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An Empirical Study on the Financial Performance of Companies in Malaysia with Springate Model

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Abstract
Many business approaches now focus on sustainability for the sake of creating long-term value and to cope with industry competition. The financial performance of the company itself is often considered and governed by the high-sustainability organizations, grabbing opportunities available to take preventive measures against financial crises. The objective of this study is to evaluate the performance of the financial companies that listed in Bursa Malaysia Stock Market with Springate model. The data of this study consists of 31 financial companies where the financial data of the companies are collected from 2013 to 2017. The results obtained from this study show that 9 out of 31 financial companies are financially solvent whereas the rest of the financial companies might be at the risk of insolvency. The financially healthy companies identified by Springate model are ALLIANZ, APEX, ECM, INSAS, LPI, MAA, MANULFE, MNRB, and TUNEPRO. This study is significant as the capability of Springate model to predict the insolvency of the firms provides decision makers with insight and clarity, allowing them to make informed decisions.
Keywords: Insolvency; financial companies; springate model; Financial performance

Introduction

The rapid pace of economic growth has led to fierce competitive rivalry between businesses. Increased competition reduces profit margin and increases the probability of bankruptcy. Therefore, it is important to make strategic decisions by incorporating bankruptcy prediction models in their businesses to facilitate decision making process, more so to predict the financial health of a company. It is of great importance to adopt an appropriate method to analyze the financial condition of a company. In the financial literature, most of the bankruptcy prediction models predict bankruptcy based on financial analysis where financial data are extracted, processed, and analyzed to provide company owners with insight into the stability of the company.Financial distress models give early warning signs that a company is heading toward bankruptcy where the company is experiencing some financial problems and threatened with bankruptcy. This allows the company with poor financial condition to take immediate action before it is too late, rectifying the situation as soon as possible where possible bankruptcy can be avoided.

Altman [1] pioneered research in bankruptcy prediction where Altman Z-Score is designed to classify a company into bankrupt, grey area or healthy with financial ratio analysis. A wide variety of bankruptcy prediction models have been introduced since then such as Springate [2], Ohlson [3], and Zmijewski [4] model. Springate model is one of the most commonly cited bankruptcy prediction models where it is a statistical tool used to measure the potential bankruptcy positions of companies.

It was proposed by Gordon L. V. Springate in 1978. This model is found to be rather similar to the Altman model as it takes into account more than one financial ratios that are able to give an overview of the financial health of a company.

Multiple discriminant analysis (MDA) has been used by Springate to select four financial ratios from 19 well-known financial indicators in the literature that best explain the financial position of the companies and at the same time, these indicators are capable of identifying sound business and bankrupt companies.Springate model has achieved an accuracy level of as high as 92.5% where 40 companies are examined with the Springate model [5, 6]. In addition to that, the prediction model has been reviewed by Sands [7] where a sample of 24 companies are tested which achieved to 83.0% correct predictions.

The main objective of this study is to predict bankruptcy of the companies from the financial sector that are listed in Bursa Malaysia Stock Market with Springate model. The rest of the paper is organized as follows. Section 2 is a review of the available literature regarding the application of Springate model on the prediction of company bankruptcy. Section 3 describes the method adopted in this study. The following section presents the results obtained from the analysis and the last section concludes the paper.

Literature Review

Talebnia et al. [8] compared the performance of the two bankruptcy prediction models, Zavgren and Springatein Iran's exchange market. 362 companies that are accepted in Tehran Stock Exchange are examined. This study investigated the data from 2009 to 2013. The companies are first evaluated based on the Zavgren and Springate model. The second stage of this study attempts to adjust the coefficients of the variables of the base models in regards to the condition of the Iran's exchange market. The results of this study suggest that Springate model is better able to predict bankruptcy compared to the Zavgren model. Additionally, it has also been concluded that the adjusted Springate model is more efficient than other models in the bankruptcy year.

