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Debt Policy, Efficiency Ratio, Profitability, And Systematic Risk: Evidence From Indonesia

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ABSTRACT

Systematic risk is relevant for investors in the stock transaction because portfolio creation cannot eliminate it. Thus, the influencing factors need to be recognized since the managers attempt to elevate the company value in the capital market, and this research exists to identify them. By denoting the previous research evidence, at least three determinants are available, i.e., debt policy, efficiency ratio, and profitability. The population comes from the consistent non-financial companies selected from the Kompas 100 index constituents in the Indonesian capital market between 2014 and 2019, where their total is 46. Moreover, the Slovin formula counts the samples with a fault boundary of 10%. Based on this formula, their sum is 32 companies, grabbed by a simple random sampling technique. Then, to analyze the data, this study applies the regression model with pooling data: the combination of time series and cross-sectional features. After testing the data, this investigation finds that the debt policy positively affects this risk; however, efficiency and profitability ratios negatively influence this risk. It implies that despite potential bankruptcy leading to higher systematic risk, the debt can effectively push the managers to use the cash flow for the necessary spending, resulting in revenue and profitability, despite taking on risky projects.

Keywords: bankruptcy, financial healthiness, Kompas 100 index, polling data regression model, productive sectors, risky projects

INTRODUCTION

The productive sectors in the capital market will attract public investors to purchase their firm stocks because they give higher returns. Consequently, this circumstance must be followed by risk, as the trade-off principle declares (Tandelilin, 2017). Furthermore, Jensen and Jones (2019) define this risk as the difference between desired and actual share returns, where the realized returns can be varied: they may be larger or smaller than expected.

When investing in stocks, public investors must face unique and systematic risks. This unique one is associated with the company and can be reduced by portfolio creation. Unfortunately, the systematic one can not be disappeared; therefore, this systematic risk becomes relevant (Jensen & Jones, 2019). Additionally, this risk measurement result: market beta is required for managers attempting to elevate their company values in the capital market by considering the financial ratios (Rowe & Kim, 2010).

The studies attempting to connect debt ratio as the proxy of the liabilities policy with the systematic risk are conducted by researchers employing capital market data from several countries, like the United States (Rowe & Kim, 2010; Saravia et al., 2021); India (Arora et al., 2019; Parthasarathy, 2019; Saji, 2018), Qatar, Dubai, Abu Dhabi, and Kuwait (Mousa et al., 2021); United States, Germany, South Korea, and Egypt (Wagdi & Tarek, 2019), and Japan (Riaz et al., 2019). Unfortunately, the relationship is still mixed. In their study, Rowe and Kim (2010)

find that the impact of leverage on market beta is not meaningful before the recession and positive during the recession. Saji (2018), Mousa et al. (2021), and Saravia et al. (2021) display a positive effect using a single regression model. Moreover, Wagdi and Tarek (2019) prove a positive impact when the debt-to-equity ratio is used; unfortunately, they verify the opposite sign when utilizing the long-term debt-to-equity ratio as the proxy. With the polling data regression model, Arora et al. (2019) exhibit that financial leverage is positively associated with this systematic risk but meaningless evidence when the fixed effect model is employed. Besides, Parthasarathy (2019), Riaz et al. (2019), and Ha (2020) demonstrate no association between liability policy and this risk.

The studies attempting to connect the total asset turnover as the proxy of the efficiency ratio with the systematic risk are conducted by researchers employing capital market data from several countries: United States (Rowe & Kim, 2010), India (Arora et al., 2019), Japan (Riaz et al., 2019), Indonesia (Nugraha & Firdaus, 2021), and Malaysia (Jaafar et al., 2020). However, the association is still arguable. In their investigation, Rowe and Kim (2010) locate a positive relationship before the recession but no association during the recession. Arora et al. (2019) exhibit a negative and positive relationship between asset turnover and this risk when the pooling data and fixed effect regression model are utilized, respectively. Furthermore, Riaz et al. (2019) and Nugraha and Firdaus (2021) demonstrate a negative association between net asset turnover and this risk. Meanwhile, Jaafar et al. (2020) cannot prove anything.

