**UDC 336.76 (497.2)**

**George Angelov**[1]
*D. A. Tsenov Academy of Economics, Svishtov, Bulgaria*

# OPTIONS FOR MODELLING THE FINANCIAL VIABILITY OF SOFIX COMPANIES IN THE POST-CRISIS YEARS

The main objective of any business entity is to achieve positive financial results which are evidence of sound managing practices as well as an indicator of profit and growth.[2] During a crisis, Bulgarian companies face substantial difficulties which lead to shrink in production, reduced advertising, and in some cases, to making loss for several years on end. These could be explained both with the deteriorated economic environment in which companies operate during a crisis and with the possibility that their customers (i.e. other companies and households)[3] might be going through a difficult period as well. It is therefore necessary to assess the financial viability of companies by employing models for predicting bankruptcy probability. Financial managers′ awareness about the essence of failure is vital to the financial-managerial policy of companies. Therefore, financial managers must be familiar with the nature of failure, what is more, they must be able to predict a possible failure in advance and have the knowledge how to deal with the threat of a bankruptcy. Analysis of a potential financial distress which a company is facing and which may result in liquidity shortage, insolvency, or even bankruptcy, is a major component of overall corporate financial management. As a matter of fact, when undertaking any activity that is related to starting a production or making some investment, it is important to take into account different downturn scenarios. Profit and growth are goals which all companies pursue, yet their opposites, failure and liquidation, must be deemed just as likely.[4]

The ability to predict corporate failure due to insolvency far before it has become a fact is important both to managers and lenders of enterprises.[5] Corporate bankruptcy reflects problems which have occurred in the production, the financial management, or the funding of a company. There might be a variety of reasons behind that a deteriorated economic environment, customers being in financial distress, delayed payments to lenders and suppliers, etc. which are the major prerequisites for financial disturbances within a company. The financial analysis of each company is based on the assessment of its capital structure and market performance; analysis of its profitability and earnings; and evaluation of its assets and liquidity. A further instrument which might be employed in the analysis might also be the assessment of bankruptcy probability.

Models for predicting corporate failure are among the main techniques and instruments for determining the future status of companies on the basis of applying a set of financial ratios. The possibility to predict financial insolvency is extremely important to private investors (the shareholders of a company) and from a social perspective, since this is a signal for public resources mismanagement.

A lot of scientists have proposed different models for predicting a potential failure of companies. These models are based on the assessment of the financial data about companies which are provided in their balance sheets and their income statements as various ratios. The first model for predicting bankruptcy by employing financial ratios was developed by W. H. Beaver in 1966.[6] The underlying objective of his work was to assess the financial situation of a company applying for a loan by analyzing its solvency, the terms on which a loan could be extended[7] as well as the capacity of the company to service its debt in due time. In order to do so, Beaver determined a ratio which is calculated as a correlation between the value of the cash flow and the amount of the liabilities of a company.

---

[1] The author is assistant professor in Department “Finance and credit”, Faculty “Finance” to “D. A. Tsenov Academy of Economics”, Svishtov, Bulgaria gangelov@uni-svishtov.bg.

[2] Adamov, V. Finansi na firmata. Biblioteka Obrazovanie i nauka, # 28, Svishtov. 2012, p. 492.

[3] Pavlova, M. Faktorno vyzdeistvie vyrhu bogatstvoto na domakinstvata v . Bulgaria. Факторное воздействие на богатство домашних хозяйств в Республике Болгарии//Економіка України в умовах глобалізації і регіоналізації: Збірник тез доповідей : Міжнародної науково - практичної Інтернет-конференції студентів та молодих вчених – Тернопіль 4-5 квітня 2014 року., ТНЕУ, 2014, с. 214-217.

[4] Adamov, V. Finansi na firmata. Biblioteka Obrazovanie i nauka, # 28, Svishtov. 2012, p. 493.

[5] Kasarova, V. Modeli i pokazateli za analiz na finansovata ustoychivost na kompaniyata. Nov balgarski iniversitet. 2010.

[6] William H. Beaver Empirical Research in Accounting: Selected Studies 1966 Journal of Accounting Research Vol. 4, (1966), p. 71-111 / – Mode http://www.jstor.org/discover/10.2307/2490171?sid=21105896258411&uid=2&uid=4/.

