

Prediction Guidelines for Performance Using Springate Model and Influence on Stock Return Property & Real Estate and Food & Beverage Sectors Listed on Indonesia Stock Exchange

Rilla Gantino S. E. A. k. M. M.*

Esa Unggul University, Indonesia

Endang Ruswanti S. E. M. M.

Esa Unggul University, Indonesia

Taufiqur Rahman S. T. M. T.

Esa Unggul University, Indonesia

Abstract

This research is a continuation of previous research and funded by Indonesian Ministry of Research and Technology. This study aims to create performance model guidance by predicting performance with Springate model with the basis of business strategy identification selected by companies in two sectors. The amount of data processed by food and beverage sector are 104 from 11 companies and 315 data from 37 companies in property and real estate sector. Business strategies chosen by firms in both sectors have an effect on performance achievement. The result shows that only net profit before interest and tax to total asset in food and beverage sector have a significant effect to stock return but firm in property and real estate all have an insignificant effect. In Food and Beverage sector, working capital to total asset, net profit before interest and tax to total asset, net profit before tax to current liabilities and sales to total asset have no significant effect to stock return, but have significant effect on property and real estate sector. Coefficient of springate affect to stock return on both sector.

Keywords: Prediction; Guidelines; Springate; Stock return; Comparing.



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1. Introduction

Various company will make serious efforts to increase the business activity performance for their year to year basis. The intended performance obtained from managerial performance as well as financial performance. Good plan is needed to achieve good performance.

Planning is done by utilizing information (Dunk, 2005). Information must be resulted from information system to achieve business goals (A Gul and Chia 1994); (Atkinson *et al.*, 2011). The intended information is high quality information resulted from high quality information system (DeLone and McLean, 1992).

It is needed to design high quality information system in order to have the intended information by the company for external and internal party. Information for internal party resulted from management accounting information system (Gul and Ming, 1994); (Atkinson *et al.*, 2011); (Gantino, 2015). Furthermore, through management accounting information system, management accountant could formulate various strategies, making business activity planning, helping management in making decisions, protecting company's assets and constructing various financial report needed effectively (Gantino, 2015); (Marcus *et al.*, 2008).

Eddy Hussy's state "price of property has not been strong enough because of the weakening of Rupiah". This statement strengthened with a special report (BRIC, 2015). Property business tends to slowing down when the risk possibility is taking place and increasing along with global uncertainty, make it possible for bubble property to happen. Ciputra said, "eventhough not as bad as 1998 condition, still today's situation must be handled carefully. Property corrected, offices over supplied. Management must be brave enough to make new innovations and doing some efficiency if needed".

This conditions also happen in food and beverages industry which have several characteristics because of it is too easy for company to get in to this industry. The company getting easy in to the market will cause the increase of competition (Copeland and Weston, 1997). The increase of competition and inflation give an impact on company's performance achievement in this sector. Financial performance in several company incorporated in food and beverages industry listed in BEI begin to be affected by economy crisis started in 2007-2009.

Based on the statement above, the researcher finds that external environment such as uncertainty of economical condition will affect the performance achievement. To get information related to uncertainty of external environment, it is necessary to find information that could help dealing with the uncertainty.

2. Literature Review

2.1. Performance

Performance is defined as the record of outcomes produced on a specified job function or activity during time period (Achmad, 2002). Furthermore, performance is the achievement of public program and organizations in term of the outputs and outcomes that they produce (Gantino, 2015); (O'Toole *et al.*, 2011).

Performance measurement can be done through managerial performance measurement and financial performance. Managerial performance is a factor that increase organization effectivity. Mahoney (1963) said that managerial performance is an individual performance of organization's member in managerial activity that consist of planning, investigating, coordinating, supervising, staff controlling, negotiating, and representing.

Performance measurement non-financial describing different dimension of action taken by management (Banker and Srikant, 1989; Ittner and David, 1998). There are several tools to measure financial performance effectively such as Classical Approach (Traditional Financial Ratios Analysis), Behavioral Approach (Quantitative System, Seven-S, Quality Circle, EVA and MVA, Zeta Models, Cash Flow Ratios Analysis, or Z Theory) (Copeland and Weston, 1997; Gantino, 2015); (Idrus and Stanton, 1991) or through Profitability Ratio, Growth Ratio, and Value Measurement. According to Mulyadi (2007), financial performance is a periodic determination of operational effectivity in an organization and the employee based on target, standard, and prior stated criteria.

