

The Fair Price of Company Shares with Dividend Discount Model Method

Erren Bustami Kleriawan and Iman Mufid Dwiyono

Politeknik Bisnis dan Pasar Modal
Jl. Bangka Raya No. 2, Jakarta, 12720, Indonesia

Article info

Keywords:

Dividend discount model, Stock prices, and Valuations

Kata Kunci:

Dividend discount model, Harga saham, dan Valuasi

ISSN (print): 2598-7763

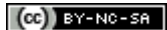
ISSN (online): 2598-7771

✉ Corresponding Author:

Erren Bustami Kleriawan:

Tel./Fax. +62 853-3766-7868

E-mail: eb@bcm.ac.id



Abstract

This study aims to analyze the fair price of company shares in the LQ45 index with the dividend discount model (DDM) method during the 2014-2018 period. The analysis methodology using is a descriptive qualitative with data obtained from the Indonesia Stock Exchange with a case study approach, namely the 2014-2018 LQ45 Stock Price through LQ45 Stock Price Assessment analysis with the using Dividend Discounted Model (DDM) Method. The results of this study indicate that the fundamental analysis using the Dividend Discount Model (DDM) can be done after the intrinsic value of the stock is known then compared to its fair price so that it can be determined whether the stock is undervalued, fairvalued or overvalued.

Citation: Kleriawan, B.E., and Dwiyono, M.L., (2021). The Fair Price of Company Shares with Dividend Discount Model Method. *AFRE Accounting and Financial Review*, 4(1): 38-44

Abstraks

Penelitian ini bertujuan menganalisa harga wajar saham perusahaan yang berada pada indeks LQ45 dengan metode dividend discount model (DDM) selama periode 2014-2018. Metodologi penelitian yang digunakan adalah metode deskriptif kualitatif dengan data series dan cross section dengan pendekatan studi kasus (case study) yakni pada Harga Saham LQ45 Tahun 2014-2018 melalui analisis Penilaian Harga Saham LQ45 dengan Dividend Discounted Model (DDM). Hasil dari penelitian ini menunjukkan bahwa secara analisis fundamental dengan menggunakan metode Dividend Discount Model (DDM) dengan metode Constant Growth Model dapat dilakukan setelah nilai intrinsik saham sudah diketahui kemudian dibandingkan dengan harga wajarnya sehingga dapat ditentukan apakah saham berada dalam kondisi undervalued, fairvalued atau overvalued.

JEL Classification: G11, G12,

DOI: <https://doi.org/10.26905/afr.v4i1.5960>

1. Introduction

Along with the times that we have begun to feel, either directly or indirectly, the awareness of the Indonesian people about the importance of investment has increased. One of the most popular investment instruments among the public and in demand by millennials is stock investment. The ownership of local investors in the Indonesian capital market continues to grow and almost rivals the share of foreign investors over the last 5 years. Based on data from the Indonesia Stock Exchange (IDX) and the Indonesian Central Securities Depository (KSEI), as of September 19,

2019, the share of local investor ownership in the Indonesian capital market reached 49.36 percent. Meanwhile, foreign investors amounted to 50.64 percent. This position is much improved compared to the position in 2014, when the share of local investors was 35.51 percent and foreign investors were 64.49 percent. as reported by Bisnis.com, Saturday, November 16, 2019. Likewise for trading activities, local investors were recorded to be more active in making transactions with a portion of 67.89 percent. For foreign investors, it is 32.11 percent (Tempo.com, Jakarta).

The capital market is one of the sources of funding for companies. With alternative funding

from the capital market, companies can operate and develop their businesses and the government can finance various activities so as to increase the country's economic activities and the prosperity of the wider community (Tendelilin, 2017). The capital market has made an important contribution to the economy (Stiglitz, 2000; Gilson, 2003; Lenee & Oki, 2017; Oprea & Stoica, 2018).