[7] Marinov, I. Sovremennye aspekty i rolq na′evropeyskoto zakonodatelstvo, reglamentiruyushtego usloviya i poryadok zakluycheniya dogovorov potrebitel′skih kreditov. Ekonomika Ukrainy v umovah globalizatsii i regionalizatsii: Zbirnik tez dopovidey: Mizhnarodnoy naukogo-praktichnoy Interent-konferentsii studentiv ta molodih vchenih – Ternopil′ 4-5 kvitiya 2014 roku., s. 201-204. TNEU, 2014.

*Table 1*

**Beaver ratio**

| $Beaver\ ratio = \frac{Net\ earnings}{Liabilities}$ | | |
|---|---|---|
| ***Interpretation of the indicator*** | | |
| Companies performing normally | 5 years to bankruptcy | A year to bankruptcy |
| 0.4 – 0.45 | 0.17 | -0.15 |

*E. Altman* contributed enormously to corporate bankruptcy research by designing a number of models for predicting it. These models are based on the input of several ratios, each of them acquiring some relative weight according to how important the author considers that ratio to be. In a number of research works[1] dealing with corporate bankruptcy, Altman developed and presented his Z-models. The first model[2] only takes into account two factors, corporate liquidity and indebtedness. The two-factor model does not include an analysis of profitability (yield, solvency, and efficiency) and is therefore not commonly applied in practice.

*Table 2*

**Altman's two-factor model**

| $Z = -0.3877 - 1.0736K1 + 0.0579K2$ |
|---|
| K1 – Current ratio (Current assets/Current liabilities)<br>K2 – Financial dependency ratio (Debt/Total assets) |
| ***Interpretation of the indicator*** |
| Z>0 – Bankruptcy probability exceeds 50% |
| Z=0 – 50 % bankruptcy probability |
| Z<0 – Less than 50% bankruptcy probability |

The five-factor model[3] further elaborated the two-factor model for predicting corporate bankruptcy. It is also known as Altman's Z-Score and is employed to determine the so-called bankruptcy point. The formula is based on coefficients used to analyse the liquidity, yield, indebtedness, solvency, and efficiency of a company. The objective is to predict bankruptcy probability. This model has gained enormous popularity due to its comprehensive nature and has become a practically approved criterion for predicting the probability of a corporate bankruptcy.

Altman's model[4] has gained recognition in practice as it makes it possible to assess the condition of a company by taking into account the combined effect of multiple factors (financial indicators). The only shortcoming of the presented model is the fact that it was designed and tested in the USA and therefore it takes into consideration the characteristics of American companies and the conditions of the market in which they operate. Therefore, its application to the Bulgarian business environment may lead to distortion of results and to a failure to report the real situation of a company.

*Table 3*

**Altman's five-factor model** [5]

| $Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 0.999X5$ |
|---|
| X1 = Net working capital/Total assets<br>X2 = Earnings/Total assets<br>X3 =EBIT/Total assets<br>X4 =Leverage ratio<br>X5 = Sales revenue/Total assets |
| ***Interpretation of the indicator*** |
| Z>2.99 – The company is not threatened by bankruptcy |
| Z=1.88-2.99 – Grey zone |
| Z<1.88 – Bankruptcy is probable |

The model designed by Fulmar[6], the H-Score model, is another major contribution to assessing how probable a corporate failure is. Fulmar presented that model in his research work, "A Bankruptcy Classification Model for Small Firms" which was published in 1984. According to that model, a company is likely to be declared insolvent if the result of the model is less than zero. The model includes nine ratios to assess the financial situation of a company and each of these ratios is given a certain relative weight.

*Table 4*

**Fulmar's H-factor model** [7]

| $H\ Factor = 5.528H1 + 0.212H2 + 0.073H3 + 1.270H4 - 0.120H5 + 2.335H6 + 0.575H7 + 1.083H8 + 0.894H9 - 6.075$ |
|---|
| H1 = Earnings/Total assets<br>H2 = Sales revenue/Total liabilities<br>H3 = EBIT/Equity<br>H4 = Sales revenue/Amount of debt<br>H5 = Debt/Total assets<br>H6 = Current liabilities/Total assets<br>H7 = Inventory/Total assets<br>H8 = Net working capital/Debt<br>H9 = EBIT/Interests paid on loans |
| ***Interpretation of the indicator*** |
| H>0 – The company is not threatened by bankruptcy |
| H<0– Bankruptcy is probable |

By developing further the underlying logic of these models, the English economist *R. Lis*[8] suggested a four-factor model for assessing the bankruptcy probability for British companies. The model is based on combining the importance of the indexes of liquidity, profitability, and financial independence.