Equally, the connection between profitability and systematic risk is uncertain based on the scholars using the capital market data from the United States (Rowe & Kim, 2010), Malaysia (Jaafar et al., 2020) India (Arora et al., 2019; Parthasarathy, 2019; Saji, 2018), Indonesia (Tigor et al., 2021), Japan (Riaz et al., 2019), and Vietnam (Ha, 2020). Nevertheless, contradictory results exist. Before and after the recession, Rowe and Kim (2010) declare no influence. In their study, Arora et al. (2019) demonstrate a negative association based on a pooling data regression model and an insignificant relationship based on a fixed effect regression model. Moreover, Saji (2018), Parthasarathy (2019), Ha (2020), Jaafar et al. (2020), and Tigor et al. (2021) display a negative effect.

By denoting these contrary results, this study aims to investigate the effect of debt policy, efficiency ratio, and profitability on the systematic risk of the non-financial firms forming the Kompas 100 index. Indeed, non-financial firms are selected because their number is more than the financial firms in this index and can represent their stock with good liquidity and capitalization in the capital market and the firm fundamental position. Therefore, these features, especially for liquidity and capitalization, are expected to overcome thin market issues in the beta to measure the systematic risk (Hartono, 2017).

Theoretically, this study can strengthen the previous research results about the association sign of debt policy, efficiency ratio, and profitability with systematic risk. Practically, this study can suggest that risk-averse public investors get the firms with low beta by considering the fundamental direction reflected in financial ratios to measure debt policy, efficiency, and profitability.

LITERATURE REVIEW

Debt policy is the decision of managers to determine the portion of liabilities to finance the assets. According to the trade-off theory of capital structure, besides tax shield benefit, the more debt, the higher the bankruptcy potency (Brealey et al., 2020). According to several scholars studying the capital market from India (Arora et al., 2019; Saji, 2018), the United States, Germany, South Korea, and Egypt (Wagdi & Tarek, 2019), and Malaysia (Jaafar et al., 2020), the United States only (Rowe & Kim, 2010; Saravia et al., 2021), this liability policy still has a connection with systematic risk. Based on the single regression model, Saji (2018) locates the positive association between financial leverage and systematic risk after investigating 52 firms in the National Stock Exchange in India from 2008 to 2015. In their study of 203 stocks of companies from nine manufacturing industry sectors in India between 1998 and 2014, Arora et al. (2019) locate a positive impact based on the pooling data regression model. Aligning with them, Wagdi and Tarek document similar evidence in their study of 30 firms in each country. Equally, during the recession, Rowe and Kim (2010) demonstrated a positive relationship based on the

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investigation of firms in the casino industry in the United States. Also, Saravia et al. (2021) prove the same influence when studying the public-listed American firms for five years: 1994, 1999, 2004, 2009 and 2014. Based on this evidence, this study formulates the first hypothesis:
H_1: Debt policy positively affects systematic risk.

The efficiency ratio reflects the capability of firm managers to create revenue based on the employed assets (Zutter & Smart, 2018). As it should be, the higher this ratio, the lower the systematic risk, as Arora et al. (2019) report based on a pooling-data regression model. Also, this indication is confirmed by Riaz et al. (2019) after investigating the Japanese shipping companies listed on the Tokyo stock exchange from 2000 to 2017, Nugraha and Firdaus (2021) after studying 25 non-financial firms in the Indonesian stock exchange between 2016 and 2020, and Tigor et al. (2021) after researching the firms in the property, real estate and building construction industry in the Indonesian capital market from 2014 to 2018. Based on this evidence, this study formulates the second hypothesis:
H_2: The efficiency ratio negatively affects systematic risk.

Profitability depicts the firm capability to result in profits (Brealey et al., 2020). Preferably, the more profits, the lower the systematic risk. This statement is confirmed by Saji (2018), with return on investments as its measurement. Moreover, Arora et al. (2019) display the same evidence based on net profit margin as its proxy in a pooling data regression model. By utilizing return on equity, Parthasarathy (2019) affirms the negative tendency of profitability on systematic risk of the non-financial companies listed on the National and Bombay stock exchanges in India from 2012 to 2017. Also, Ha (2020) verified this negative propensity, checking the firms in Ho Chi Minh and Hanoi stock markets between 2013 and 2018. Also, Jaafar et al.(2020) from Malaysia and Tigor et al. (2021) affirm a similar inclination through their study. Based on this evidence, this study formulates the third hypothesis:
H_3: The profitability negatively affects systematic risk.