Investors in an effort to reduce risk and optimize returns will conduct fundamental and technical analysis. Fundamental analysis is based on the company's financial strength (Yan & Zheng, 2017; Akbar & Afiezen, 2018; Nti et al., 2019; Coleman, 2019; Iwasaki et al., 2020). Fundamental analysis focuses on financial aspects including earnings per share or earnings per share, book value of shares or price book value, and intrinsic value or intrinsic value. Also look for reasons and other related information as well as how much the value of transactions that occur in a day from the shares to be purchased. This is termed "liquid" or the volume and frequency of buying and selling shares in a day by many investors, the term in the business world is LQ45 (45 shares classified as liquid shares). Traders use charts as analysis material to find out the trends that occur (Hasana and Rusliati, 2017).

Technical analysis is based on past price information, based on trends and cycles of stock prices and trading volume to predict stock prices (Blume et al., 1994; Artha et al., 2014; Lin, 2018; and Picasso et al., 2019). Technical analysis, not just relying on reading price chart patterns, but also performing technical analysis by calculating each stock indicator in the form of a calculation formula.

Investing in stocks carries a high risk. Investors will try to optimize returns by minimizing their investment risk. One way that investors do is to conduct an assessment of a stock. An assessment is made whether the share price is fair or not. This assessment is based on the fundamental condition of a company. There are many methods that can be used to evaluate a stock, such as CAPM, PER, Discount cash flow, and Dividend Discount Models (DDM) (Bower & Bower, 1970; Fuller & Hsia, 1984; Bakshi & Chen, 2001; Pastor & Veronesi, 2002; Ghezzi & Piccardi, 2003; Yardeni, 2003; Baresa et al., 2013; Sharafoddin & Emsia, 2016; Mehmood et al., 2020; and Sugiyanto & Robiyanto, 2020). The purpose of stock valuation is to analyze whether the price of a stock is fair or not. So that investors

can optimize their stock portfolio, by minimizing investment risk. Rational investors will invest by responding to all information and do good analysis so that the market can run normally (Setiawan et al., 2018; and Pahlevi & Oktaviani, 2018).

One of the fundamental analysis that is usually used by investors, namely the Dividend Discount Analysis Model (DDM) is one of the classic methods used to determine the fair price of shares (Agosto & Moretto, 2014; Sim & Wright, 2017; D'Amico & De Blasis, 2020). The idea is simple, the fair price of a stock is the present value of all dividends that will be obtained in the future. His thinking is quite logical because indeed if an investor buys a stock and holds it forever, then the investment returns are only dividends given by the company.

Research purposes 1) Analyzing the Fair Price of Company Shares on the LQ45 Stock Index using the Dividend Discount Model (DDM) method during the 2014-2018 period, 2) Analyzing the Company's Stock Price on the LQ45 Stock Index for the 2014-2018 period is in the undervalued, fairvalued or overvalued position, and 3) Analyze to determine the right investment decisions for investors after analyzing the fair price of the company's shares on the LQ45 Index for the 2014-2018 period.

2. Theoretical Framenwork

Analyzing the fair price of shares using the Dividend Discount Model (DDM) Method

Intrinsic value, also known as fair price, is the actual or supposed value of the stock. The fair price or intrinsic value of a stock can be determined through several calculation approaches based on fundamental analysis, one of which is by using the Dividend Discount Model (DDM) approach. The Dividend Discount Model approach is a model for determining stock price estimates by discounting all dividend flows that will be received in the future. In a situation where dividends grow constantly, the model used is the Constant Growth Model.

There are two things to keep in mind when estimating a steady growth rate. ($g_{stable} < g_{economic}$) (Murhadi, 2009:99). Determining the fairness of the stock price the fairness of stock prices is usually determined in terms of fairvalued, undervalued or overvalued. This condition will be known by comparing the intrinsic value and market value (market price). If the market value

of a stock is higher than its intrinsic value, it means that the stock is overvalued. In an overvalued condition, the stock price is too high, it is feared that one day the stock price will fall according to its intrinsic value. and this will certainly bring losses if at that time the investor still holds or even buys the stock, while if the market value of the stock is below its intrinsic value, it means that the stock is undervalued.