According to Van *et al.* (2013), "Financial ratio is a tool that is used to analyze financial condition and company performance. Calculating several ratios will get better and useful comparison than several raw data itself". Ratio analysis gives useful information related to company's operational and financial condition, there are also some limitation of information that needs special attention in considering problems in the company (Liang *et al.*, 2016; Nicu, 2012).

Van *et al.* (2013) stated that ratio number can be determined into: Balance Sheet Ratio, Income Statement Ratio, and Inyern Statement Ratio.

2.2. Bangkrutpcy

According to The Regulation, Article No. 4 1998, bankruptcy of an institution is an institution that is declared by court when debtor has two or more creditor and not paying at least one overdue debt and can be billed. Bankruptcy occurred when a company cannot generate sufficient cashflow to fulfill its debt. Afterward, explained that bankruptcy occurred when there are "really high cost, almost 11-17% from company value" (Mamduh M. *et al.*, 2016) according to statement above, we can conclude that the definition of bankruptcy is a condition where a company cannot pay their debt with existed asset.

Fachrudin and Amalia (2008), using Brigham and Gapenski concept (Rhyne and Eugene, 1979), bankruptcy can be interpreted in several ways depends on problem faced by the company: a) Economic Failure, b) Business Failure, c) Technical Insolvency, d) Insolvency in Bankruptcy, e) Legal Bankruptcy. Banruptcy can be predicted by noticing several indicator, such as: Cash flow analysis for current or future, analysis of corporate strategy, ie analysis that focuses on competition faced by the company, cost structure relative to its competitors, quality management, management capability in controlling costs (Mamduh H. M., 2004)

2.3. Springate Model

Springate model is a bankruptcy model developes in 1978 by Springate (1978). Springate, by following multiple discriminate analysis procedure develop by Altman (www.bankruptcy.com). This bankruptcy model uses 4 of 19 financial report ratios that are widely used to differentiate bankrupt companies and healthy companies (Sadgove, 2005). The equations used in the Springate model are as follows:

$$S = 1,03A + 3,07B + 0,66C + 0,4D$$

A = working capital/totalasset. B=net profitbefore interest and taxes/totalasset C = net profitbefore taxes/current liabilities, D = sales/totalasset

The criteria for predicting the financial performance of a company in this Springate model are (1) S-Score > 0.862 means healthy financial condition, and (2) S-Score < 0.862 means unhealthy financial condition.

2.4. Share Return

An investor invests in a company, hoping to get a high return on investment (Tandelilin, 2010). Share Return is the result obtained from the investment, generally make the investment is to get the return (return rate) in return for the funds that have been invested and willingness to bear the risks that exist in the investment (Hartono, 2014) (Jogiyanto, 2010); (Irham 2013).

According to Van *et al.* (2013) the return on the ownership of an investment in the form of shares in a certain period, for example one year is the payment received because of the right of ownership plus the change in market price divided by the initial price. There are two forms of share returns received by investors from share investment activities, namely: Dividend and Capital, Capital gain is the result obtained by investors from the difference between the buying rate and the selling rate. It means that if the buying rate is lower than the selling rate, the investor will get capital gain, and vice versa is called capital loss. To calculate shares return using the formula stated below (Jogiyanto, 2010):

$$\text{Return saham} = \frac{P_t - P_{t-1}}{P_{t-1}} + \frac{D_t}{P_{t-1}} = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

Pt = share rate at t period (end), Pt-1 = share rate at t-1 period (beginning), Dt = share dividen that will be shared

2.5. Previous Research

Share return is the profit earned by investors on share investments (Wahyudi, 2003); Anwaar (2016) stated that net profit margin, return on assets has got significant positive impact on share returns while earnings per share has got significant negative impact on share returns. Partially ROA and NPM have a significant effect on share return, while ROE, GPM and inflation have no significant effect on share return (Nurhakim *et al.*, 2013). Simultaneously, ROA, ROE, NPM, GPM and inflation have a significant effect on share return. financial ratio simultaneously have significant impact toward the share return. Meanwhile, individually, only Return on Asset has the significant impact toward share return of property industry in Indonesia (Kevin, 2016). Profitability is proxied by return on assets (ROA) significant positive effect on share price (Al and Haneen, 2016). Earnings to price and net profit margin are significant to explain share returns in İstanbul Share Exchange while current ratio is found insignificant (Hakki, 2018); (Pražák and Daniel, 2017).

