

**PREDICTING BANKRUPTCY USING *SPRINGATE*, *ZMIJEWSKI*, AND *GROVER*
AT PT BLUE BIRD TBK
PERIOD 2016-2021**

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Abstract

This quantitative descriptive study aims to determine the Springate Method, Zmijewski Method, and Grover Method to analyze bankruptcy at PT Blue Bird Tbk. The period used in this study is six years, starting from 2016-2021. This research was conducted by taking secondary data from financial statements obtained from the official website www.bluebirdgroup.com. The results showed that using the Springate method in 2016 and 2018 were in a prone area or on the verge of bankruptcy; in 2017, this Company was in good condition, while in 2019-2021, this Company went bankrupt. Using the Zmijewski method shows that in 2016-2021 this Company did not go bankrupt, and the Grover method shows that in 2016-2021 this Company did not go bankrupt. In this case, the Springate method accurately analyzed bankruptcy at PT Blue Bird Tbk.

Keywords: Bankruptcy Method, Springate, Zmijewski, Grover

INTRODUCTION

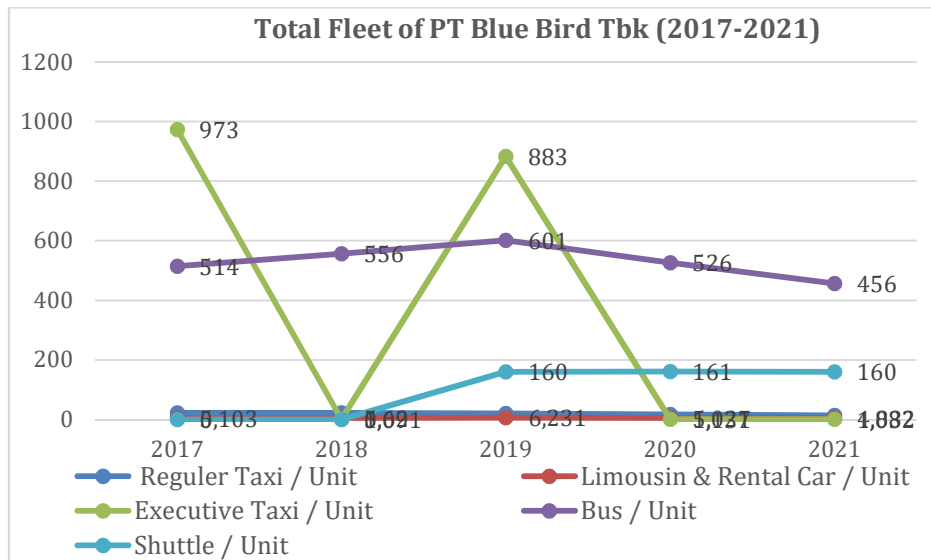
. The largest taxi company in Indonesia is PT Blue Bird Tbk. PT Blue Bird Tbk is one of the transportation service providers that has long existed in the world of taxi transportation in various cities in Indonesia with a reasonably large fleet. In 2014, PT Blue Bird Tbk already had a *Taxi Mobile Reservation* available on Windows, iOS, and Android platforms that can be accessed quickly (Source: Annual Report of PT Blue Bird Tbk, 2014). PT Blue Bird Tbk always maintains good customer service; the vehicle rejuvenates yearly. This Company is also developing itself in transportation services, not only taxis but also types of transportation services, bus tourism. This rival in the taxi business is almost non-existent. Some companies that appear are only as a complement. So it can be said that at that time, PT Blue Bird Tbk was a transportation company that could dominate the world of taxis.

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During 2015-2017, the profitability ratio of PT Blue Bird Tbk tended to decline due to profit and profit and sales, which also decreased. Therefore, the profitability level of PT Blue Bird Tbk can be said to be in bad condition (Goni *et al.*, 2019). In 2016, revenue decreased by 12.36% compared to 2015. In 2017, the gain was achieved at Rp4.20 trillion. The reenactment was in line with management's expectations, given the competition that occurred throughout 2017. The decrease in revenue and the increase in direct expenses and operating expenses of the Company certainly impacted the decline in the Company's current year profit by 15.80% compared to 2016. In 2018, the business competition helped limit the increase in the Company's revenue 2018. In 2019, Persereoran's decreased, where the achievement decreased from the previous year (Source: Annual Report of PT Blue Bird Tbk, 2016-2019). The instability of PT Blue Bird Tbk's revenue impacts the increasing competition in the face of online taxi service providers.