Determining investment decisions by comparing the fair price of the stock with the market price

The intrinsic value of a stock or commonly called the fair price is the actual or supposed value of the stock. While the market value or market price is the value of shares in the market, which is indicated by the share price. Investors have an interest in knowing the intrinsic value of a company. Investors will compare the intrinsic value with the market value (market price) of the shares in question if they want to buy and sell shares.

3. Data and Method

This research is a quantitative descriptive study, with the object of research being stocks on the Indonesia Stock Exchange. Based on the characteristics of the problems that discuss the LQ45 Stock Price Valuation with the Dividend Discounted Model (DDM) Method. and compare it to the company's stock price in the market to

determine whether it is undervalued, overvalued, or undervalued. Where this type of research is quantitative descriptive research (qualitative descriptive research) with a case study approach, namely the 2014-2018 LQ45 Stock Price through the LQ45 Stock Price Assessment Analysis with the Dividend Discounted Model (DDM) Method. The population that is the object of this research is the LQ45 Stock Price which is listed on the Indonesia Stock Exchange.

4. Result

The following is the calculation of the Intrinsic Value or Fair Price of Company Shares on the LQ 45 Index with the Dividend Discount Model (DDM) indicator during 2014 to 2018 shown in table 1. Based on the results of the data in table 1, the highest average growth occurred in the financial sector stocks, namely PT Bank Central Asia, Tbk (BBCA) shares of 14.85%, while the lowest average growth rate was experienced by shares of PT Indofood Sukses Makmur, Tbk (INDF). In the dividend estimation results, PT Gudang Garam, Tbk (GGRM) shares gave the highest estimate of 2339.14, while PT Kalbe Farma, Tbk (KLBF) gave the lowest estimate of 28.15. For the required return results, the company's shares of PT AKR Corporindo, Tbk (AKRA) showed the highest yield of 5.41%, while the company's shares of PT United Tractors, Tbk (UNTR) showed the lowest yield of 4.62%.

Table 1. Dividend Discount Model (DDM)

Code	Growth	Estimated Dividend	To (Cost of Equiry)	Intrinsic Value (Fair Price)
AKRA	8.00%	237.65	5.41%	9,167
ASII	8.06%	272.32	4.68%	8,040
BBCA	14.85%	298.61	5.17%	3,085
ICBP	9.51%	252.59	5.24%	5,911
INDF	5.42%	418.40	4.92%	83,264
KLBF	10.83%	28.15	5.06%	488
PGAS	5.76%	34.75	4.93%	4,170
SMGR	7.49%	149.88	4.79%	5,561
UNTR	8.02%	1054.30	4.62%	30,987
UNVR	13.65%	1039.93	5.08%	12,125
GGRM	8.29%	2339.14	4.68%	64,799

Stock Price Fairness Assessment

After the intrinsic value is known by using the Dividend Discount Model (DDM) Constant Growth Model, the next step is to compare the intrinsic value with the stock market price. The stock market price is taken from the closing price (Closing Price) on January 31, 2019. Researchers use that date with the assumption that the date

corresponds to the date of purchase of shares, so investors who already own shares and investors who are interested in buying the shares.

The following is the Fairness Assessment of the Company's Share Prices on the LQ 45 Index with the Dividend Discount Model (DDM) indicator for the period 2014 to 2018, shown in table 2.

Table 2. Fairness Assessment of Share Prices

Code	Intrinsic Value (Fair Price)	Market price	Stock Condition
AKRA	9,167	4,290	<i>Undervalued</i>
ASII	8,040	8,225	<i>Overvalued</i>
BBCA	3,085	26,000	<i>Overvalued</i>
ICBP	5,911	10,450	<i>Overvalued</i>
INDF	83,264	7,450	<i>Undervalued</i>
KLBF	488	1,520	<i>Overvalued</i>
PGAS	4,170	2,120	<i>Undervalued</i>
SMGR	5,561	11,500	<i>Overvalued</i>
UNTR	30,987	27,350	<i>Undervalued</i>
UNVR	12,125	45,850	<i>Overvalued</i>
GGRM	64,799	83,625	<i>Overvalued</i>