METHOD

Population and Sample

The object and population in this study are non-financial companies listed in the Indonesian capital market, constantly shaping the Kompas 100 index between 2014 and 2019. Based on the observation, the total is 46. Furthermore, the number of samples (NS) representing the total population (TP) is calculated by the Slovin formula cited from Firdaus (2021) in the first equation.

$$NS = \frac{TP}{1+(TP.FB^2)} \quad (1)$$

With a fault border (FB) of 10%, this study obtains that NS is $\frac{46}{1+46(10\%)(10\%)} = \frac{46}{1.46} = 31.51 \approx 32$ (rounded). After obtaining the sample size, this study takes 32 companies by a simple random sampling method, with the following names.

1. AALI: PT. Astra Agro Lestari Tbk.;
2. ADHI: PT. Adhi Karya (Persero) Tbk.;
3. ADRO: PT. Adaro Energy Indonesia Tbk.;
4. AKRA: PT. AKR Corporindo Tbk.;
5. ANTM: PT. Aneka Tambang Tbk.;
6. ASII: PT. Astra International Tbk.;
7. ASRI: PT. Alam Sutera Realty Tbk.;
8. BEST: PT. Bekasi Fajar Industrial Estate Tbk.;
9. BMTR: PT. Global Mediacom Tbk.;
10. BSDE: PT. Bumi Serpong Damai Tbk.;
11. CTRA: PT Ciputra Development Tbk.;
12. EXCL: PT XL Axiata Tbk Tbk.;
13. GGRM: PT Gudang Garam Tbk.;

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14. GJTL: PT Gajah Tunggal Tbk.;
15. ICBP: PT Indofood CBP Sukses Makmur Tbk.;
16. INCO: PT Vale Indonesia Tbk.;
17. INDF: PT Indofood Sukses Makmur Tbk.;
18. ISAT: PT Indosat Tbk.;
19. LPKR: PT Lippo Karawaci Tbk.;
20. LSIP: PT Perusahaan Perkebunan London Sumatera Indonesia Tbk.;
21. PGAS: PT Perusahaan Gas Negara Tbk.;
22. PTPP: PT PP (Persero) Tbk.;
23. PWON: PT Pakuwon Jati Tbk.;
24. SCMA: PT Surya Citra Media Tbk.;
25. SMGR: PT Semen Indonesia (Persero) Tbk.;
26. SMRA: PT Summarecon Agung Tbk.;
27. SSIA: PT Surya Semesta Internusa Tbk.;
28. TBIG: PT Tower Bersama Infrastructure Tbk.;
29. TLKM: Telkom Indonesia (Persero) Tbk.;
30. UNTR: PT United Tractors Tbk.;
31. WIKA: PT Wijaya Karya (Persero) Tbk.;
32. WSKT: PT Waskita Karya (Persero) Tbk.

Variable Definition

Variables utilized consist of two types: dependent and independent. Acting as determined is systematic risk, measured by beta. Following Awaluddin et al. (2019), this study estimates the beta (β_1) by regressing monthly stock return as the dependent variable and monthly market return as the independent variable. According to Jensen and Jones (2019), this technique is called the market model. Furthermore, the intended model is in the second equation:

$$R_t = \beta_0 + \beta_1 R_{Mt} + \varepsilon_t \qquad (2),$$

where Rt = monthly stock return = $\frac{CSP_t}{CSP_{t-1}} - 1$ and R_M = monthly market return = $\frac{CMP_t}{CMP_{t-1}} - 1$

Note: CSP_t and CSP_{t-1} are the closing share price at the end of the month and the prior month; CMP_t and CMP_{t-1} are the closing market price: the Indonesian composite index at the end of the month and preceding month.

This study uses debt policy as the first independent variable. Following Rowe and Kim (2010), Riaz et al. (2019), Ha (2020), and Jafaar et al. (2020), the liabilities-to-assets ratio (LAR) is utilized to measure it. For the second independent: efficiency ratio, this study quantifies it by total asset turnover by mentioning Rowe and Kim (2010), Riaz et al. (2019), Jafaar et al. (2020), and Nugraha and Firdaus (2021). For the last one, i.e., profitability, its measurement is based on the return on assets by denoting Rowe and Kim (2010), Riaz et al. (2019), Ha (2020), Jafaar et al. (2020), and Tigor et al. (2021). For detail, this description is obtainable in the first table.