Kanapickiene and Marcinkevicius [9] investigated the application of several statistical bankruptcy prediction models in predicting bankruptcy and compared the accuracy between the models. The models adopted in this study are Altman, Springate, Taffler, Chesser, and Zavgren model. 433 construction firms are examined throughout the period of 2009 to 2013. The main findings of this study suggest that Springate model achieves the highest accuracy in predicting the bankruptcy of the Lithunian companies from the construction sector with an accuracy of 88%. Turk and Kurklu [10] measured the level of financial failure of the companies listed on the BIST index. The sample data of this study consists of 166 companies where the period of study covers from 2014 to 2016. The level of financial failure is compared and evaluated based on a yearly basis. Two bankruptcy prediction models, Altman and Springate model were applied in this study. The results obtained from Altman model indicated that 69% of the companies are not experiencing financial distress. In addition to that, 57% of the companies are classified as financially healthy by the Springate model. A conclusion has been drawn in this study where both of the bankruptcy prediction models provide almost similar results.

In the literature for bankruptcy prediction, Mohammadzadeh and Noferesti [11] focused on the performance of the bankruptcy prediction models where the efficiency of the Altman and Springate model in predicting the bankruptcy of a company is measured. The data of the financially sound companies and the unsuccessful corporations in Tehran's Security Exchange are collected over a five-year period which is from year 2001 to 2006. Both Altman and Springate model are found to be capable of predicting bankruptcy. Nevertheless, it has been emphasized in this study that Altman model performs better as compared to Springate model in determining the financial health of the companies listed in Tehran's Security Exchange.

The recent advancement in technology and its associated development has created a competitive business environment for many companies, resulting in limited profit and increased risk of bankruptcy. This creates a need for the evaluation the performance of companies and the risk of bankruptcy from time to time. Prediction of the risk of bankruptcy provides an opportunity for the business owners, employees and stake holders to see the associated problems that are arising and

take necessary actions to correct it [12]. In addition to that it also provides investors with warning signs on the potential wrong allocation of resources by the companies [13]. The recent economic, political and associated environmental changes in Malaysia is not without an impact on the financial sector of the country. It is important to monitor the wellbeing of the financial sector, which influences has a great impact on the economy of a country [14]. The study aims to evaluate the performance of the financial companies that listed in Bursa Malaysia Stock Market with Springate model.

Methodology

Data

About 31 financial firms accepted in Bursa Malaysia Stock Market are selected as the sample data of this study. The companies examined are presented in Table 1. Financial data are retrieved from the financial statements from year 2013 to 2017.

Table 1: List of Financial Companies [15]

Company Name	Abbreviations	Code
Alliance Bank Malaysia Berhad	ABMB	2488
AEON Credit Service (M) Berhad	AEONCR	5139
Affin Holdings Berhad	AFFIN	5185
Allianz Malaysia Berhad	ALLIANZ	1163
AMMB Holdings Berhad	AMBANK	1015
APEX Equity Holdings Berhad	APEX	5088
BIMB Holdings Berhad [S]	BIMB	5258
BURSA Malaysia Berhad	BURSA	1818
CIMB Group Holdings Berhad	CIMB	1023
ECM Libra Financial Group Berhad	ECM	2143
ELK-Desa Resources Berhad	ELKDESA	5228
Hong Leong Bank Berhad	HLBANK	5819
Hong Leong Capital Berhad	HLCAP	5274
Hong Leong Financial Group Berhad	HLFG	1082
InsasBerhad	INSAS	3379
Johan Holdings Berhad	JOHAN	3441
Kenanga Investment Bank Berhad	KENANGA	6483
LPI Capital Bhd	LPI	8621
MAA Group Berhad	MAA	1198
Manulife Holdings Berhad	MANULFE	1058
Malayan Banking Berhad	MAYBANK	1155
Malaysia Building Society Berhad	MBSB	1171
MNRB Holdings Berhad	MNRB	6459
MPHB Capital Berhad	MPHBCAP	5237
Pacific & Orient Berhad	P&O	6009
Public Bank Berhad	PBBANK	1295
RCE Capital Berhad	RCECAP	9296
RHB Capital Berhad	RHBBANK	1066
TA Enterprise Berhad	TA	4898
Syarikat Takaful Malaysia Keluarga Berhad	TAKAFUL	6139
Tune Protect Group Berhad	TUNEPRO	5230