Based on the data in table 2, after comparing the intrinsic value of the stock with the market price of the stock, it is obtained that there are 4 shares of the company that are undervalued, namely the shares of PT AKR Corporindo, Tbk (AKRA), the shares of PT Indofood Sukses Makmur, Tbk (INDF), shares of PT Perusahaan Gas Negara, Tbk (PGAS), and shares of PT United Tractors, Tbk (UNTR) and the remaining 7 shares of other companies were overvalued, namely shares of PT Astra Internasional, Tbk (ASII), PT Bank Central Asia, Tbk (BBCA), PT Indofood CBP Sukses Makmur, Tbk (ICBP), PT Kalbe Farma, Tbk (KLBF), PT Semen Indonesia, Tbk (SMGR), PT Unilever Indonesia, Tbk (UNVR), and shares of PT Gudang Garam, Tbk (GGRM).

The Calculation of the Fair Price of Company Shares with the Dividend Discount Model (DDM) Method

PT. AKR Corporindo Tbk (AKRA)

Based on the results of calculations using DDM with a constant growth model, PT AKR Corporindo, Tbk has an expected dividend growth (g) of 8.00%. The estimated expected dividend (DPS) is estimated at Rp 237.65,- the expected rate of return (k) is estimated at 5.41%. The intrinsic value is estimated at Rp 9,167.

PT Astra International Tbk (ASII)

Based on the results of calculations using DDM with a constant growth model, PT Astra Internasional, Tbk has an expected dividend growth (g) of 8.06%. The estimated expected dividend (DPS) is estimated at IDR 272.32,- the expected rate of return (k) is estimated at 4.68%. The intrinsic value is estimated at Rp 8,040.

PT Bank Central Asia Tbk (BBCA)

Based on the results of calculations using

DDM with a constant growth model, PT Bank Central Asia, Tbk has an expected dividend growth (g) of 14.85%. The estimated expected dividend (DPS) is estimated at Rp. 298.61,- the expected rate of return (k) is estimated at 5.17%. The intrinsic value is estimated at IDR 3,085.

PT Indofood CBP Sukses Makmur Tbk (ICBP)

Based on the results of calculations using DDM with constant growth model, PT Indofood CBP Sukses Makmur, Tbk has an expected dividend growth (g) of 9.51%. The estimated expected dividend (DPS) is estimated at Rp. 252.59,- the expected rate of return (k) is estimated at 5.24%. The intrinsic value is estimated at Rp 5,911.

PT Indofood Sukses Makmur Tbk (INDF)

Based on the results of calculations using DDM with constant growth model, PT Indofood Sukses Makmur, Tbk has an expected dividend growth (g) of 5.42%. The estimated expected dividend (DPS) is estimated at Rp 418.40,- the expected rate of return (k) is estimated at 4.92%. The intrinsic value is estimated at Rp 83,264.

PT Kalbe Farma Tbk (KLBF)

Based on the results of calculations using DDM with a constant growth model, PT Kalbe Farma, Tbk has an expected dividend growth (g) of 10.83%. The estimated expected dividend (DPS) is estimated at IDR 28.15,- the expected rate of return (k) is estimated at 5.06%. The intrinsic value is estimated at IDR 488.

PT Perusahaan Gas Negara (Persero) Tbk (PGAS)

Based on the results of calculations using DDM with a constant growth model, PT Perusahaan Gas Negara (Persero), Tbk has an expected dividend growth (g) of 5.76%. The estimated expected dividend (DPS) is estimated at Rp.

34.75,- the expected rate of return (k) is estimated at 4.93%. The intrinsic value is estimated at Rp 4,170.

PT Semen Indonesia (Persero) Tbk (SMGR)

Based on the results of calculations using DDM with a constant growth model, PT Semen Indonesia (Persero), Tbk has an expected dividend growth (g) of 7.49%. The estimated expected dividend (DPS) is estimated at Rp. 149.88,- the expected rate of return (k) is estimated at 4.79%. The intrinsic value is estimated at Rp 5,561.

PT United Tractors Tbk (UNTR)

Based on the results of calculations using DDM with constant growth model, PT United Tractors, Tbk has an expected dividend growth (g) of 8.02%. The estimated expected dividend (DPS) is estimated at Rp 1054.30,- the expected rate of return (k) is estimated at 4.62%. The intrinsic value is estimated at Rp 30,987.