Table 1. Variable definition

Variable	Definition	Indicator	Scale
Systematic risk	The risks that cannot be vanished by portfolio formation	The estimated beta (BETA) by the market model in the first equation	Ratio
Debt policy	Financing decision by debt	Liabilities-to-assets ratio (LAR) at the end of the year	Ratio
Efficiency ratio	Company capability to manage assets to create revenue	Total asset turnover ratio (TATO) at the end of the year	Ratio
Profitability	The firm capacity to yield profits	Return on assets (ROA) at the end of the year	Ratio

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Method for analyzing the data

Denoting the scale in Table 1, the suitable method to analyze the data is a regression model with time series and cross-sectional data (Gujarati et al., 2019). Furthermore, the model is found in the third equation.

$$BETA_{it} = \theta_0 + \theta_1 LAR_{it} + \theta_2 TATO_{it} + \theta_3 ROA_{it} + \varepsilon_{it} \quad (3)$$

In estimating the coefficient, the regression model uses the ordinary least square. Hence, it must meet the test requirement of the classical assumptions: the residual of this model has to be normally distributed and random; the absolute residual has to be unrelated to all independent variables, and no strong correlation among the independent variables. If these situations exist, the estimators or θ will be best, linear, and unbiased (Gujarati et al., 2019).

RESULT

The result of descriptive statistics

This study uses thirty-two non-financial companies with six years as a period; hence, the observational number (N) becomes 192 (see Table 2). Furthermore, the descriptive statistics, such as minimum, maximum, average, and standard deviation, for the variables utilized: systematic risk, efficiency ratio, profitability, and debt policy, measured by beta, total asset turnover, and debt to asset ratio, one to one, can also be seen in table two.

Table 2. The statistics to describe the research variable

Variable	Indicator	N	Minimum	Maximum	Average	Standard deviation
Systematic risk	Beta (decimal)	192	-2.402828	6.098773	1.40874367	1.512463971
Debt policy	LAR (decimal)	192	0.1242	2.2753	0.504219	0.2216807
Efficiency ratio	TATO (decimal)	192	0.1272	3.9211	0.571323	0.3872074
Profitability	ROA (percentage)	192	-9.51	33.32	6.0807	5.83387

Source: Modified Output of IBM SPSS 19.

Table 3 shows the classical assumption testing output, covering normality, autocorrelation heteroskedasticity, and multicollinearity. The Z-statistical asymptotic significance (2-tailed) is 0.125 and 0.082 for the normality and autocorrelation testing results. These values exceed the significance level (α) of 5%; therefore, the residual follows the normal distribution and random walk. For a heteroskedasticity testing result, the probability of Chi-Square of observational R-square is 0.011, which is still higher than the restricted α of 1%. Hence, heteroskedasticity is unavailable in the regression model. For multicollinearity detection, the variance inflation factor of LAR, TATO, and ROA is 1.459, 1.216, and 1.536, respectively. These values are below 10; thus, multicollinearity does not exist in the regression model.

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Table 3. The result of the classical assumption tests

The type of the test	The name of the test	The output of the data processing	Meaning
The normality test	Kolmogorov-Smirnov	The asymptotic significance (2-tailed) of the Z-statistic of residual: 0.125*)	The residual of the regression model follows the normal distribution.
The autocorrelation test	Runs	The asymptotic significance (2-tailed) of the Z-statistic based on median: 0.820*)	The residual is random: autocorrelation is not available in the regression model.
Heteroskedasticity test	White with cross-term	The probability of Chi-Square (9) of Observational R-square: 0.011**)	Heteroskedasticity is not available in the regression model.
Multicollinearity detection	Variance inflation factor (VIF)	The VIF for LAR, TATO, and ROA: 1.459, 1.216, 1.536*)	Multicollinearity does not exist in the regression model.

Source: The adjusted output of IBM SPSS 19*) and E-Views 6**)

Table 4 presents the regression model estimation features to examine the proposed hypotheses: the probability of the t-statistic for LAR, TATO, and ROA: 0.0621, 0.0036, and 0.0611. These values are still below the relaxed α of 10%, and the regression coefficients support the hypotheses direction: a positive sign for LAR and a negative sign for TATO and ROA; hence, debt policy positively affects the systematic risk, but the efficiency ratio and profitability negatively influence it.

