17	UNTR	0,00117
18	UNVR	0,01756

Source: Data processed by Researcher, 2017 (Attachment 3)

Based on the **Table 4.3**, there are 4 companies that have negative rate of individual stock return (R_i). Negative value of the rate of individual stock return (R_i) occurred when majority of closing price of stocks decrease. The stock that has negative rate of individual stock return (R_i) will provide losses for investors, while the stock with positive rate of individual stock return (R_i) will provide profit for investors. The table shows from 18 companies, AKRA is the company that has the highest value. The value of AKRA reaches 0,02334. While, the lowest value of the rate of individual stock return is ADRO with the value of -0,02372.

c) Rate of market return (R_M)

Market return is the rate of return based on the stock price index development or *Index Harga Saham Gabungan (*IHSG). This rate can be calculated using the formula as follow:

$$R_{M,t} = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$$

Souce: Jogiyanto (2014:370)

The formula above is applied to calculate the rate of market return monthly during period 2013-2015. The calculation example for February 2013 is:

$$R_{M,Feb\ '2013} = \frac{IHSG_{February} - IHSG_{January}}{IHSG_{January}} = \frac{4.795,79 - 4.453,70}{4.453,70} = 0,07681$$

Using the similar calculation, the researcher then calculates all rate of market return (R_M) monthly. Then, the researcher calculates total R_M by adding up all the R_M monthly. Rate of market return (R_M) period 2013-2015 is obtained

from the total R_M divided by the total months in 3 years. The calculation of

Rate of market return (R_M) period 2013-2015 is as follows:

$$R_M = \frac{0,05937}{36} = 0,00165$$

The rate of market return (R_M) period 2013-2015 is 0,00165.

The table below is result of the rate of market return (R_M) monthly and the

rate of market return (R_M) period 2013-2015. The data of IHSG is taken from

www.bps.go.id.

Table 4.4 Rate of market return (R_M) period 2013-2015

No	Period		IHSG	R_M(decimal)	R_M(%)
	No	Period			
1		January	4.453,70		
2		February	4.795,79	0,07681	7,680%
3		March	4.940,99	0,03028	3,030%
4		April	5.034,07	0,01884	1,880%
5		May	5.068,63	0,00687	0,690%
6	2013	June	4.818,90	-0,04927	-4,927%
7		July	4.610,38	-0,04327	-4,327%
8		August	4.195,09	-0,09008	-9,008%
9		September	4.316,18	0,02886	2,886%
10		October	4.510,63	0,04505	4,505%
11		November	4.264,44	-0,05458	-5,458%
12		December	4.274,18	0,00228	0,228%
13		January	4.418,76	0,03383	3,383%
14		February	4.620,22	0,04559	4,559%
15		March	4.768,28	0,03205	3,205%
16		April	4.840,15	0,01507	1,507%
17		May	4.893,91	0,01111	1,111%
18	2014	June	4.878,58	-0,00313	-0,313%
19		July	5.088,80	0,04309	4,309%
20		August	5.136,86	0,00944	0,944%
21		September	5.137,58	0,00014	0,014%
22		October	5.089,55	-0,00935	-0,935%
23		November	5.149,89	0,01186	1,186%

Continued Table 4.4

No	Period		IHSG	R_M (decimal)	R_M(%)
	Year	Month			
24		December	5.226,95	0,01496	1,496%
25		January	5.289,40	0,01195	1,195%
26		February	5.450,29	0,03042	3,042%
27		March	5.518,68	0,01255	1,255%
28		April	5.086,43	-0,07832	-7,832%
29		May	5.216,38	0,02555	2,555%
30	2015	June	4.910,66	-0,05861	-5,861%
31		July	4.802,53	-0,02202	-2,202%
32		August	4.509,61	-0,06099	-6,099%
33		September	4.223,91	-0,06335	-6,335%
34		October	4.455,18	0,05475	5,475%
35		November	4.446,46	-0,00196	-0,196%
36		December	4.593,01	0,03296	3,296%
Total				0,05937	
R_M period 2013-2015				0,00165	

Source: Data processed by researcher, 2017

Based on the **Table 4.4,** it shows that the highest rate of market return (R_M) occurred on February 2013 with the value of 0.07681or 7,681%. While, the lowest rate of market return (R_M) period 2013-2015 is -0,09008 or -9,008 % and it occurred on August 2013. The negative value of rate of market return (R_M) is caused by the decline of the IHSG compared to previous month.

d) Beta (β)

Beta is a measure of risk derived from the relationship between the rate of individual stock return and the market rate of return. The value of beta on each company's stock is different, because it has a different price fluctuation. There are several formula of beta and it is in this research.

$$\beta_i = \frac{\sigma_{i,M}}{{\sigma^2}_M}$$

Source: Tandelilin (2010:195)

or

$$\beta_i = \frac{[(R_{it} - \overline{R_{it}}) \times (R_{Mt} - \overline{R_{Mt}})]}{(R_{Mt} - \overline{R_{Mt}})^2}$$

Source: Jogiyanto (2012:383)