PT Unilever Indonesia Tbk (UNVR)

Based on the results of calculations using DDM with a constant growth model, PT Unilever Indonesia, Tbk has an expected dividend growth (g) of 13.65%. The estimated expected dividend (DPS) is estimated at Rp 1039.93,- the expected rate of return (k) is estimated at 5.08%. The intrinsic value is estimated at Rp 12,125.

PT Gudang Garam Tbk (GGRM)

Based on the results of calculations using DDM with constant growth model, PT Gudang Garam, Tbk has an expected dividend growth (g) of 8.29%. The estimated expected dividend (DPS) is estimated at Rp 2339.14,- the expected rate of return (k) is estimated at 4.68%. The intrinsic value is estimated at Rp 64,799.

5. Discussion

Stock Price Fairness Assessment Analysis

Based on the comparison between the intrinsic value and the market price of the companies shares on the LQ 45 Index, the following results are obtained: PT AKR Corporindo, Tbk (AKRA), PT Indofood Sukses Makmur, Tbk (INDF), PT Perusahaan Gas Negara (Persero), Tbk (PGAS) and PT United Tractors, Tbk (UNTR) are in an undervalued condition. intrinsic value is higher than market price ($P_0 > P$). With details AKRA (9,167 > 4,290), INDF (83,264 > 7,450), PGAS (4,170 > 2,120) and UNTR (30,987 > 27,350).

Investment Decision Making Analysis

After knowing the condition of each of the 11 companies included in the 2014-2018 LQ45 Index which was used as a research sample, the following investment decisions can be obtained: 1) The comparison between intrinsic value and market price (closing price) shows that the company's market price is PT AKR Corporindo, Tbk (AKRA), PT Indofood Sukses Makmur, Tbk (INDF), PT Perusahaan Gas Negara (Persero), Tbk (PGAS) and PT United Tractors, Tbk (UNTR) are undervalued or considered cheap where the intrinsic value is higher than the market value ($P_0 > 0$). So for investors who want to buy shares, they should immediately buy the four shares and for investors who already own the four shares, the investment decision should be to increase their share ownership or hold the shares they already have, in the hope that the price will rise in the future. 2) The comparison between intrinsic value and market price (closing price) shows that the market price of the companies PT Astra Internasional, Tbk (ASII), PT Bank Central Asia, Tbk (BBCA), PT Indofood CBP Sukses Makmur, Tbk (ICBP), PT Kalbe Farma, Tbk (KLBF), PT Semen Indonesia (Persero), Tbk (SMGR), PT Unilever Indonesia, Tbk (UNVR) and PT Gudang Garam, Tbk (GGRM) are in an overvalued condition where the intrinsic value is lower than market value ($P_0 < P$), it is advisable for investors not to buy these shares. As for investors who own these shares, the investment decision taken is to immediately sell the shares to avoid possible losses.

The results of this study are different from the research conducted by Hutomo et al. (2016). Where in his research found that 7 companies have undervalued shares where the intrinsic value is greater than the market price ($P_0 > P$), thus providing a decision to buy shares for investors, while 11 other companies have overvalued shares where the intrinsic value is less than the market price ($P_0 < P$), thus providing a decision to sell shares for investors.

The factor that distinguishes the research results from previous research conducted by Hutomo et al. (2016) lies in the formulation of the required of return calculation. The required of return formula used by Hutomo et al. (2016) in their research is $k = (\text{actual dividend}/\text{stock market price}) + \text{average dividend growth}$. Meanwhile, in this study, the author uses the required of return formula by using the capital pricing model (CAPM). Where this formula relates the expected rate of return of a risky asset with the risk of that

asset in a balanced market condition.