[1] Altman, E. Haldeman, R. Narayanan. P. ZETA analysis A new model to identify bankruptcy risk of corporations. Journal of Banking & Finance, Volume 1, Issue 1, June 1977, p 29–54.

[2] Altman, I. Corporate Financial Distress and Bankruptcy: A Complete Guide to Predicting & Avoiding Distress and Profiting from Bankruptcy. Wiley, 1993.

[3] Adamov, V. Finansi na firmata. Biblioteka Obrazovanie i nauka, # 28, Svishtov. 2012, p. 503.

[4] Gabrovski, R. Industrialen risk i menidzhmant. Akademichno Izdatelstvo Tsenov, Svishtov. 2009.

[5] Adamov, V. Finansi na firmata. Biblioteka Obrazovanie i nauka, # 28, Svishtov. 2012, p. 502.

[6] Fulmer, J. Moon, J. Gavin, T. and Erwin, J. H-score model and its use in foreseeing the risk of a small enterprises bankrupcy.

[7] http://ycharts.com/glossary/terms/fulmer_h_score.

[8] Sushko, V., Pavluyk, T. Klasifikatsiya modeley otsinki imovirnosti bankrutstva pidpriemstv. Ekonomiko-matematichne modeluyvaniya protsesiv biznesu. 2014.

*Table 5*

**Lis' model**

| $Z = 0.063X1 + 0.092X2 + 0.057X3 + 0.001X4$ |
|---|
| X1 = Net working capital/ Total assets<br>X2 = EBIT/ Total assets<br>X3 = Earnings/Total assets<br>X4 = Equity/Debt |
| ***Interpretation of the indicator*** |
| Z<0.037 – High probability of a bankruptcy |
| Z>0.037 – Low probability of a bankruptcy |

A reliable model ignoring the influence of the branch to which companies belong was designed by *G. Springate*.[1] The author tested his model on 40 companies and the results he obtained proved to predict company failures within a year with 92.5 per cent accuracy. The model was then tested on 50 companies in 1979 and on 24 companies in 1980, the accuracy of predictions being 88% and 83.3% respectively. Springate's model is based on combining the impact of four major indicators of company performance.

*Table 6*

**Springate's model**

| $Z = 1.03X1 + 3.07X2 + 0.66X3 + 0.4X4$ |
|---|
| X1 = Net working capital/ Total assets<br>X2 = EBIT/Total assets<br>X3 = Earnings/Current liabilities<br>X4 = Sales revenue/ Total assets |
| ***Interpretation of the indicator*** |
| Z<0.862 – High probability of a bankruptcy |

Business development and innovations require that a model taking into account the impact of new technologies should be designed and applied. This means that the models developed so far need to be further elaborated and oriented to the new prospects in business development so as to predict corporate failures more precisely. This is the trend followed by *R. Taffler*[2] in his model for assessing corporate bankruptcy probability. Similar to Springate's model, the branches in which companies operate are irrelevant to the test.

*Table 7*

**Taffler's model**

| $Z = 0.53X1 + 0.13X2 + 0.18X3 + 0.16X4$ |
|---|
| X1 = EBIT/Current liabilities<br>X2 = Current assets/Total liabilities<br>X3 = Current liabilities/ Total assets<br>X4 = Sales revenue/ Total assets |
| ***Interpretation of the indicator*** |
| Z>0.3 – Low probability of a bankruptcy |
| Z<0.3 – High probability of a bankruptcy |

The analysis of existing models for assessing the probability of corporate failures is based on employing publicly accessible data from the financial statements of Bulgarian companies. The results obtained from testing the models presented here are assessed by empirically applying them to SOFIX index companies. The selection of companies was based on their production profile, while financial enterprises and special investment purpose companies (SIPCs) have remained beyond the scope of our analysis due to the specific nature of their business. Financial results are assessed by using publicly accessible information provided by their financial statements, i.e. their balance sheets and income statements. The objective of empirically testing these models is not to undermine the prestige of those companies or to influence public opinion. The underlying objective of the author is to compare achieved results and to make a critical analysis of existing models and then present his views on their practical application on behalf of financial managers.