The calculation example for ADRO period 2013 - 2015 is as follows:

$$\beta_i = \frac{\sigma_{i,M}}{{\sigma^2}_M} \text{ or elaborated } \beta_i = \frac{\sum_{t=1}^{n}[(R_{it} - \overline{R_{it}}) \times (R_{Mt} - \overline{R_{Mt}})]}{(R_{Mt} - \overline{R_{Mt}})^2}$$

$$\beta_i = \frac{[(-0,04848 - (-0,02372)) \times (0,07681 - 0,00165)] + \cdots + [(-0,06364 - (-0,02372)) \times (0,03296 - 0,00165)]}{(0,07681 - 0,00165)^2 + \cdots + (0,03296 - 0,00165)^2}$$

$$\beta_i = \frac{-0,001081}{0,056140} = -0,01926$$

Where:

$\sigma_{i,M}$ = Covariance of securities return and market return period 2013 - 2015

${\sigma^2}_M$ = Variance of marker return period 2013-2015

R_{it} = Rate of individual stock return in t time (monthly) during 2013-2015

$\overline{R_{it}}$ = Average of rate of individual stock return (R_i period 2013-2015)

R_{Mt} = Rate of market return in t time (monthly) during 2013-2015

$\overline{R_{Mt}}$ = Average of rate of market return (R_M period 2013-2015)

The table below is the result of beta calculation of each company, whereas the whole of calculation can be seen on the **Attachment 4.**

Table 4.5 Beta (β) of the companies

No	Emiten Code	β_i
1	ADRO	-0,01926
2	AKRA	0,87244
3	ASII	1,27136
4	BBCA	0,86812
5	BBNI	1,85551

Continued Table 4.5

No	Emiten Code	β_i
6	BBRI	1,61086
7	BMRI	0,68874
8	BSDE	2,07658
9	GGRM	0,61090
10	ICBP	1,20030
11	INDF	0,85639
12	INTP	1,11005
13	KLBF	0,93027
14	LSIP	0,33376
15	PTBA	0,37443
16	SMGR	1,44543
17	UNTR	0,31250
18	UNVR	0,40012

Source: Data processed by Researcher, 2017 (Attachment 4)

Based on the **Table 4.5**, the results of the calculation show that the highest beta is BSDE with the value of 2,07658. While, the lowest value of beta is -0,01926 owned by ADRO. According to Brigham & Ehrdard (2014:253) the stock with the beta is higher than $1(\beta>1)$ contribute higher risk than the average stock, while the stock with beta is less than $1(\beta<1)$ contributes less risk than the average stock. Thus, almost half of stocks have high risk. It is shown from 18 samples, there are 7 companies have beta more than 1 ($\beta>1$) and 11 companies have low risk or beta more less than 1 ($\beta<1$).

e) Cost of Equity (Ke)

Cost of Equity (Ke) is the rate of return that desired or required by the investor. It is usually called expected return. This rate generated from risk-free rate (R_f), beta (β) and expected market portfolio return [$E(R_M)$]. The value of $E(R_M)$ is taken from the average value of the rate of market return ($\overline{R_{Mt}}$). In this research, the average value of the rate of market return ($\overline{R_{Mt}}$) is

same as the value of rate of market return (R_M) period 2013-2015. The equation of this calculation is:

$$K_e = R_f + \beta_i [\text{E}(R_M) - R_f]$$

Source: Tandelilin (2010:197)

The calculation example for ADRO period 2013-2015 is as follows:

ADHI: $K_e = R_f + \beta_i [\text{E}(R_M) - R_f]$

$$= 0{,}00598 + \text{-}0{,}00720 \, [0{,}00165\text{-}0{,}00598] = 0{,}006067$$

Where:

R_f = Risk-free rate of return (R_f) period 2013-2015
βi = Beta of ADRO period 2013-2015
$\text{E}(R_M)$ = The value of rate of market return (R_M) period 2013-2015

Using the similar calculation, the researcher then calculates cost of equity (Ke) for each company. The result of Ke calculation is in the table below, whereas the whole of calculation can be seen on the **Attachment 5.**

Table 4.6 Cost of equity (Ke) period 2013-2015

No	Emiten Code	Ke
1	ADRO	0,006067
2	AKRA	0,002203
3	ASII	0,000474
4	BBCA	0,002222
5	BBNI	-0,002058
6	BBRI	0,000997
7	BMRI	0,002999
8	BSDE	-0,003016
9	GGRM	0,003336
10	ICBP	0,000782
11	INDF	0,002272
12	INTP	0,001173
13	KLBF	0,001952
14	LSIP	0,004537
15	PTBA	0,004361
16	SMGR	-0,000280
17	UNTR	0,004630
18	UNVR	0,004250

Source: Data processed by Researcher, 2017 (Attachment 5)

Based on the **Table 4.6**, it is known that the stock of PT. Adaro Energy Tbk. (ADRO) has the highest cost of equity (Ke) than the other stocks. While, the lowest value is owned by PT. Bumi Serpong Damai Tbk. (BSDE). The result is different from the common theory that the higher beta will provide higher return too.