The decline in the revenue of this established taxi company has caused many taxi drivers of PT Blue Bird Tbk to change their profession to *become online* taxi drivers. In terms of business, this can undoubtedly threaten the sustainability of business processes at PT Blue Bird Tbk, which is very dependent on the number of taxi fleets that can operate. PT Blue Bird Tbk experienced a decrease in the number of armadas due to *online* transportation that has dominated the world of land transportation, such as data on the number of fleets on PT Blue Bird Tbk below:



Source: Processed Researcher (2022)

Figure 1. Total Fleet of PT Blue Bird Tbk (2017-2021)

It is concluded that PT Blue Bird Tbk's net revenue for the 2017-2021 period has decreased significantly due to *online* transportation and the Covid-19 virus pandemic, as can be seen in the table below:

Table 1. Operating Profit PT Blue Bird Tbk

PT Blue Bird Tbk	
Year	Net Income
2016	IDR4,796.10 trillion
2017	IDR4.20 trillion
2018	IDR4.22 trillion
2019	IDR4.05 trillion
2020	IDR2.05 trillion
2021	IDR2.20 trillion

Source: Processed Researcher, (2022)

In this case, the Company expected to adapt to the environment and maintain business continuity amid various changes because it would cause destructive business activities if it competed. If the Company does not survive, it will be in financial *distress* where it becomes unhealthy, experiences a problem that arises, and can even experience bankruptcy.

According to Sudrajat & Wijayanti (2019), *financial distress* can be interpreted as sharing a series of errors in judgment and weaknesses related directly or indirectly is also a stage of deterioration in a company before bankruptcy. An *early warning system* model. This model can be used to recognize the initial symptoms of *financial distress* for further efforts to improve conditions before arriving at crisis or bankruptcy conditions.

Bankruptcy is when a company experiences insufficient funds to run its business. According to Kadim and Sunardi (2018), company bankruptcy is one of the phenomena that often occurs in the business world, both influenced by internal and external parties. According to Gerdian (2016:13), bankruptcy can be predicted long before a company goes bankrupt. Therefore, bankruptcy cannot be detected in a short time. However, the time used is usually two to five years as a tolerance limit for performance decline to see the Company's possible bankruptcy.

Bankruptcy prediction analysis is an analysis that can help companies to anticipate the possibility that the Company will e experiencing bankruptcy caused by financial problems. For the owner of the analysis company, this can be used to decide to keep his ownership in the Company or sell it and invest elsewhere.

Various methods were developed to analyze the bankruptcy of companies, namely using the *Springate*, *Zmijewski*, and *Grover* methods. Metode Springate was introduced by Gordon L.V. Springate in 1978. This Metode was created by following the procedure of the *Altman Z-Score* method. Metode *Zmijewski* was a method of bankruptcy analysis in 1984. It uses financial ratios that measure a company's financial performance, *leverage*, and liquidity. The proportions in *Zmijewski's* calculations focus on how capable the Company's assets are of

covering its debts. Grover method is about the created by Jeffery S. *Grover* by designing and reassessing the *Altman Z-Score* method.

METHOD

The data collection technique used in this research is analyze secondary data from financial statements of PT Blue Bird Tbk. Data obtained from the official *website* of PT Blue Bird Tbk *www.bluebirdgroup.com*. Calculate the financial ratios using Springate, Zmijeski and Grover method, afer that calculate potential bankruptcy using Springate, Zmijeski and Grover method. Finally, create a bankruptcy prediction results measurement table from all method used.

RESULT AND DISCUSSION

Based on the data from the calculation of the four variables used in the *Springate* method, the next step is to enter these results into the equation method of *Springate* by multiplying the results of the data above by the constant or standard values of each variable which are then summed. The method of the equation and the result of the calculation based on *the Springate Score* are:

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

The following are the calculation results and analysis results of the *Springate Score* from 2016-2021.

Table 2. Results of Springate Method Analysis

Year	A	B	C	D	<i>Springate Score</i>	Analysis Results
2016	0,0096	0,3395	0,5609	0,0751	0,9850	Vulnerable Areas
2017	0,0530	0,2674	0,8511	0,0698	1,2413	Not Bankrupt
2018	0,0676	0,2464	0,6505	0,0678	1,0324	Vulnerable Areas
2019	0,0257	0,1538	0,3626	0,0590	0,6011	Bankrupt
2020	0,0855	0,0961	0,2996	0,0184	0,4996	Bankrupt
2021	0,1251	0,0075	0,0300	0,0299	0,1925	Bankrupt

Source: *Processed Researcher, (2022)*

From the results of the calculation and analysis of the *Springate* method in table 4.12 that in 2016 and 2018 PT Blue Bird Tbk was in a vulnerable area, which means that the Company is on the verge of bankruptcy. If the management is not careful, the Company will be in a position to go bankrupt. While in 2017 PT Blue Bird Tbk did not experience bankruptcy, this

shows that the Company is in good health and PT Blue Bird Tbk has experienced bankruptcy in 2019-2021.