Table 8 presents the results about six Bulgarian SOFIX index companies which were obtained after applying the models for assessing corporate bankruptcy probability.

The analysis of obtained results is conducted as follows:

- In terms of ***the Beaver ratio***, the companies included in the analysis are described as unstable, their bankruptcy impending within five years. The best results are those of M+S Hydraulic Plc (0.15-0.2), which are nevertheless much below the interval for a normally performing company (0.4-0.45). Due to the loss reported by Neochim Plc over the last three years, the values of the ratio are zero. This could be approached as a shortcoming of the presented model since a negative financial result does not necessarily indicate a bankruptcy probability for a company;
- The employment of ***Altman's two-factor model***, due to the reverse interpretation of obtained results, determines the companies which are subject to analysis as stable entities with very little bankruptcy probability. The values registered for Albena Plc, Neochim Plc, Sopharma Plc, and Chimimport Plc range in the interval from -1 to -2. Therefore, according to the assessment model, they are stable; the bankruptcy probability for them is small; and their viability increases with an increase in these negative values. M+S Hydraulic Plc is the most viable entity again, its values ranging between -4 and -5 throughout the whole period. According to Altman's two-factor model, Monbat Plc is stable, too, the value of the ratio growing from -2 to -5.7 in the period between 2012 and 2014;
- The results obtained after applying ***Altman's five-factor model*** are relatively constant for each company, yet there are substantial differences when comparing them to other SOFIX index companies. Nevertheless, all companies are described as relatively stable with no short-term bankruptcy probability, except for Albena Plc (1) which is threatened by failure. Due to the specific nature of the calculations made for the index which gives the greatest importance to corporate profitability, quite logically (due to the high values of

[1] Springate, Gordon L.V., "Predicting the Possibility of Failure in a Canadian Firm". Unpublished M.B.A. Research Project, Simon Fraser University, January 1978.

[2] Taffler R., Finding those companies in danger using Discriminant analysis and financial ratio data: a comparative based study city business school, City University Business School, London, Working paper №3.

*Table 8*

**Results of applying the models for predicting corporate bankruptcy**

| *Models for predicting corporate bankruptcy* | *2014* | *2013* | *2012* | *2011* |
|---|---|---|---|---|
| **NEOCHIM PLC** | | | | |
| Beaver's model | 0.000 | 0.000 | 0.000 | 0.105 |
| Altman's two-factor model | -1.078 | -1.240 | -1.513 | -1.701 |
| Altman's five-factor model | 2.181 | 1.984 | 1.998 | 2.743 |
| Fulmar's H-factor model | -1.293 | -0.610 | -0.306 | 4.654 |
| Lis' model | -0.008 | -0.002 | 0.003 | 0.023 |
| Springate's model | 0.480 | 0.563 | 0.633 | 1.414 |
| Taffler's model | 0.965 | 1.026 | 0.862 | 1.143 |
| **MONBAT PLC** | | | | |
| Beaver's model | 0.600 | 0.109 | 0.049 | 0.043 |
| Altman's two-factor model | -5.696 | -2.968 | -1.687 | -1.926 |
| Altman's five-factor model | 2.158 | 2.296 | 1.639 | 1.670 |
| Fulmar's H-factor model | 3.055 | 4.457 | -0.517 | -0.020 |
| Lis' model | 0.037 | 0.037 | 0.014 | 0.016 |
| Springate's model | 1.483 | 1.526 | 0.753 | 0.802 |
| Taffler's model | 0.840 | 0.872 | 0.685 | 0.704 |
| **ALBENA PLC** | | | | |
| Beaver's model | 0.018 | 0.029 | 0.034 | 0.018 |
| Altman's two-factor model | -0.999 | -0.947 | -1.053 | -0.837 |
| Altman's five-factor model | 0.462 | 0.490 | 0.538 | 0.480 |
| Fulmar's H-factor model | -4.543 | -4.000 | -3.995 | -4.692 |
| Lis' model | 0.004 | 0.006 | 0.007 | 0.003 |
| Springate's model | 0.289 | 0.414 | 0.545 | 0.280 |
| Taffler's model | 0.998 | 1.160 | 1.239 | 1.341 |
| **SOPHARMA PLC** | | | | |
| Beaver's model | 0.019 | 0.037 | 0.047 | 0.055 |
| Altman's two-factor model | -1.778 | -1.792 | -1.832 | -1.845 |
| Altman's five-factor model | 1.964 | 1.967 | 1.972 | 2.024 |
| Fulmar's H-factor model | -1.284 | -1.284 | -1.248 | -0.938 |
| Lis' model | 0.013 | 0.016 | 0.018 | 0.020 |
| Springate's model | 0.682 | 0.739 | 0.778 | 0.837 |
| Taffler's model | 0.504 | 0.511 | 0.501 | 0.504 |
| M+S HYDRAULIC PLC | | | | |
| Beaver's model | 0.148 | 0.144 | 0.156 | 0.208 |
| Altman's two-factor model | -4.636 | -4.668 | -5.265 | -3.922 |
| Altman's five-factor model | 2.501 | 2.499 | 2.533 | 3.002 |
| Fulmar's H-factor model | 37.459 | 28.754 | 21.115 | 16.191 |
| Lis' model | 0.055 | 0.055 | 0.057 | 0.062 |
| Springate's model | 2.101 | 2.063 | 2.293 | 2.448 |
| Taffler's model | 1.075 | 1.032 | 1.208 | 1.194 |
| **CHIMIMPORT PUBLIC HOLDING COMPANY** | | | | |
| Beaver's model | 0.010 | 0.013 | 0.017 | 0.021 |
| Altman's two-factor model | -1.675 | -1.719 | -1.780 | -1.626 |
| Altman's five-factor model | 2.898 | 2.656 | 2.573 | 2.302 |
| Fulmar's H-factor model | -4.407 | -4.378 | -4.346 | -4.308 |
| Lis' model | 0.010 | 0.011 | 0.013 | 0.010 |
| Springate's model | 0.208 | 0.243 | 0.287 | 0.243 |
| Taffler's model | 0.201 | 0.205 | 0.210 | 0.218 |