According to Van Horne & Wachowicz (2008:98) the concept of a market-imposed "trade-off" between risk and return for securities, that is the higher the risk of a security, the higher the expected return that must be offered the investor. It is different with the result in this research. Bumi Serpong Damai Tbk. (BSDE) has the highest beta, but the expected return or cost of equity (ke) of the company is the lowest than the others. It occurred because the rate of market return (R_M) is below than risk free rate of return (R_f). This condition will affect the expected returns from investors against stocks with high beta (investment with risk). Investor expectation of return on zero risk (risk-free) investment will be higher than expectation of return on investment with risk.

f) Growth rate (g)

Growth rate is needed to calculate the Expected Free Cash Flow to Equity ($FCFE_1$) in 2016. This rate is generated from payout ratio ratio and return on equity (ROE). Growth rate in this research uses the average growth in period 2013-2015. The equation for growth rate is:

$$g = ROE x \left(1 - Payout\ Ratio\right)$$

Source: Tandelilin (2010:315)

The calculation example for ADRO period 2013-2015 is as follows:

$$g = ROEx \ (1 - Payout \ Ratio)$$

(1) Growth of 2013 = 0,0718 x (1 – 0,3243) = 0,04852

(2) Growth of 2014 = 0,0562 x (1 – 0,4372) = 0,03165

(3) Growth of 2015 = 0,0450 x (1 – 0,4989) = 0,02225

Average growth = $\frac{0,04852 + 0,03165 + 0,02225}{3}$ = 0,03414 or 3,414%

Using the similar calculation, the researcher then calculates the growth rate of each company.

The table below is the growth rate of the companies. Data of ROE and payout ratio is obtained from www.idx.co.id. The complete calculation will be explained on **Attachment 6** of this research.

Table 4.7 Growth rate of the companies period 2013-2015

No	Emiten Code	g (decimal)	g (%)
1	ADRO	0,03414	3,414%
2	AKRA	0,05465	5,465%
3	ASII	0,09264	9,264%
4	BBCA	0,16483	16,483%
5	BBNI	0,11775	11,775%
6	BBRI	0,17316	16,316%
7	BMRI	0,14004	14,004%
8	BSDE	0,16682	16,682%
9	GGRM	0,07075	7,075%
10	ICBP	0,08688	8,688%
11	INDF	0,05023	5,023%
12	INTP	0,06817	6,817%
13	KLBF	0,11833	11,833%
14	LSIP	0,02336	2,336%
15	PTBA	0,13210	13,210%
16	SMGR	0,12259	12,259%

Continued Table 4.7

No	Emiten Code	g (decimal)	g (%)
17	UNTR	0,04349	4,349%
18	UNVR	0,23526	23,526%

Source: Data processed by Researcher, 2017 (Attachment 6)

Based on the **Table 4.7,** it shows the result of growth rate calculation period 2013-2015 on the 18 sample companies. There are 9 companies generate growth rate more than 10%. The highest owned by UNVR, the growth rate reaches 0,23526 or 23,526%. While, LSIP only has growth rate of 0,02336 or 2,336% and it become the lowest.

g) Free Cash Flow to Equity (FCFE)

After calculating the growth rate, then calculate the free cash flow to equity (FCFE) value. FCFE is measuring cash flow for stockholders after all expense, reinvestment and debt are paid. FCFE can be calculated using formula:

$$FCFE = Net\ income - (Capital\ expenditure - Depreciation)$$
$$- (change\ in\ noncash\ working\ capital)$$
$$+ (New\ debt\ issued - Debt\ repayment)$$

Source: Damodaran (2002:352)

FCFE calculation in this research use data in period 2015. It is because the result of FCFE will be used to calculate Expected Free Cash Flow to Equity ($FCFE_1$) in period 2016.

The table below is the result of FCFE calculation of each company. The source of data is taken from annual report of the companies. The calculation is explained on the **Attachment 7.**

Table 4.8 Free Cash Flow to Equity (FCFE) period 2015

No	Emiten Code	$FCFE_{2015}$ (Rupiah)
1	ADRO	20.051.123.950.000,00
2	AKRA	2.739.442.898.000,00
3	ASII	63.428.000.000.000,00
4	BBCA	35.545.806.000.000,00
5	BBNI	31.660.899.000.000,00
6	BBRI	22.978.772.000.000,00
7	BMRI	14.935.152.000.000,00
8	BSDE	4.315.366.783.485.00
9	GGRM	10.222.039.000.000,00
10	ICBP	4.950.150.000.000,00
11	INDF	12.092.874.000.000,00
12	INTP	11.727.796.000.000,00
13	KLBF	3.848.430.999.173,00
14	LSIP	2.818.861.000.000,00
15	PTBA	2.148.317.000.000,00
16	SMGR	11.107.217.589.000,00
17	UNTR	28.502.784.000.000,00
18	UNVR	7.571.425.000.000,00

Source: Data processed by Researcher, 2017 (Attachment 7)

Based on the **Table 4.8**, it shows that the amounts of FCFE of the companies are pretty different. It depends on the income and activities of each company. Other than that, the types of industry of the companies are also different.

h) Expected Free Cash Flow to Equity ($FCFE_1$)

Expected free cash flow to equity ($FCFE_1$) is calculated from FCFE in the current year. In this research, the researcher will calculate the expected free cash flow to equity ($FCFE_1$) in period 2016. Thus, it needs FCFE in period 2015 and growth rate that have been calculated before. The equation of

expected free cash flow to equity ($FCFE_1$) in this research can be written as follows:

$$FCFE_1 = FCFE_0 \text{ x } (1 + g)$$

Source: Gardner, McGowan, and Moeller (2012:3)

The calculation example for ADRO is as follows:

$$FCFE_{2016} = FCFE_{2015} \text{ x } (1 + g)$$
$$= \text{Rp. } 20.051.123.950.000,00 \text{ x } (1 + 0,03414)$$
$$= \text{Rp. } 20.735.669.321.653,00$$