Springate Model

The formulation of the Springate Model is presented as follows:

$$S = 1.03X_1 + 3.07X_2 + 0.66X_3 + 0.4X_4 \quad (1)$$

Where

$$X_1 = \frac{Working\ Capital}{Total\ Asset}$$

$$X_2 = \frac{Net\ profit\ before\ interest\ taxes}{Total\ Asset}$$

$$X_3 = \frac{Net\ profit\ before\ taxes}{Current\ liabilities}$$

$$X_4 = \frac{Sales}{Total\ Asset}$$

Springate model is constructed based on Equation (1) and the classification of companies is done according to the S-Score obtained. The S-Score of the Springate Model is calculated based on the four financial ratios,X_1,X_2,X_3,X_4.If the corresponding S-Score of a company is greater than 0.862, the company itself is classified as healthy. However, if a company obtains S-Score that is less than 0.862, it is interpreted as the company is experiencing financial distress and more likely going to file for bankruptcy.

Results and discussion

Table 2 depicts the S-Score obtained from Springate Model in year 2017 where the S-Score for each financial firm is computed based on the four financial ratios. The values of these ratios are shown in this table as well. Table 3 shows the S-Score of the 31 companies in each year and the 5-year average S-Score is calculated. Springate model predicts that 9 out of 31 companies are solvent whereas 22 of the financial firms are expected to be in the danger of being insolvent. The 9 healthy firms identified based on Springate model are ALLIANZ, APEX, ECM, INSAS, LPI, MAA, MANULFE, MNRB, and TUNEPRO.

Table 2: S-Score Calculations on the Financial Firms for Year 2017

Company	X1	X2	X3	X4	S
ABMB	0.0823	0.0272	0.0308	0.0348	0.2024
AEONCR	0.2088	0.0483	0.3074	0.0165	0.5728
AFFIN	0.0928	0.0223	0.0262	0.0338	0.1948
ALLIANZ	0.8920	0.0263	0.3445	0.7204	1.5152
AMBANK	0.0968	0.0279	0.0338	0.0297	0.2196
APEX	0.4487	0.0392	0.1027	-0.0215	0.6418
BIMB	0.0448	0.0384	0.0415	0.0565	0.2142
BURSA	0.1495	0.1375	0.2301	0.0156	0.7342
CIMB	0.1283	0.0121	0.0147	0.0385	0.1943
ECM	0.7897	0.0141	0.4603	0.0329	1.1736
ELKDESA	0.2513	0.0001	0.0010	0.0000	0.2597
HLBANK	0.0774	0.0141	0.0162	0.0315	0.1461
HLCAP	0.1412	0.0197	0.0242	0.0351	0.2360
HLFG	0.1448	0.0141	0.0173	0.0288	0.2155
INSAS	0.4782	0.0859	0.4620	0.0626	1.0864
JOHAN	0.1688	0.0376	0.0746	-0.0332	0.3251
KENANGA	0.0541	0.0063	0.0073	0.0455	0.0980

Table 2 (Cont.): S-Score Calculations on the Financial Firms for Year 2017

Company	X1	X2	X3	X4	S
LPI	0.9141	0.1058	1.5754	0.0575	2.3293
MAA	0.7784	0.0368	0.4457	0.0195	1.2166
MANULFE	0.8029	0.0074	0.0477	0.0332	0.8944
MAYBANK	0.1300	0.0132	0.0159	0.0288	0.1964
MBSB	0.1129	0.0123	0.0144	0.0105	0.1678
MNRB	0.1327	0.0131	0.0162	0.0301	0.1996
MPHBCAP	0.2106	0.0355	0.1250	-0.0204	0.4004
P&O	0.7164	0.0306	0.6011	0.0307	1.2407
PBBANK	0.0615	0.0180	0.0200	0.0387	0.1472
RCECAP	-0.1658	0.0001	0.0002	0.0000	-0.1705
RHBBANK	0.1026	0.0111	0.0129	0.0335	0.1616
TA	0.0046	0.0398	0.0916	0.0215	0.1959
TAKAFUL	0.2252	0.1987	0.5663	0.0306	1.2278
TUNEPRO	0.2749	0.0402	0.3505	0.0207	0.6461