6. Conclusions and suggestions

Conclusions

Based on the results of the research and discussion of conclusions from the results of the research on the fairness of the stock by comparing the calculation of the intrinsic value of the stock with its market value using the Dividend Discount Model (DDM) method, the results of the 11 companies that were used as research samples, 4 companies were in the undervalued position and 7 companies were in the undervalued position. overvalued position. The 4 companies are PT. AKR Corporindo, Tbk (AKRA), PT. Indofood Sukses Makmur, Tbk (INDF), PT. Perusahaan Gas Negara (Persero), Tbk (PGAS) and PT. United Tractors, Tbk (UNTR) which is in an undervalued condition or considered cheap where the intrinsic value is higher than the market price. While the other 7 companies are PT Astra International, Tbk (ASII), PT. Bank Central Asia, Tbk (BBCA), PT. Indofood CBP Sukses Makmur, Tbk (ICBP), PT. Kalbe Farma, Tbk (KLBK), PT Semen Indonesia (Persero), Tbk (SMGR), PT Unilever Indonesia, Tbk (UNVR) and PT. Gudang Garam, Tbk (GGRM), is in an overvalued condition where its intrinsic value is lower than the market price.

Suggestions

This research is limited to LQ45 stocks with a valuation method using Dividend Discount Model (DDM). For further research it is advisable to research stocks that are in other stock indices and use other stock price valuation methods or models.

References

- Agosto, A., & Moretto, E. (2014). Variance matters (in stochastic dividend discount models). *Journal of Portfolio Management*, 25(1), 31. <https://doi.org/10.3905/jpm.1998.409658>
- Akbar, T., & Afiezen, A. (2018). Determination of Sharia Stock Price Through Analysis of Fundamental Factors and Macro Economic Factors. *Account and Financial Management Journal*, 03(10). <https://doi.org/10.31142/afmj/v3i10.01>
- Artha, D. R., Achsani, N. A., & Sasongko, H. (2014). Analisis Fundamental, Teknikal dan Makroekonomi. *Jurnal Manajemen Dan Kewirausahaan*, 16(2), 175-183.

- <https://doi.org/10.9744/jmk.16.2.175>
- Bakshi, G., & Chen, Z. (2001). Stock valuation in dynamic economies. *Journal of Financial Markets*, 8(2), 111-151. <https://doi.org/10.1016/j.finmar.2005.01.001>
- Baresa, S., Bogdan, S., & Ivanovic, Z. A. (2013). Strategy of stock valuation by fundamental analysis. *UTMS Journal of Economics*, 4(1).
- Blume, L., Easley, D., & O'Hara, M. (1994). Market Statistics and Technical Analysis. *Journal of Finance*, 49(1), 153-181.
- Bower, D. H., & Bower, R. S. (1970). Test of a Stock Valuation Model. *The Journal of Finance*, 25(2).
- Coleman, L. (2019). *Fundamental Analysis of Equities*, New Principles of Equity Investment, Emerald Publishing Limited, Bingley.
- D'Amico, G., & De Blasis, R. (2020). A Review of the Dividend Discount Model: From Deterministic to Stochastic Models. In *Statistical Topics and Stochastic Models for Dependent Data with Applications* (pp. 47-67). <https://doi.org/10.1002/9781119779421.ch3>
- Fuller, R. J., & Hsia, C.-C. (1984). A Simplified Common Stock Valuation Model. *Financial Analysts Journal*, 40(5), 49-56. <https://doi.org/10.2469/faj.v40.n5.49>
- Ghezzi, L. L., & Piccardi, C. (2003). Stock valuation along a Markov chain. *Applied Mathematics and Computation*, 141(2-3), 385-393. [https://doi.org/10.1016/S0096-3003\(02\)00263-1](https://doi.org/10.1016/S0096-3003(02)00263-1)
- Gilson, R. J. (2003). Engineering a Venture Capital Market: Lessons from the American Experience. *Stanford Law Review*, 55(4), 1067-1103. <https://doi.org/10.2139/ssrn.353380>
- Hutomo, A., Topowijono, T., & Nuzula, N. (2016). Analisis Dividend Discount Model (DDM) untuk Valuasi Harga Saham Sebagai Dasar Keputusan Investasi (Studi Pada Perusahaan Yang Terdaftar Di Indeks LQ-45 Periode 2012-2014). *Jurnal Administrasi Bisnis S1 Universitas Brawijaya*, 37(2), 144-153.
- Iwasaki, Y., Takenaka, M., & Matsushita, M. (2020). Supporting Fundamental Analysis for Investment Beginners based on Investment Behavior Model. *The 34th Annual Conference of the Japanese Society for Artificial Intelligence*, 1-4.
- Lenee, T. L., & Oki, J. (2017). Capital Market Development and Economic Growth: Evidence from the Mint Countries. *Journal of Economics and Sustainable Development*, 8(2),