Where:
$FCFE_{2015}$ = FCFE of ADRO period 2015
g = Growth rate (taken from **Table 4.7** page 83)

This calculation will be used to calculate expected free cash flow to equity ($FCFE_1$) period 2016 for each company. The table below is the result of expected free cash flow to equity ($FCFE_1$) calculation of the companies. The complete calculation is explained on the **Attachment 8.**

Table 4.9 Expected Free Cash Flow to Equity ($FCFE_1$) period 2016

No	Emiten Code	$FCFE_{2016}$ (Rupiah)
1	ADRO	20.735.669.321.653,00
2	AKRA	2.889.153.452.375,70
3	ASII	69.303.969.920.000,00
4	BBCA	41.404.821.202.980,00
5	BBNI	35.388.969.857.250,00
6	BBRI	26.957.776.159.520,00
7	BMRI	17.026.670.686.080,00
8	BSDE	5.035.256.270.305.97
9	GGRM	10.945.248.259.250,00
10	ICBP	5.380.219.032.000,00
11	INDF	12.700.299.061.020,00
12	INTP	12.527.279.853.320,00
13	KLBF	4.303.815.839.305.14
14	LSIP	2.884.709.592.960,00

Continued Table 4.9

No	Emiten Code	$FCFE_{2016}$ (Rupiah)
15	PTBA	2.432.109.675.700,00
16	SMGR	12.468.851.393.235.50
17	UNTR	2.974.237.007.616.00
18	UNVR	9.352.784.455.000,00

Source: Data processed by Researcher, 2017 (Attachment 8)

i) Intrinsic value (FCFE approach)

The calculation of the intrinsic value in this research uses constant growth FCFE model. The expected free cash flow to equity will be divided by cost of equity and growth rate. The formula can be written as follows:

$$Value = \frac{FCFE_1}{K_e + g_n}$$

Source: Damodaran (2002:359)

Intrinsic value in this research is intrinsic value period 2016 or it can be called expected intrinsic value. The example calculation of this value for ADRO is:

$$Expected\ intrinsic\ value_{2016} = \frac{FCFE_{2016}}{K_e + g_n} = \frac{20.735.669.321.653,00}{0,006067 + 0,03414}$$

$$= Rp.\ 515.722.867.203.547,00$$

Where:
$FCFE_{2016}$ = Expected FCFE of ADRO period 2016
K_e = Cost of equity of ADRO (taken from **Table 4.6** page 81)
g_n = Growth rate (taken from **Table4.7** page 82)

Similar with this calculation above, researcher then calculate expected intrinsic value in 2016 for each company. The table below is the expected of intrinsic value of the companies in period 2016. The explanation of the calculation provided in **Attachment 8** and **Attachment 9.**

Table 4.10 Expected intrinsic value of the companies period 2016

No	Emiten Code	Expected Intrinsic Value in 2016 (Rupiah)	Expected Intrinsic value per share in 2016 (Rupiah)
1	ADRO	515.722.867.203.547,00	1.617,05
2	AKRA	5.0817.959.516.220,80	1.286,85
3	ASII	744.291.620.164.529,00	18.385,04
4	BBCA	247.855.884.413.117,00	10.154,51
5	BBNI	305.889.515.759.517,00	16.568,45
6	BBRI	154.790.081.130.934,00	6.338,02
7	BMRI	119.035.163.040.010,00	5.153,04
8	BSDE	30.739.519.610.668,70	1.597,13
9	GGRM	147.737.065.832.276,00	76.782,90
10	ICBP	61.374.586.844.927,10	10.525,65
11	INDF	241.901.243.019.694,00	27.550,06
12	INTP	18.065.673.324.373,00	4.907,51
13	KLBF	35.781.046.534.852,60	763,33
14	LSIP	103.405.727.962.146,00	15.155,77
15	PTBA	17.822.745.514.835,70	7.735,12
16	SMGR	101.944.660.234.122,00	17.186,94
17	UNTR	61.808.749.119.202,00	16.570,11
18	UNVR	39.049.219.011.732,30	5.117,85

Source: Data processed by Researcher, 2017 (Attachment 7 and 8)

Based on the **Table 4.10**, it shows that the highest amount of intrinsic value is not necessarily has the highest intrinsic value per share. ASII is the company that has the highest intrinsic value overall, but the highest intrinsic value per share is GGRM. It is because of the amount of outstanding stock of ASII is more than GGRM. Thus, the less outstanding stock of the company, the greater the intrinsic value per share that company have.

j) Investment Decision

After all variables that relate in FCFE approach is already known, investment decision can be determined. Investment decision is determined based on the condition of the company's stock. The types of condition are

undervalued or overvalued position, it is depend on the position of intrinsic value to market value.

Undervalued position of stock can be said to be a low-priced stock because the market price is lower than the intrinsic price, while overvalued position of stock is an expensive stock price because the market price is higher than the intrinsic price.

The table below is recommendation for investment decision. The types of decisions are buy, sell or keep the stock.