Based on the description above, we can summarize that by knowing the financial performance of a company using Springate model, a healthy financial performance company will be able to give share returns expected by its investors, and unhealthy financial performance companies will not be able to give share returns expected by the investors.

H₂ : There is significant influence of ratio used in springate model to share return

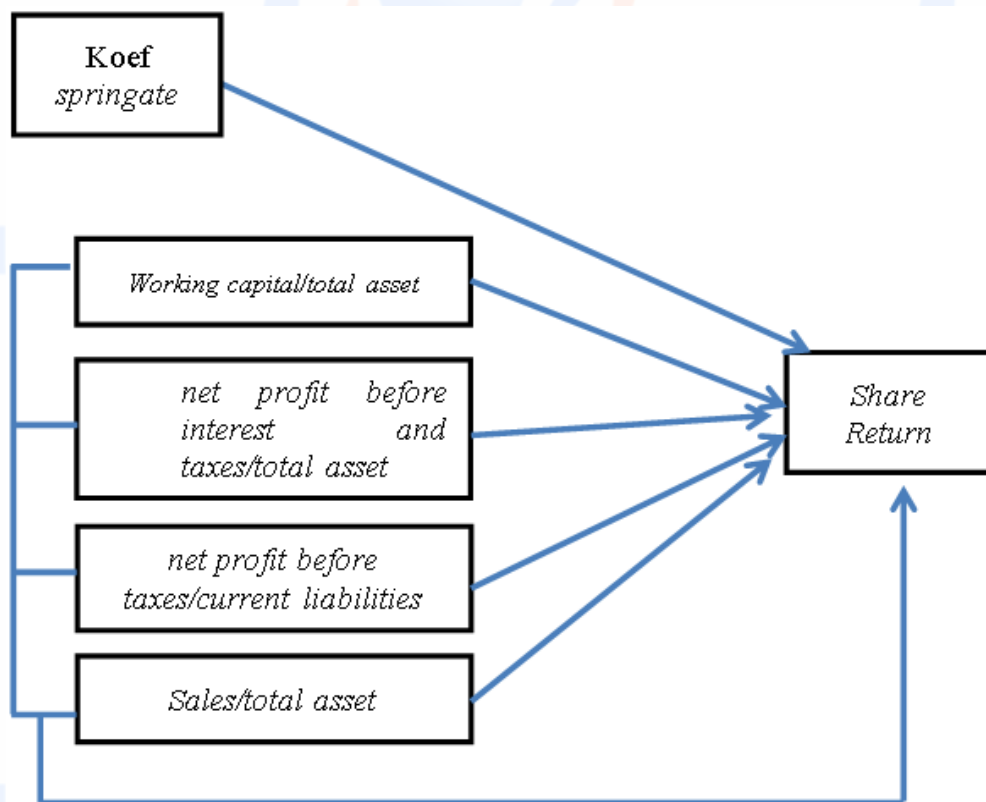
H₃ : There is significant influence springate coefficient toward share return

3. Methodology/Materials

This research is a continuation from before (Model of Influence of environmental uncertainty, decentralization of authority and business strategy towards managerial performance with management accounting information systems as an moderating variable), research object is prediction model for potential bancruptcy and influence of ratios used for bancruptcy potential prediction on share return also influence of pringate index on share return. The research method used is explanatory survey method. The Analysis Method used descriptive analysis and Quantitative analysis.

This research use sekunder data, from two sector: Property and Real Estate Sector and Food and Beverage Sector listed on Indonesian Stock Exchange from 2007-1016.