Table 3. Springate Model

Company	2013	2014	2015	2016	2017	Average	Prediction*
ABMB	0.1431	0.1780	0.1700	0.2011	0.2024	0.1789	I.D.
AEONCR	0.2600	0.5286	0.5893	0.6584	0.5728	0.5218	I.D.
AFFIN	0.2117	0.2242	0.1985	0.2390	0.1948	0.2136	I.D.
ALLIANZ	1.2813	1.3402	1.3390	10.562	1.5152	3.2076	S.
AMBANK	0.2528	0.2248	0.2281	0.2120	0.2196	0.2275	I.D.
APEX	1.2162	1.6231	1.0346	1.0130	0.6418	1.1057	S.
BIMB	0.3560	0.3431	0.3819	0.3424	0.2142	0.3275	I.D.
BURSA	1.1471	0.3420	0.2910	0.2710	0.7342	0.5571	I.D.
CIMB	0.1887	0.1782	0.1374	0.1709	0.1943	0.1739	I.D.
ECM	1.9125	2.2587	5.0606	2.0018	1.1736	2.4815	S.
ELKDESA	0.2724	0.1278	0.2770	0.3719	0.2597	0.2618	I.D.
HLBANK	0.1918	0.1965	0.1626	0.1314	0.1461	0.1657	I.D.
HLCAP	0.2259	0.1818	1.4040	0.2247	0.2360	0.4545	I.D.
HLFG	0.2108	0.2271	0.2128	0.0367	0.2155	0.1806	I.D.
INSAS	0.7548	1.1262	0.7565	0.8300	1.0864	0.9108	S.
JOHAN	-0.1312	-0.0413	0.0864	-0.2794	0.3251	-0.0081	I.D.
KENANGA	0.0697	0.1313	0.0869	0.0964	0.0980	0.0965	I.D.
LPI	1.1864	2.2044	2.4256	3.0701	2.3293	2.2431	S.
MAA	1.9077	0.7804	1.0710	-0.3162	1.2166	0.9319	S.
MANULFE	0.9820	0.9443	0.9221	0.9423	0.8944	0.9370	S.
MAYBANK	0.1545	-0.1631	0.1747	0.1961	0.1964	0.1117	I.D.
MBSB	0.1797	0.2458	0.2842	0.2399	0.1678	0.2235	I.D.
MNRB	1.4814	1.4143	1.3631	0.8592	0.1996	1.0635	S.
MPHBCAP	0.0762	0.5386	0.3161	0.3547	0.4004	0.3372	I.D.
P&O	1.9392	-2.6394	1.8749	1.1494	1.2407	0.7130	I.D.
PBBANK	0.1167	0.1443	0.1624	0.1401	0.1472	0.1421	I.D.
RCECAP	0.2257	0.1764	-0.0786	-0.1509	-0.1705	0.0004	I.D.
RHBBANK	0.1741	0.1787	0.1673	0.1823	0.1616	0.1728	I.D.
TA	0.1830	0.1703	0.2660	0.1223	0.1959	0.1875	I.D.
TAKAFUL	0.3048	0.7450	0.7523	0.5870	1.2278	0.7234	I.D.
TUNEPRO	1.5269	1.5882	1.3947	0.8831	0.6461	1.2078	S.

*(I.D: Insolvency danger, S: Solvent)

Conclusion

The main purpose of this study is to predict the bankruptcy of the financial companies listed in Bursa Malaysia Stock Market over the period of 2013 to 2017. This paper focused on 31 financial institutions in Malaysia and they were analysed by the Springate model. The outcomes of the evaluation revealed that of the financial firms accessed in accordance with the Springate model, 9 financial firms were identified to be financially stable. The financially sound companies are ALLIANZ, APEX, ECM, INSAS, LPI, MAA, MANULFE, MNRB, and TUNEPRO. It is essential to gauge the financial health of a company as financial performance plays an important role in operating a growing business.

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