Table 4.11 Recommendation of investment decision using FCFE approach

No	Emiten Code	Expected Intrinsic value per share in 2016 (Rupiah)	Closing Price 2016	Condition	Investment Decision
1	ADRO	1.617,05	1.695	Undervalued	Buy/keep
2	AKRA	1.286,85	6.000	Undervalued	Buy/keep
3	ASII	18.385,04	8.275	Undervalued	Buy/keep
4	BBCA	10.154,51	15.500	Overvalued	Sell
5	BBNI	16.568,45	5.525	Undervalued	Buy/keep
6	BBRI	6.338,02	11.675	Overvalued	Sell
7	BMRI	5.153,04	11.575	Overvalued	Sell
8	BSDE	1.597,13	1.755	Overvalued	Sell
9	GGRM	76.782,90	63.900	Undervalued	Buy/keep
10	ICBP	10.525,65	8.575	Undervalued	Buy/keep
11	INDF	27.550,06	7.925	Undervalued	Buy/keep
12	INTP	4.907,51	15.400	Overvalued	Sell
13	KLBF	763,33	1.515	Overvalued	Sell
14	LSIP	15.155,77	1.740	Undervalued	Buy/keep
15	PTBA	7.735,12	12.500	Overvalued	Sell
16	SMGR	17.186,94	9.175	Undervalued	Buy/keep
17	UNTR	16.570,11	21.250	Overvalued	Sell
18	UNVR	5.117,85	38.800	Overvalued	Sell

Source: Data processed by Researcher, 2017(Attachment 9)

Based on the **Table 4.11**, there are 9 companies undervalued and 9 companies overvalued. The stock that has undervalued position, the recommendation decision can take is buy or keep the stock. It means investor can buy the stock of the company or they can keep it if the stock has been owned. It is expected that investors can gain more profit when stock market prices continue to rise beyond their intrinsic value. Otherwise, investor can take decision in selling the stock if the stock of the company in the overvalued position, because the stock is considered too expensive.

2. **Price Earning to Ratio Approach (PER)**

a) Growth rate

The growth rate that used in the PER approach is same with the growth rate in FCFE approach. This rate is generated from payout ratio and return on equity (ROE). The formula can be written as follows:

$$g = ROEx\ (1 - Payout\ Ratio)$$

Source: Tandelilin (2010:315)

The table below is the growth rate of the companies that already provide before. The complete calculation can be seen on **Attachment 6** of this research.

Table 4.12 Growth rate

No	Emiten Code	g (decimal)	g (%)
1	ADRO	0,03414	3,414%
2	AKRA	0,05465	5,465%
3	ASII	0,09264	9,264%
4	BBCA	0,16483	16,483%
5	BBNI	0,11775	11,775%

Continued Table 4.12

No	Emiten Code	g (decimal)	g (%)
6	BBRI	0,17316	16,316%
7	BMRI	0,14004	14,004%
8	BSDE	0,16682	16,682%
9	GGRM	0,07075	7,075%
10	ICBP	0,08688	8,688%
11	INDF	0,05023	5,023%
12	INTP	0,06817	6,817%
13	KLBF	0,11833	11,833%
14	LSIP	0,02336	2,336%
15	PTBA	0,13210	13,210%
16	SMGR	0,12259	12,259%
17	UNTR	0,04349	4,349%
18	UNVR	0,23526	23,526%

Source: Data processed by Researcher, 2017 (Attachment 6)

b) Earning per share (EPS)

Earning per share (EPS) is obtained from the amount of net income divided by outstanding stocks. EPS in this research use EPS estimation. EPS estimation is generated from EPS previous year and growth rate. The EPS estimation can be calculated using formula:

$$E_1 = E_0 \text{ x } (1 + g)$$

Source: Tambunan (2007:248)

In this research, researcher calculates EPS estimation in period 2016. Thus, EPS previous year is EPS period 2015. The calculation example of EPS estimation in period 2016 for ADRO is as follows:

$$E_{2016} = E_{2015} \text{ x } (1 + g)$$

$$= 65,74 \text{ x } (1 + 0,03414) = 67,98$$

Where:
E_{2015} = EPS of ADRO period 2015

g   = Growth rate of ADRO

Using the similar calculation, the researcher then calculates EPS estimation in period 2016 for each company. The table below is the calculation of EPS estimation. The data is obtained from official websites of Indonesia Stock Exchange (IDX) in www.idx.co.id.

Table 4.13 Estimated EPS calculation 2016

No	Emiten code	E_{2015} (Rp)	g	E_{2016} (Rp)
1	ADRO	65,74	0,03414	67,98
2	AKRA	262,36	0,05465	276,70
3	ASII	357,31	0,09264	390,41
4	BBCA	730,83	0,16483	851,29
5	BBNI	468,18	0,11775	523,31
6	BBRI	1.029,53	0,17316	1.207,80
7	BMRI	871,50	0,14004	993,54
8	BSDE	122,17	0,16682	142,55
9	GGRM	3.344,78	0,07075	3.581,42
10	ICBP	514,62	0,08688	559,33
11	INDF	338,02	0,05023	355,00
12	INTP	1.183,48	0,06817	1.264,16
13	KLBF	42,76	0,11833	47,82
14	LSIP	91,36	0,02336	93,49
15	PTBA	883,59	0,13210	1.000,31
16	SMGR	762,28	0,12259	855,73
17	UNTR	1.033,07	0,04349	1.078,00
18	UNVR	766,95	0,23526	947,38

Source: Data processed by Researcher, 2017

Based on the **Table 4.13**, it shows the highest EPS estimation from 18 samples is PT. Gudang Garam Tbk. (GGRM). The value of EPS estimation of GGRM is Rp. 3.581,42. While, the lowest is PT Kalbe Farma Tbk. (KLBF) with the value of Rp. 47,82. High EPS can indicates good profitability of the company, but low EPS did not always have bad profitability because sometimes the company hold their earning as retain earning.