- 68–107.
<https://pdfs.semanticscholar.org/ab94/20d75af9878b05816a7b2c41d1dd9dbcce4c.pdf>
- Lin, Q. (2018). Technical analysis and stock return predictability: An aligned approach. *Journal of Financial Markets*, 38, 103–123. <https://doi.org/10.1016/j.finmar.2017.09.003>
- Mehmood, W., Mohd-Rashid, R., Che-Yahya, N., & Ong, C. Z. (2020). Determinants of heterogeneity in investors' opinions on IPO valuation: evidence from the Pakistan stock market. *Review of Behavioral Finance*. <https://doi.org/10.1108/RBF-04-2020-0078>
- Nti, I. K., Adekoya, A. F., & Weyori, B. A. (2019). A systematic review of fundamental and technical analysis of stock market predictions. In *Artificial Intelligence Review* (Vol. 53, Issue 4). Springer Netherlands. <https://doi.org/10.1007/s10462-019-09754-z>
- Oprea, O. R., & Stoica, O. (2018). Capital markets integration and economic growth. *Montenegrin Journal of Economics*, 14(3), 23–35. <https://doi.org/10.14254/1800-5845/2018.14-3.2>
- Pahlevi, R. W., & Oktaviani, I. I. (2018). Determinants of Individual Investor Behaviour in Stock Investment Decisions. *AFRE (Accounting and Financial Review)*, 1(2), 53–61. <https://doi.org/10.26905/afr.v1i2.2427>
- Pastor, L., & Veronesi, P. (2002). *Stock valuation and learning about profitability*.
- Picasso, A., Merello, S., Ma, Y., Oneto, L., & Cambria, E. (2019). Technical analysis and sentiment embeddings for market trend prediction. *Expert Systems with Applications*, 135, 60–70. <https://doi.org/10.1016/j.eswa.2019.06.014>
- Setiawan, Y. C., Atahau, A. D. R., & Robiyanto, R. (2018). Cognitive Dissonance Bias, Overconfidence Bias dan Herding Bias dalam Pengambilan Keputusan Investasi Saham. *AFRE (Accounting and Financial Review)*, 1(1), 17–25. <https://doi.org/10.26905/afr.v1i1.1745>
- Sharafoddin, S., & Emsia, E. (2016). The Effect of Stock Valuation on the Company's Management. *Procedia Economics and Finance*, 36(16), 128–136. [https://doi.org/10.1016/s2212-5671\(16\)30024-7](https://doi.org/10.1016/s2212-5671(16)30024-7)
- Sim, T., & Wright, R. H. (2017). Stock valuation using the dividend discount model: An internal rate of return approach. *Growing Presence of Real Options in Global Financial Markets*, 33, 19–32. <https://doi.org/10.1108/S0196-382120170000033002>
- Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. *World Development*, 28(6), 1075–1086. [https://doi.org/10.1016/S0305-750X\(00\)00006-1](https://doi.org/10.1016/S0305-750X(00)00006-1)
- Sugiyanto, S. C., & Robiyanto, R. (2020). Integrasi Dinamis Pasar Modal Indonesia Dengan Pasar Modal Internasional Pada Masa Pandemi Covid-19. *AFRE Accounting and Financial Review*, 3(2), 143–151.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Penerbit Alfabeta. Bandung
- Yan, X. S., & Zheng, L. (2017). Fundamental analysis and the cross-section of stock returns: A data-mining approach. *Review of Financial Studies*, 30(4), 1382–1423. <https://doi.org/10.1093/rfs/hhx001>
- Yardeni, E. (2003). Stock valuation models (4.1). *Prudential Financial Research*, 58(212), 1–31.