3.1. Conceptual Framework



4. Results and Findings

4.1. A, B, C and D towards RS in Food and Beverage Sector

A = Working Capital towards Total Assets B = EBIT on Total Assets C = Net Profit Before Tax towards Current Liabilities D = Sales towards Total Assets RS= Shares Return

All data is normal, furthermore, the effect of all variables (A, B, C and D) on stock return is very small (4.7%) means that stock return in observation year is influenced by variables other than A, B, C and D. The result of F statistic test shows that simultaneously the variables A, B, C, D have no significant effect on RS.

Table-1. Summary Model^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.290 ^a	.084	.047	.498806

a. Predictors: (Constant), D, C, B, A b. Dependent Variable RS

Table-2.F Test

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.268	4	.567	2.279	.066 ^b
	Residual	24.632	99	.249		
	Total	26.900	103			

a. Dependent Variable: RS, b. Predictors: (Constant), D, C, B, A

T test shows that only B variable (Net Profit Before Interest and Tax to Total Assets) which have significant effect to RS, other variables have an insignificant effect. The regression equation formed is as follows:

$$SR = 0.315 + (-0.41A) + (-.0387B) + (-0.008C) + (-0.005D)$$

The RS value will be smaller than 0.315 if the values A, B, C and D are either 1 or the RS value of 0.315 if A, B, C and D are 0.

4.2. Springate Coefficient on Stock Return on Food and Beverage sector.

The influence of springate coefficient on stock return is very small, only 7%, and the result of simple regression test obtained that springate coefficient have no significant effect to stock return.

Table-3. Springate Coefficient on Stock Return

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.128 ^a	.016	.007	.509343

a. Predictors: (Constant), KSPRING

Table-4. Test of Significance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Const)	.233	.053		4.401	.000
	KSPRING	-.009	.007	-.128	-1.300	.197

a. Dependent Variable: RS

The regression equation is: $SR = 0.233 + (-0.009KSPRING)$

4.3. A, B, C and D towards RS in Property and Real Estate Sector Units

A= Working Capital towards Total Assets B= EBIT on Total Assets C= Net Profit Before Tax towards Current Liabilities D= Sales towards Total Assets RS= Shares Return

All data is normally, furthermore, in the summary model obtained information that the influence of all variables (A, B, C and D) on stock return is very small (2.5%) means stock return influenced by variables other than A, B, C and D. The result of F test shows that simultaneously the variables A, B, C, D have a significant influence on RS.

Table-5. Summary Model^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.194 ^a	.037	.025	.399538

a. Predictors: (Constant), D, C, A, B

b. Dependent Variable: RS

Table-6. F Test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.926	4	.482	3.017	.018 ^b
	Residual	49.486	310	.160		
	Total	51.412	314			

a. Dependent Variable: RS

b. Predictors: (Constant), D, C, A, B

Based on T testing in Table 5.22, shows that all the variables have no significant effect on the RS. The regression equation formed is as follows: $SR = 0.076 + (-0.165A) + 0.486B + (-0.000C) + (-0.092D)$

4.4. Stock Return of Property and Real Estate sector

The influence of springate coefficient on stock return very small, only 2%, and the result regression testing show that springate coefficient have no significant effect to stock return.

Table-7. Springate Coefficient on Stock Return

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.074 ^a	.005	.002	.404182

a. Predictors: (Constant), KSPING

Table-8. Significance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.021	.032		.665	.507
	KSPRING	.038	.029	.074	1.307	.192

a. Dependent Variable: RS

The regression equation is: $SR = 0.021 + 0.038KSPRING$

Comparison of test for two sector are as follows:

Table-9. Comparison

Test result of A.B.C.D on SR	FnB Sector		PnRE Sector		
		Sig (T)		Sig (T)	
1.	T test (Const)	.315		.076	
	A	-.041	.804	-.165	.046
	B	-.387	.016	.486	.088
	C	-.008	.076	-8.241E	.089
	D	-.005	.950	--.092	.083
2.	F Test				
	Sig	.066		0.018	
3.	Adjusted R square	0.047		0.025	
4.	Equation	SR = 0.315 + (-0.41A)+ (-.0387B) + (-0.008C)+ (-0.005D)		SR = 0.076 + (-0.165A)+ 0.486B +(-0.000C)+(-0.092D)	
Springate Coef On SR					
1.	Influence	7%		2%	
2.	Sig	0.197		0.192	
3.	Equation	SR = 0.233 + (-0.009 SpringCoef)		SR = 0.021 + 0.038(SpringCoef)	