c) Dividend per share (DPS)

Dividend per share (DPS) describes how much the income of stock per share will be distributed. It is obtained from the total of dividend paid divided by outstanding stocks. This research use DPS estimation. The equation for DPS estimation is:

$$D_1 = D_0 \text{ x } (1 + g)$$

Source: Tambunan (2007:230)

The researcher will calculate DPS estimation in period 2016. Thus, DPS period 2015 is needed to calculate DPS estimation. The calculation example of DPS estimation in period 2016 for ADRO is as follows:

$$D_{2016} = D_{2015} \text{ x } (1 + g)$$

$$= 32,8 \text{ x } (1 + 0,03414) = 33,92$$

Where:
D_{2015} = DPS of ADRO period 2015
g = Growth rate of ADRO

Using the similar calculation, researcher then calculates DPS estimation in period 2016 for each company. The calculation of the DPS estimation in period 2016 can be seen on the table below. The data for calculation is obtained from www.idx.co.id.

Table 4.14 Estimated DPS calculation 2016

No	Emiten Code	D_{2015} (Rp)	g	D_{2016} (Rp)
1	ADRO	32,8	0,03414	33,92
2	AKRA	120,00	0,05465	126,56
3	ASII	177,00	0,09264	193,40
4	BBCA	55,00	0,16483	64,07
5	BBNI	122,53	0,11775	136,96
6	BBRI	311,66	0,17316	365,63
7	BMRI	261,45	0,14004	298,06

Continued Table 4.14

No	Emiten Code	D_{2015} (Rp)	g	D_{2016} (Rp)
8	BSDE	5,00	0,16682	5,83
9	GGRM	2. 600,00	0,07075	2.783,95
10	ICBP	256,00	0,08688	278,24
11	INDF	168,00	0,05023	176,44
12	INTP	415,00	0,06817	443,29
13	KLBF	19,00	0,11833	21,25
14	LSIP	37,00	0,02336	37,86
15	PTBA	289,73	0,13210	328,00
16	SMGR	304,91	0,12259	342,29
17	UNTR	691,00	0,04349	721,05
18	UNVR	766,00	0,23526	946,21

Source: Data processed by Researcher, 2017

Based on the **Table 4.14**, dividend per share of the company samples are pretty different. The different industry of the samples will make the different on the amount of dividend too. There are several companies that only distribute the dividend less than Rp. 10 per share, but there are a lot of companies also that distribute more than Rp. 100 per share. GGRM is the company that gives the highest dividend per share than the others. The DPS estimation reaches Rp. 2.783,95 per share. While, the lowest of DPS estimation is BSDE that only reaches Rp. 5,83 per share.

d) Expected return (k)

The expected return (k) is the rate of return that expected by investor of the investment that they made. The expected return using the PER approach generated from DPS estimation, market price of stock and growth rate. The formula of expected return is:

$$k = \frac{D_1}{P_0} + g$$

Source: Brigham and Houston (2010:394)

The example calculation of expected return (k) for ADRO in period 2016 is

as follows:

$$k = \frac{D_{2016}}{P_{2015}} + g$$

$$= \frac{33,92}{515} + 0,03414 = 0,1000$$

Where:

D_{2016} = DPS estimation of ADRO in period 2016
P_{2015} = Market price of stock (closing price of ADRO period 2015)
g = growth rate of ADRO

The similar calculation will be conducted to calculate expected return (k) for

each company. The table below is the calculation of expected return for

whole 18 samples.

Table 4.15 Expected return (k) 2016

No	Emiten Code	D_{2016} (Rp)	P_{2015} (Rp)	g	k
1	ADRO	33,92	515	0,03414	0,10000
2	AKRA	126,56	7.175	0,05465	0,07229
3	ASII	193,4	6.000	0,09264	0,12487
4	BBCA	64,07	13.300	0,16483	0,16965
5	BBNI	136,96	4.990	0,11775	0,14520
6	BBRI	365,63	11.425	0,17316	0,20516
7	BMRI	298,06	9.250	0,14004	0,17226
8	BSDE	5,83	1.800	0,16682	0,17006
9	GGRM	2783,95	55.000	0,07075	0,12137
10	ICBP	278,24	6.738	0,08688	0,12817
11	INDF	176,44	5.175	0,05023	0,08432
12	INTP	443,29	22.325	0,06817	0,08803
13	KLBF	21,25	1.320	0,11833	0,13443
14	LSIP	37,86	1.320	0,02336	0,05204
15	PTBA	328,00	4.525	0,13210	0,20459
16	SMGR	342,29	11.400	0,12259	0,15262
17	UNTR	712,05	16.950	0,04349	0,08550
18	UNVR	946,21	37.000	0,23526	0,26083

Source: Data processed by Researcher, 2017

Based on the calculation of expected return in **Table 4.15**, it shows that the result is not same with the expected return or cost of equity in FCFE approach, because it has different variable needed in each calculation. From the 23 samples the lowest expected return owned by INTP. While, the higher owned by UNVR.

e) Price Earning Ratio (PER)

Price Earning Ratio is the comparison of stock price per share with earnings per share. PER used by investor to know their capital to get earnings from the company. In this research, the researcher uses estimated PER to determine the intrinsic value of stock. The equation to calculate estimated PER can be written as follows:

$$Estimated\ PER = \frac{\frac{D_1}{E_1}}{k - g}$$

Source: Tandelilin (2010:376)

Estimated PER in this research is estimated PER in period 2016. The example calculation of estimated PER for ADRO in period 2016 is as follows:

$$Estimated\ PER = \frac{\frac{D_{2016}}{E_{2016}}}{k - g}$$

$$= \frac{\frac{33,92}{67,98}}{0,1000 - 0,03414} = 7,58$$

Where:
D_{2016} = DPS estimation of ADRO in period 2016
E_{2016} = EPS estimation of ADRO in period 2016
k = Expected return of ADRO in period 2016
g = Growth rate of ADRO

The similar calculation is conducted to calculate estimated PER in period 2016 for each company. The calculation of estimated PER is provided in the table below that consist of 18 companies.