Table 4. The result of the regression model estimation: The effect of debt policy, efficiency ratio, and profitability on systematic risk

Variable	Beta	Standard error	t-statistic	Probability
C	1.603498	0.359896	4.455450	0.0000
LAR	1.088897	0.580124	1.877006	0.0621
TATO	-0.871001	0.295578	-2.946774	0.0036
ROA	-0.040485	0.021487	-1.884118	0.0611
R-square		0.114971		
Adjusted R-square		0.100848		

Source: The adjusted output of E-Views 6

DISCUSSION

This research accepts the first hypothesis: the debt policy positively affects systematic risk: The market views the harmful effect of the debt on the company. At worst, this circumstance leads to bankruptcy, as postulated by the trade-off theory of capital structure (Brealey et al., 2020). However, this argument does not align with the perspective of Jensen (1986). Although having this lousy effect, Jensen (1986) declares that debt is still helpful in preventing managers from misusing cash flow for unnecessary spending. According to Titman et al. (2021), purchasing luxurious corporate jets and firm apartments and paying for resort hotels during vacations are examples of this spending. Although utilizing different logical explanations, this evidence of the positive relationship between debt policy and market risk is supported by Saji (2018), Arora et al. (2019), Wagdi and Tarek (2019), Jaafar et al. (2020), Saravia et al. (2021) and Mousa et al. (2021).

Additionally, this study receives the second hypothesis: the efficiency ratio negatively influences systematic risk. The circumstance means that when managers effectively manage the firm assets to create revenues, they can decrease systematic risk. As detected in the previous

study with the Indonesian capital market data, this negative tendency is proven by Nugraha and Firdaus (2021). Similarly, the managerial success in cutting systematic risk by increasing the total asset turnover is confirmed by the scholars utilizing the capital market data from India (Arora et al., 2019) and Japan (Riaz et al., 2019).

Finally, this study accepts the third hypothesis: profitability negatively affects systematic risk. It means that when firms result in profits, they are more vital in avoiding bankruptcy and sustaining and expanding their business. Therefore, they can reduce systematic risk. As noticed in the earlier investigations utilizing the Indonesian capital market data, this evidence is verified by Tigor et al. (2021). Correspondingly, the ability of the firms to cut systematic risk by elevating profitability is affirmed by the researchers employing the stock market data from Malaysia (Jaafar et al., 2020), India (Arora et al., 2019; Parthasarathy, 2019; Saji, 2018), and Vietnam (Ha, 2020)

Practically, for public investors with risk-averse preferences interested in share transactions becoming the Kompas 100 index based on the systematic risk, this research recommends considering the movement of efficiency and profitability ratios yearly to obtain the stocks with smaller beta. Furthermore, to realize this circumstance, they can buy the shares of the companies when the position of the total asset turnover and profitability elevate from prior years. A positive effect of debt on systematic risk needs to be viewed by the discipline of managers by controlling shareholders from unimportant spending of cash flows.

CONCLUSION

This study aims to prove and analyze the effect of debt policy, efficiency ratio, and profitability on the systematic risk of stocks. The stocks intended belongs to the selected non-financial companies from the Kompas 100 index from 2014 to 2019. After statistically checking the data of 33 companies as samples, this research supports the first hypothesis: debt policy positively affects this risk. Although this positive propensity happens, applying debt is not harmful as long as it disciplines the managers from needless expenditure. Also, the second and third hypotheses are verified: the higher the efficiency and profitability ratios, the lower the systematic risk. This condition reflects the capable managers utilizing company assets to generate sales and profits, which can shrink this risk.

Academically, this research is limited based on the number of utilized variables: three foremost variables, i.e., debt policy, efficiency ratio, and profitability. Therefore, the subsequent scholars can improve the number of determinants in their research model by adding liquidity ratio and asset growth based on the internal company situation and the macroeconomic factor, such as inflation, economic development, unemployment level, and money supply. As the second limitation, this study only utilizes non-financial companies listed on the Indonesian capital market. For instance, it brings the idea for the following scholars to employ the same firms from all capital markets in Southeast Asia and Asia. Therefore, stratified random sampling can be an appropriate technique for taking firms by treating each country as a stratum.