4.5. Analysis

A = Working Capital towards Total Assets B = EBIT on Total Assets C = Net Profit Before Tax towards Current Liabilities D = Sales towards Total Assets SR= Stock Return

FnB sector equation shows that the greater value of A, B, C and D will decrease value of stock return and maximum return value of stock is 31.5% if A, B, C and D are 0. Based on concept, the greater value of working capital against asset, the greater value of net income before interest and taxes to total assets, the greater sale to total assets will increase value of stock returns.

Prihanthini *et al.* (2013) stated that the accuracy of springate model to predict bankruptcy or the occurrence of financial distress is 90%. Based on descriptive data from 2007-2016 on FnB sector, only a few companies are potentially bankrupt. Potentially a lot more bankrupt companies occurred in 2007 and 2008.

Company's use defender strategy has Low ROA from 2007-2016, and maintaining high ROA when companies use analyzer strategy. The Company runs its business operations with stable markets so that the level of formalization within the company is high and tends to be centralized as it aims to increase efficiency so that ROA becomes high.

The result of statistic test also shows that the influence of A, B, C and D on stock return is only 4.7% meaning that influence stock return greater than factor other than A, B, C and D. Also influence information coefficient springate to return stock also small, only 7%, and coefficient of springate decrease stock return equal to 0,9% or maximal return value if coefficient springate zero (0) is 0.233.

The result test is the significant influence of A, B, C and D against stock return and not significant influence on coefficient of springate to stock return. Variable B has a positive influence on stock return as well as the coefficient of springate that has no significant positive effect on stock return.

Based on Rilla (Gantino et al. 2017), RDTX, JRPT, and MKPI using defender strategy. When ROA above average, Leverage (DAR) and Liquidity (CR) is below average. has an impact on the detection of potentially bankrupt.

Companies using strategy analyzers are APLN, BAPA, BEST, BKDP, BCIP, COWL, DUTI, MORE, RBMS (Gantino et al., 2017). Based on the results springate coefficient, these companies are potentially bankrupt, and ROA, Leverage and Liquidity are much below the industry average. Similarly, companies using prospecting strategies are ELTY, BIPP, CTRA, GPRA, BKSR, SMRA, SMDM and RODA (Gantino et al. 2017). These companies are in potentially in bankruptcy condition. Also companies that use defender strategy, such as JRPT, PKPI and RDTX. ROA calculation results associated with springate coefficients, indicate that companies implementing defender strategy, ROA is above the industry average, so it has no bankrupt potential, except JRPT. Although the leverage of JRPT is above the 2007-2011 average, the company's ROA is above the industry average.

5. Conclusion

A = Working Capital towards Total Assets B = EBIT on Total Assets C = Net Profit Before Tax towards Current Liabilities D = Sales towards Total Assets SR= Stock Return The choice of business strategy will have an impact on bankruptcy. Conclusions based on data processing:

1. In the Property and Realest sectors, the influence of all variables (A, B, C and D) on stock return is very small (2.5%) means stock return influenced by variables other than A, B, C and D. In the food and beverage sector the effect of all variables (A, B, C and D) on stock return is very small (4.7%) means that stock return influenced by variables other than A, B, C and D.
2. In the Property and Realest sectors, only Working capital to total assets has a significant effect on stock returns and only EBIT to total assets that have a significant effect on stock returns on food and beverage sector (Nurhakim et al., 2013); (Kevin, 2016); (Al and Haneen, 2016).
3. Springate coefficient has no significant effect on stock returns on both of two sectors, even though springate model able to predict bankruptcy or the occurrence of financial distress is 90% (Prihanthini et al., 2013) and bankruptcy prediction model can be used as one of the approaches to measure the movement of stock prices and performance of the coal mining companies in Indonesia (Siregar et al., 2018)

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