Table 4.16 Estimated PER calculation 2016

No	Emiten Code	D_{2016} (Rp)	E_{2016} (Rp)	k	g	PER
1	ADRO	33,92	67,98	0,10000	0,03414	7,58
2	AKRA	126,56	276,70	0,07229	0,05465	25,93
3	ASII	193,4	390,41	0,12487	0,09264	15,37
4	BBCA	64,07	851,29	0,16965	0,16483	15,61
5	BBNI	136,96	523,31	0,14520	0,11775	9,53
6	BBRI	365,63	1207,8	0,20516	0,17316	9,46
7	BMRI	298,06	993,54	0,17226	0,14004	9,31
8	BSDE	5,83	142,55	0,17006	0,16682	12,62
9	GGRM	2783,95	3581,42	0,12137	0,07075	15,36
10	ICBP	278,24	559,33	0,12817	0,08688	12,05
11	INDF	176,44	355,00	0,08132	0,05023	15,99
12	INTP	443,29	1264,16	0,08803	0,06817	17,66
13	KLBF	21,25	47,82	0,13443	0,11833	27,60
14	LSIP	37,86	93,49	0,05104	0,02336	14,63
15	PTBA	328,00	1000,31	0,20459	0,13210	4,52
16	SMGR	342,29	855,73	0,15262	0,12259	13,32
17	UNTR	712,05	1078,00	0,08550	0,04349	15,72
18	UNVR	946,21	947,38	0,26083	0,23526	39,06

Source: Data processed by Researcher, 2017

Based on the table above, it shows the calculation of estimated PER for 18 companies. There are 3 companies generating PER more than 20 and the others are less than 20. PT Unilever Indonesia Tbk. (UNVR) is the company that has highest value of PER, that is 39,06. The lowest value owned by PT Tambang Batubara Bukit Asam (persero) Tbk. (PTBA) with the value of 4,52. The low value of PER usually will be more attractive than the high PER. In general, PER is generated from earnings per share compared to the stock price. If the value PER is low, it is caused by relatively high earnings per share compared

to the stock price. Thus, low value of PER is one of the main considerations for investing in addition to other factors.

f) Intrinsic value (PER approach)

Intrinsic value is value that reflects the actual stock price. This value is used to helps investor in making investment decision. Intrinsic value in PER approach is generated from estimated EPS multiplied by estimated PER. The formula can be written as follows:

$$Intrinsic\ Value = Estimated\ EPS\ x\ Estimated\ PER$$

Source: Tandelilin (2010:377)

In this research, researcher calculates expected intrinsic value in 2016. The example calculation of expected intrinsic value for ADRO in period 2016 is as follows:

$$Intrinsic\ Value = Estimated\ EPS_{2016}\ x\ Estimated\ PER_{2016}$$
$$= 667{,}98\ x\ 7{,}58 = 515{,}29$$

Using the similar calculation, researcher then calculates it for each company. The table below is expected intrinsic value calculation in period 2016.

Table 4.17 Expected intrinsic value using PER approach in period 2016

No	Emiten Code	E_1 (Rp)	PER	Intrinsic value
1	ADRO	67,98	7,58	515,29
2	AKRA	276,70	25,93	7.174,83
3	ASII	390,41	15,37	6.000,60
4	BBCA	851,29	15,61	13.288,64
5	BBNI	523,31	9,53	4.987,14
6	BBRI	1207,8	9,46	11.425,79
7	BMRI	993,54	9,31	9.249,86
8	BSDE	142,55	12,62	1.798,98
9	GGRM	3581,42	15,36	55.010,61
10	ICBP	559,33	12,05	6.739,93
11	INDF	355,00	15,99	5.676,45
12	INTP	1264,16	17,66	22.325,07

Continued Table 4.17

No	Emiten Code	E_1 (Rp)	PER	Intrinsic value
13	KLBF	47,82	27,60	1.319,83
14	LSIP	93,49	14,63	1.367,76
15	PTBA	1000,31	4,52	4.521,40
16	SMGR	855,73	13,32	11.398,32
17	UNTR	1078,00	15,72	16.946,16
18	UNVR	947,38	39,06	37.004,66

Source: Data processed by Researcher, 2017

Based on the **Table 4.17**, it shows the expected intrinsic value of 18 sample companies in period 2016. The high intrinsic value in PER approach is influenced by the market value of stock (closing price) too, because market value of stock is used to calculate variable that needed in estimated PER calculation. Thus, the result of expected intrinsic value is not much different from the current closing price of stock. The highest expected intrinsic value 2016 owned by GGRM and the value reached 55.010,61. While, ADRO is the lowest value with the value of 515,29.

g) Investment decision

Investment decision can be conducted when intrinsic value already known. Same as FCFE approach, Investment decision is determined based on the condition of the company's stock. The types of condition are undervalued or overvalued position depends on the intrinsic value higher or lower than market value or closing price.