REFERENCES

Arora, L., Kumar, S., & Goel, U. (2019). Firm performance and systematic risk. *The Second International Conference on Business, Management, and Economics*, 63–79. https://doi.org/10.33422/2nd.icbmeconf.2019.06.1025

Awaluddin, M., Pratiwi, D., & Wardhani, R. S. (2019). The beta role in affecting stock returns with unconditional and conditional approaches. *Jurnal Ilmiah Akuntansi Peradaban*, *5*(1), 17–34. https://doi.org/10.24252/jiap.v5i1.9429

Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principle of corporate finance* (13th ed.). McGraw-Hill Education.

Firdaus, F. (2021). *Quantitative Research Methodology*. CV. DOTPLUS Publisher.

Gujarati, D. N., Porter, D. C., & Pal, M. (2019). *Basic Econometrics* (6th ed.). McGraw-Hill Education.

Ha, P. T. (2020). Impact of financial leverage, firm performance on systematic risk in developing countries: An analysis on the Vietnamese-listed firms. *Journal of Finance and Accounting*, *8*(1), 11–15. https://doi.org/10.12691/jfa-8-1-2

Hartono, J. (2017). *Portfolio Theory and Investment Analysis* (11th ed.). Badan Penerbit Fakultas Ekonomi Universitas Gadjah Mada.

Jaafar, M. N., Muhamat, A. A., Basri, M. F., & Syed Alwi, S. F. (2020). Determinants of systematic risk: Empirical evidence from Shariah-compliant firms listed on Bursa Malaysia. *International Business Education Journal*, *13*(1), 71–82. https://doi.org/10.37134/ibej.vol13.1.6.2020

Jensen, G. R., & Jones, C. P. (2019). *Investments: Analysis and Management* (14th ed.). Wiley.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, *76*(2), 323–329. https://www.jstor.org/stable/1818789

Mousa, M., Nosratabadi, S., Sagi, J., & Mosavi, A. (2021). The effect of marketing investment on firm value and systematic risk. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*, 64. https://doi.org/10.3390/joitmc7010064

Nugraha, Y., & Firdaus, M. (2021). The analysis of leverage, liquidity, efficiency, and earning growth expectations impacts market beta. *Jurnal Indonesia Sosial Sains*, *2*(9), 1615–1631.

Parthasarathy, S. (2019). Systematic risk and accounting determinants: An empirical assessment in the Indian stock market. *Organizations and Markets in Emerging Economies*, *10*(2), 310–334. https://doi.org/10.15388/omee.2019.10.16

Riaz, A., Hongbing, O., & Mansoor, R. (2019). Systematic risk determinants of the Japanese shipping industry. *International Journal of Academic Research in Business and Social Sciences*, *9*(1), 1030–1042. https://doi.org/10.6007/ijarbss/v9-i1/5503

Rowe, T. R., & Kim, J. S. (2010). Analyzing the relationship between systematic risk and financial variables in the casino industry. *UNLV Gaming Research & Review Journal*, *14*(2), 47–58. https://digitalscholarship.unlv.edu/grrj/vol14/iss2/4/

Saji, T. G. (2018). Predicting Market Betas: Implication from firms' financials in India. *Paradigm*, *22*(2), 160–174. https://doi.org/10.1177/0971890718787942

Saravia, J. A., García, C. S., & Almonacid, P. M. (2021). The determinants of systematic risk: A firm lifecycle perspective. *International Journal of Finance and Economics*, *26*(1), 1037–1049. https://doi.org/10.1002/ijfe.1834

Tandelilin, E. (2017). *Capital Market: Portfolio and Investment Management*. Penerbit Kanisius.

Tigor, R. H., Indratjahyo, H., & Silitonga, E. S. (2021). Influence of return on assets and total assets turnover on the systematic risk of shares with price book value as intervening variable. *Journal of Research in Business and Management*, *9*(2), 62–72. https://questjournals.org/jrbm/papers/vol9-issue2/I09026272.pdf

Titman, S., Keown, A. J., & Martin, J. D. (2021). *Financial Management: Principles and Applications* (14th ed.). Pearson Education Limited.

Wagdi, O., & Tarek, Y. (2019). The impact of financial risk on systematic risks: International evidence. *Journal of Applied Finance & Banking*, *9*(6), 203–2016. https://www.scienpress.com/Upload/JAFB/Vol 9_6_11b.pdf

Zutter, C. J., & Smart, S. B. (2018). *Principles of Managerial Finance* (15th ed.). Pearson Education, Inc.