**Source:** *The financial statements of the companies, infostock.bg, investor.bg, calculations by the author.*

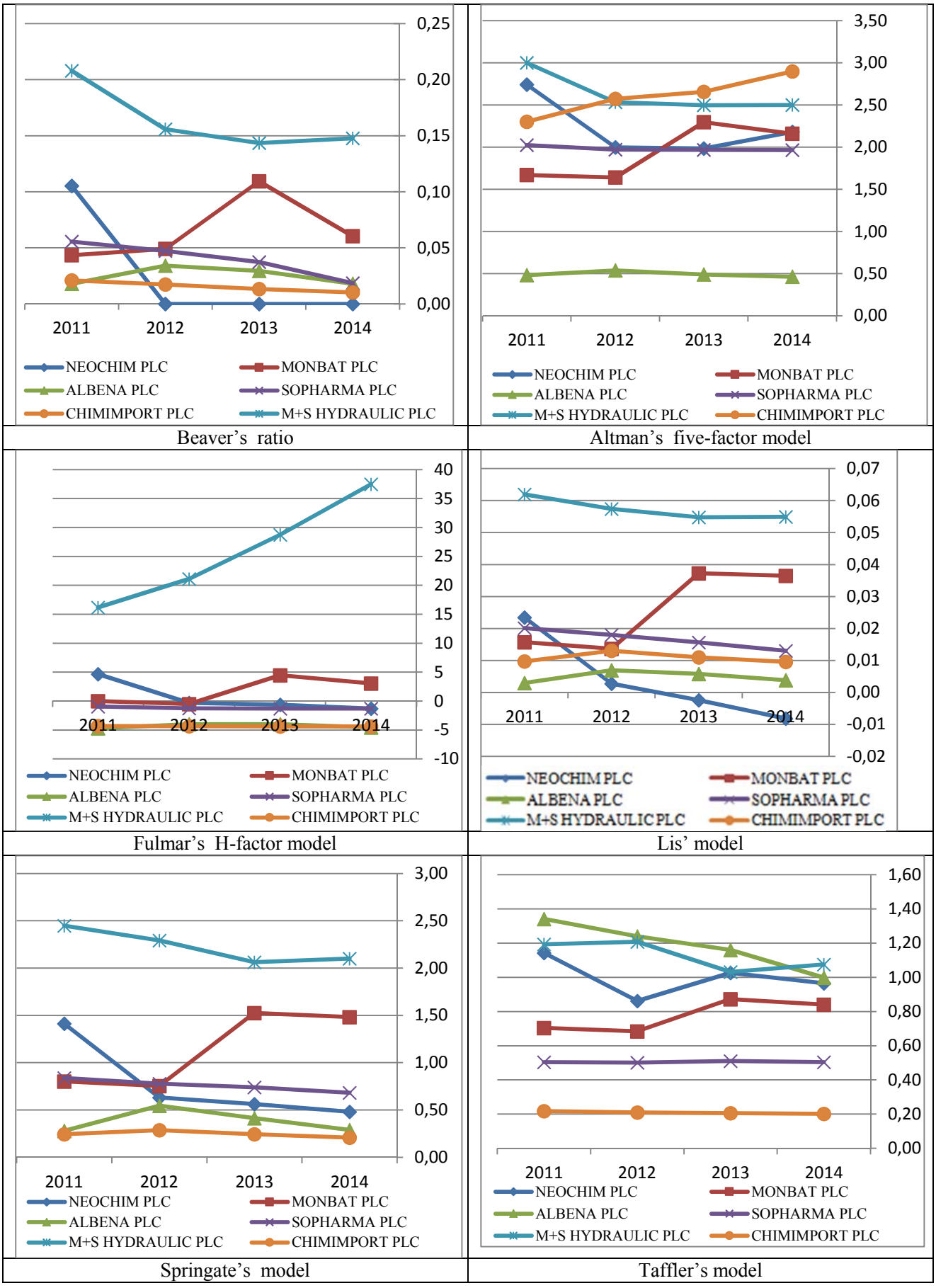


**Fig. 1. Financial sustainability of Bulgarian public companies**

the profits made), the companies which score best are Chimimport Plc and M+S Hydraulic Plc (2.3-2.9). They are followed by Sopharma Plc, Neochim Plc, and Monbat Plc with similar results (2-3). Therefore, according to the model most frequently employed to assess bankruptcy probability, Bulgarian public companies are not endangered by bankruptcy;

- ***Fulmar's H-factor model*** states that when the value of H is below zero, corporate bankruptcy is inevitable. Over the analysed period, the highest values of the ratio were reported by M+S Hydraulic Plc (maximum 37.46), the trend being towards a continuous growth. Monbat Plc also recorded positive values in the interval between 0 and 3. The rest of the companies, however, are in an unfavourable situation, the lowest values throughout the whole period being recorded for Chimimport Plc and Albena Plc (-5);
- According to ***Lis' model***, the most stable company not endangered by bankruptcy is M+S Hydraulic Plc. Provided that values of $Z>0.037$ indicate little bankruptcy probability, this is the only company which had values between 0.055 and 0.062. Over the last two years, Monbat Plc also recorded near-border values of 0.037. All the other companies had values indicating their potential failure. What is more, due to the loss which Neochim Plc recorded over the last three years, the values for the company are negative;
- The criteria underlying ***Springate's model***, which assumes that for
- $Z<0.862$ a company is in poor financial health and is undergoing substantial financial distress, indicate imminent financial failure for four of the companies included in the analysis. The lowest results are those of Chimimport Plc with its relatively constant values of 0.25. The company is followed by Albena Plc with values between 0.28 and 0.54, and Neochim Plc with its low values between 0.48 and 0.54 over the last three years. The top ranking company is M+S Hydraulic Plc with its constant maximum values between 2.06 and 2.45. Over the last two years included in the analysis, Monbat Plc also recorded high values of about 1.5;
- Bulgarian public companies scored best in terms of ***Taffler's model***. Provided that the minimum value required for guaranteeing financial stability was above 0.3, the values for all companies were about 1, except for Sopharma Plc with its value of 0.5. According to Taffler's model, the only company endangered by a recent bankruptcy is Chimimport Plc with its constant value of 0.2 throughout the period from 2011 till 2014.