Undervalued occurs in stock that has intrinsic value higher than market price. While, if intrinsic value is lower than market price, it is overvalued stock. Recommendation of investment decision related with the condition of stock will be explain on **Table 4.18**.

Table 4.18 Recommendation of investment decision using PER approach

No	Emiten Code	Expected Intrinsic Value 2016	Closing price 2016	Condition	Investment Decision
1	ADRO	515,29	1.695	Overvalued	Sell
2	AKRA	7.174,83	6.000	Undervalued	Buy/keep
3	ASII	6.000,60	8.275	Overvalued	Sell
4	BBCA	13.288,64	15.500	Overvalued	Sell
5	BBNI	4.987,14	5.525	Overvalued	Sell
6	BBRI	11.425,79	11.675	Overvalued	Sell
7	BMRI	9.249,86	11.575	Overvalued	Sell
8	BSDE	1.798,98	1.755	Undervalued	Buy/keep
9	GGRM	55.010,61	63.900	Overvalued	Sell
10	ICBP	6.739,93	8.575	Overvalued	Sell
11	INDF	5.676,45	7.925	Overvalued	Sell
12	INTP	22.325,07	15.400	Undervalued	Buy/keep
13	KLBF	1.319,83	1.515	Overvalued	Sell
14	LSIP	1.367,76	1.740	Overvalued	Sell
15	PTBA	4.521,40	12.500	Overvalued	Sell
16	SMGR	11.398,32	9.175	Undervalued	Buy/keep
17	UNTR	16.946,16	21.250	Overvalued	Sell
18	UNVR	37.004,66	38.800	Overvalued	Sell

Source: Data processed by Researcher, 2017

Based on the table above, there are 4 companies undervalued and 14 companies overvalued. The result is pretty different with investment decision using FCFE approach. The recommendation decision will be take is buy or keep the stock when it occurs undervalued position. Otherwise, for 14 overvalued companies, investor can take decision to sell the stock.

3. **Interpretation**

Further analysis of these results allows researcher to interpret recommendations of investment decisions that have been obtained. As quoted from Husnan (2003: 278) in the previous chapter, the recommendation of

investment decision consists of buy, keep or sell. It is depend on the position of intrinsic value of stock toward market value or market price.

Market price that used is closing price of stock. The stocks when the intrinsic value position is higher than the closing price, the condition of stock is undervalued. While, if the intrinsic value of stock position is less than the closing price, then the stock is overvalued.

Stock that is in undervalued condition, the recommendation of investment decisions that can be taken is buy or keep the stock. Investor can buy the stock or keep it if the stock has been owned. That recommendation is given because it is expected that investors can gain more profit when the market price of stock continues to rise beyond the intrinsic valued. Different from undervalued condition, the recommendation of investment decision for stock in overvalued condition is sell the stock. Investors are better to sell the stock. This recommendation is given because the stock is considered too expensive.

The table below is the summary of the recommendation of investment decision that obtains from FCFE and PER approach.

Table 4.19 Recommendation of FCFE and PER approach

No	Emiten Code	Recommendation	
		FCFE	PER
1	ADRO	Buy/keep	Sell
2	AKRA	Buy/keep	Buy/keep
3	ASII	Buy/keep	Sell
4	BBCA	Sell	Sell
5	BBNI	Buy/keep	Sell
6	BBRI	Sell	Sell
7	BMRI	Sell	Sell
8	BSDE	Sell	Buy/keep
9	GGRM	Buy/keep	Sell
10	ICBP	Buy/keep	Sell
11	INDF	Buy/keep	Sell

Continued Table 4.19

12	INTP	Sell	Buy/keep
13	KLBF	Buy/keep	Sell
14	LSIP	Buy/keep	Sell
15	PTBA	Sell	Sell
16	SMGR	Buy/keep	Buy/keep
17	UNTR	Sell	Sell
18	UNVR	Sell	Sell

Source: Data processed by Researcher, 2018 (**Table 4.11** and **Table 4.18)**

Based on the **Table 4.19**, it shows that the recommendation of investment decision using FCFE and PER approach having much difference. There are only 8 companies' stocks that have similar recommendation of investment decision, those are AKRA, BBCA, BBRI, BMRI, KLBF, PTBA, UNTR and UNVR. The difference occurred because FCFE and PER approach have different perspective in valuing stock. Thus, FCFE and PER approach have different variables and indicator in conducting stock valuation.

As explained in previous chapter, FCFE is the cash flow left over after meeting all financial obligations, including debt payments, and after covering capital expenditure and working capital needs (Damodaran, 2002:351). FCFE approach tends to seen from the available cash flow to equity in valuing stock. While, PER is the ratio of comparison between stock price to earnings of company (Tandelilin, 2010: 320). PER approach tends to value the stock through earning and market price of stock. Thus, it is pretty different perspective between FCFE and PER approach.

In the end, either the recommendation of investment decision from the FCFE or PER approach is used depends on the investors themselves. Each investor has a different perspective in valuing stocks from others. In this

discussion, they tend to value stocks through available cash flow to equity

(FCFE approach) or earning and market price of stock (PER approach).