Based on the data from the calculation of the three variables used in the Zmijewski method, the next step is to enter these results into the equation method from *Zmijewski* by multiplying the results of the data above by the constant or standard values of each variable which are then summed. The method of the equation and the result of the calculation based on the *Zmijewski Score* are:

$$X = -4,3 - 4,5X1 + 5,7X2 + 0,004X3$$

The calculation of *Zmijewski Score* for each year at PT Blue Bird Tbk for the 2016-2021 period is as follows:

The following are the calculation results and analysis results of the *Zmijewski Score* from 2016-2021.

Table 3. *Zmijewski* Method Analysis Results

Year	Constant	X1	X2	X3	<i>Zmijewski Score</i>	Analysis Results
2016	-4,3	0,3145	2,0596	0,0043	-2,5506	Not Bankrupt
2017	-4,3	0,2952	1,3869	0,0071	-3,2012	Not Bankrupt
2018	-4,3	0,2978	1,3850	0,0070	-3,2058	Not Bankrupt
2019	-4,3	0,1913	1,5479	0,0050	-2,9384	Not Bankrupt
2020	-4,3	0,1012	1,5856	0,0078	-2,8079	Not Bankrupt
2021	-4,3	0,0059	1,2531	0,0097	-3,0432	Not Bankrupt

Source: *Processed Researcher, (2022)*

From the results of the calculation and analysis of the *Zmijewski* method in table 4.13 PT Blue Bird Tbk is in a position not to go bankrupt in 2016-2021, this means that the Company is in good health for six years.

Based on the data from the calculation of the three variables used in the Grover method, the next step is to enter these results into the equation method from *Grover* by multiplying the results of the data above by the constant or standard values of each variable which are then summed. The method of the equation and the result of the calculation based on the *G-Score* are:

$$G - Score = 1,650X1 + 3,404X2 - 0,016X3 + 0,057$$

The following are the calculation results and analysis results of the *G-Score* from 2016-2021.

Table 4. Results of Grover Method Analysis

Year	X1	X2	X3	Konstanta	<i>G-Score</i>	Analysis Results
2016	0,0154	0,3764	0,0011	0,057	0,4477	Not Bankrupt
2017	0,0849	0,2965	0,0010	0,057	0,4373	Not Bankrupt
2018	0,1084	0,2732	0,0011	0,057	0,4375	Not Bankrupt
2019	0,0412	0,1705	0,0007	0,057	0,2680	Not Bankrupt
2020	0,1369	0,1066	0,0004	0,057	0,3008	Not Bankrupt
2021	0,2004	0,0083	0,0000	0,057	0,2657	Not Bankrupt

Source: Processed Researcher, (2022)

From the results of the calculation and analysis of the *Grover* method in table 4.14 PT Blue Bird Tbk is in a position not to bankrupt in 2016-2021, this means that the six years the Company was declared in good health.

From the results of the analysis of the three bankruptcy prediction methods, namely the *Springate* method, the *Zmijewski* method, and the *Grover* method, it can be seen that the measurement results of the three methods are as follows:

Table 5. Measurement Results Between *Springate*, *Zmijewski*, and *Grover* Methods

Year	Bankruptcy Prediction Methods	Value	Comparison Results	
			Bankrupt	Not Bankrupt
2016	<i>Springate</i>	0.9850	-	Vulnerable Areas
	<i>Zmijewski</i>	-2.5506	-	Not Bankrupt
	<i>Grover</i>	0,4477	-	Not Bankrupt
2017	<i>Springate</i>	1,2413	-	Not Bankrupt
	<i>Zmijewski</i>	-3,2012	-	Not Bankrupt
	<i>Grover</i>	0,4373	-	Not Bankrupt
2018	<i>Springate</i>	1,0324	-	Vulnerable Areas
	<i>Zmijewski</i>	-3,2058	-	Not Bankrupt
	<i>Grover</i>	0,4375	-	Not Bankrupt

2019	<i>Springate</i>	0,6011	Bankrupt	-
	<i>Zmijewski</i>	-2,9384	-	Not Bankrupt
	<i>Grover</i>	0,2680	-	Not Bankrupt
2020	<i>Springate</i>	0,4996	Bankrupt	-
	<i>Zmijewski</i>	-2,8079	-	Not Bankrupt
	<i>Grover</i>	0,3008	-	Not Bankrupt
2021	<i>Springate</i>	0,1925	Bankrupt	-
	<i>Zmijewski</i>	-3,0432	-	Not Bankrupt
	<i>Grover</i>	0,2657	-	Not Bankrupt

Source: Processed Researcher, (2022)

Judging from table 4.15, PT Blue Bird Tbk was in the position of a vulnerable area in 2016 and 2018. For 2017 the Company is in good health (not bankrupt) while experiencing bankruptcy in 2019-2021 using the *Springate* method. Meanwhile, *Zmijewski* and *Grover's* methods in the six years PT Blue Bird Tbk was in good health or did not go bankrupt.