The different models for assessing bankruptcy probability we presented in this paper give different results when empirically applied to one and the same Bulgarian company. What is more, in some cases, the results obtained are quite contradictory. The company which scored best in the assessment of corporate financial sustainability according to all presented models is definitely M+S Hydraulic Plc. In terms of the models analysed here, all the other companies are relatively unstable, which poses a risk to their normal performance. On the one hand, the main reasons behind this trend might be due to the fact that each model has been developed and tested in a specific economy (those of the USA, Great Britain, etc.), which leads to substantial deviations when they are applied to Bulgarian business environment. On the other hand, the ratios presented in this paper are financial methods which have proved their reliability for assessing the condition of a company, yet the importance of each ratio (i.e. its relative weight) is determined on the basis of financial reporting and the significance which the information provided by these ratios has in the country where each model was developed and applied. A major factor for obtaining such contradictory results might be that the branches in which analysed companies operate was ignored and therefore the same ratios have different values depending on the specific nature of the business of each company. It is therefore appropriate to employ these models as a further analytical tool for assessing corporate financial viability, provided that the necessary adjustment to the specific environmental and economic conditions is made in advance.

**References**

1. **Adamov, V.** Finansi na firmata. Biblioteka Obrazovanie i nauka, # 28, Svishtov. 2012. 2. **Adamov, V.** Upravlenie na kapitalite vav firmata. Akademichno Izdatelstvo Tsenov, Svsishtov. 2012. 3. **Alexandrova, M.** i dr. Finansi na predpriyatieto. Nov Balgarski Universitet. Sofia. 2013. 4. **Gabrovski, R.** Industrialen risk i menidzhmant. Akademichno Izdatelstvo Tsenov, Svsishtov. 2009. 5. **Ivanova, R.** Analiz na finansovoto sastoyanie na predpriyatieto – problemi i antikrizisni resheniya. Tendentsii i predizvikatelstva v razvitieto na ikonomikata. Sbornik dokladi ot mezhdunarodna nauchna konferentsia Tom 1. Izdatelstvo Nauka i ikonomika, Ikonomicheski universitet – Varna. 2012. 6. **Kasarova, V.** Modeli i pokazateli za analiz na finansovata ustoychivost na kompaniyata. Nov balgarski iniversitet. 2010. 7. **Kasarova, V.** Modeli za finansova diagnostika v stoynostno orientirano upravlenie upravlenie. Burgaski svoboden universitet. 2011. 8. **Kasarova, V.** Upravlenie na stoynostta nova upravlenska kontseptsiya. Sb. Finansovi inovatsii izsledvaniya i praktiki. NBU, S., 2008. 9. **Marinov, I.** Sovremennye aspekty i rolq na′evropeyskoto zakonodatelstvo, reglamentiruyushtego usloviya i poryadok zakluycheniya dogovorov potrebitel′skih kreditov. Ekonomika Ukrainy v umovah globalizatsii i regionalizatsii: Zbirnik tez dopovidey: Mizhnarodnoy naukogo-praktichnoy Interent-konferentsii studentiv ta molodih vchenih – Ternopil′ 4-5 kvitiya 2014 roku., s. 201-204. TNEU, 2014. 10. **Pavlova, M.** Faktorno vyzdeistvie vyrhu bogatstvoto na domakinstvata v . Bulgaria. Факторное воздействие на богатство домашних хозяйств в Республике Болгарии//Економіка України в умовах глобалізації і регіоналізації: Збірник тез доповідей : Міжнар. наук.-практ. Інтернет-конф. студентів та молодих вчених – Тернопіль 4-5 квітня 2014 року. – ТНЕУ, 2014. – С. 214-217. 11. **Stoyanova, M.** Falitat