In the *Springate* method, it states the assessment criteria if the value ($S < 0.862$) indicates that the Company is facing the threat of bankruptcy. If the value ($0.862 < S < 1.062$) indicates that the Company is in a vulnerable area, in this case the management must be careful in managing the Company's assets so that safe bankruptcy does not occur, and if the value ($S > 1.062$) indicates the Company is in a healthy financial condition which means it does not experience bankruptcy. In the *Zmijewski* method the *cut-off* value has is 0. If the value is $X > 0$ then the Company has the potential to go bankrupt. If the value is $X < 0$ then the Company is not potentially bankrupt or in good health. In the *Grover* method, the Company is said to be bankrupt if the score is $G < 0.20$, but if the score is $G > 0.20$, the Company does not have the potential to go bankrupt or the Company is in good health. The results of the current study using these three methods are:

1. The results of data analysis using the *Springate* method show that in 2016 and 2018 the Company was in a vulnerable area condition or on the verge of bankruptcy, this condition made the Company have to be in a state of caution. In 2017, the Company was in good health or did not go bankrupt. However, in 2019, 2020, and 2021 PT Blue Bird Tbk went bankrupt. The decline in sales in the two years resulted in the Company's profit decreasing which had an impact on the obligations to be paid.
2. The results of data analysis using the *Zmijewski* method show that in 2016-2021 there was no bankruptcy. Even so, the net profit obtained every year has decreased. Companies still have to be vigilant and look for solutions or breakthroughs in order to maintain profit stability every year.

3. The results of data analysis using the *Grover* method show that in 2016-2021 did not experience bankruptcy. However, sales in the last two years have decreased quite drastically and resulted in a decline in profits.

According to www.idxchannel.com sources in 2020 the PT Blue Bird Tbk sector was hit by the Covid-19 pandemic. The restriction of public mobility in the midst of a pandemic caused this Company to experience a decrease in transactions. BIRD's management revealed that the Company experienced a 49% decrease in revenue in 2020. A year after the pandemic, BIRD still recorded a decrease in opinion of IDR 480.05 billion in the first quarter of 2021 or a decrease of up to 46% compared to the same period in the previous year. Revenue from taxi services also declined by 50%. In Triwulan-I in 2021, BIRD's revenue from taxi services was only IDR 347.72 billion, whereas previously it received IDR 692.07 billion. Not only in terms of revenue, this taxi issuer also experienced a decline in fleet. In 2021, BIRD's fleet decreased by 3,575 to 14,519 units consisting of regular and executive taxis. This shows that *Springate's* method of predicting bankruptcy in this Company is accurate.

From the results of the analysis using these three methods, namely the *Springate* method, the *Zmijewski* method, and the *Grover* method, it can be used as a benchmark and indicator to see the sustainability of the Company in the future, so as to anticipate financial difficulties that result in bankruptcy as analyzed using these three methods.

CONCLUSION

The *Springate* method used to analyze the bankruptcy condition of PT Blue Bird Tbk in the 2016-2021 period was two years in vulnerable areas, namely in 2016 and 2018, in 2017 the Company was in good health or did not go bankrupt. Meanwhile, there are three years that have experienced bankruptcy, namely in 2019, 2020, and 2021. The *Zmijewski* method used to analyze the bankruptcy condition of PT Blue Bird Tbk in the 2016-2021 period, that the six consecutive years did not experience bankruptcy. The *Grover* method was used to analyze the bankruptcy condition of PT Blue Bird Tbk in the 2016-2021 period, that the six consecutive years did not experience bankruptcy. PT Blue Bird Tbk was in a vulnerable area in 2016 and 2018, but for 2017 the Company was in good health or did not go bankrupt. Sementara experienced bankruptcy in 2019-2021 using the *Springate* method and this method is accurate in analyzing bankruptcies in this Company. Meanwhile, the *Zmijewski* and *Grover* methods in the sixth year 2016-2021 PT Blue Bird Tbk is in good condition or not bankrupt.

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