stariyat nov demon. Troyan: B, 2011. 12. **Altman E.,** Revisiting credit scoring models in a Basel 2 environment, Finance working paper series, 05/2002, Stern school of business, 20 Mar 2009. 13. **Altman, E.** Haldeman, R. Narayanan. P. ZETA analysis A new model to identify bankruptcy risk of corporations. Journal of Banking & Finance, Volume 1, Issue 1, June 1977. 14. **Altman, I.** Corporate Financial Distress and Bankruptcy: A Complete Guide to Predicting & Avoiding Distress and Profiting from Bankruptcy. Wiley, 1993. 15. **Begley, J.** Ming, J. Watts, S. Bankruptcy classification errors in the 1980s: An empirical analysis of Altman's and Ohlson's models. Review of Accounting Studies 1996, Volume 1, Issue 4. 16. **Chibisova, V.** Metodi otsinki i prognozuvannya bankrutstva pidpriemstv. Naukovi pratsi Kirovogradsk′kogo natsional′nogo tehnichnogo universitetu. Ekonomichni nauki. Kiev′skiy natsional′niy aviatsioniy universitet. 2012. 17. **Fulmer, J.** Moon, J. Gavin, T. and Erwin, J. H-score model and its use in foreseeing the risk of a small enterprises bankruptcy. 18. **Rahimipoor, A.** A comparative study of bankruptcy prediction models of Fulmer and Toffler in firms accepted in Tehran Stock Exchange. Journal of Novel Applied Sciences. 2013. 19. **Springate, Gordon L.V.,** "Predicting the Possibility of Failure in a Canadian Firm. Unpublished M.B.A. Research Project, Simon Fraser University, January 1978. 20. **Sushko, V.,** Pavluyk, T. Klasifikatsiya modeley otsinki imovirnosti bankrutstva pidpriemstv. Ekonomiko-matematichne modeluyvaniya protsesiv biznesu. 2014. 21. **Taffler R.,** Finding those companies in danger using Discriminant analysis and financial ratio data: a comparative based study city business school, City University Business School, London, Working paper №3. 22. **William H.** Beaver Empirical Research in Accounting: Selected Studies 1966 Journal of Accounting Research Vol. 4, (1966).

**Ангелов Г. Вибір для моделювання економічної доцільності компаній индекса SOFIX в посткризові роки**

Фінансова криза поза сумнівом мала величезну негативну дію на реальний сектор в національному і глобальному масштабі, у вигляді числа припинень компаній, ділової реструктуризації, убування виробництва, і штабної надмірності. Тому життєво важливо оцінити фінансовий стійкий розвиток Болгарських компаній. Головна мета такої оцінки - ідентифікувати доступні можливості для ухвалення адекватних, зважених рішень, щоб підтримувати компанії в процесі пристосування до заміни ринкових вимог.

Мета цієї статті – передбачити головні фінансові труднощі, використовуючи моделі для оцінки вірогідності банкрутства компаній і запропонувати вибір рішень для подолання ці труднощі. Мета досягалася через емпіричне випробування існуючих моделей в термінах відкритих акціонерних товариств індексу SOFIX впродовж чотирьох років, з 2011 до 2014. Результати від цього випробування потім використані як еталонний тест в процесі ухвалення рішення.

*Ключові слова:* корпоративне банкрутство, активи, ліквідність, прибутковість, виручка.

**Ангелов Г. Выбор для моделирования экономической целесообразности компаний индекса SOFIX в посткризисные годы**

Финансовый кризис несомненно имел огромное негативное воздействие на реальный сектор в национальном и глобальном масштабе, в виде числа прекращений компаний, деловой реструктуризации, убывания производства, и штабной избыточности. Поэтому жизненно важно оценить финансовое устойчивое развитие Болгарских компаний. Главная цель такой оценки - идентифицировать доступные возможности для принятия адекватных, взвешенных решений, чтобы поддерживать компании в процессе приспосабливания к замене рыночных требований.

Цель этой статьи – предсказать главные финансовые трудности, используя модели для оценки вероятностей банкротства компаний и предложить выбор решений для преодоления эти трудности. Цель достигалась через эмпирическое испытание существующих моделей в терминах открытых акционерных обществ индекса SOFIX в течение четырех лет, с 2011 до 2014. Результаты от этого испытания затем использованы как эталонный тест в процессе принятия решения.

*Ключевые слова:* корпоративное банкротство, активы, ликвидность, прибыльность, выручка.

**Angelov G. A choice for the design of financial viability of companies of SOFIX-index in post-crisis years**

A financial crisis undoubtedly had the enormous negative operating on the real sector in a national and global scale. A grate number of stopping of companies, business restructuring, decrease of production, and staff surplus. Therefore it is vitally important to estimate financial steady development of the Bulgarian companies. Primary objective of such estimation - to identify accessible possibilities for the acceptance of the adequate, self-weighted decisions, to support companies in the process of adaptation to replacement of market requirements.

Aim of the article – to foresee main financial pressures, using models for the estimation of authenticity of bankruptcy of companies and to offer the choice of decisions for overcoming these difficulties. An aim was arrived at through the empiric test of existent models in terms of open corporations of index of SOFIX during four years, from 2011 to 2014. Results from this test then drawn on as a benchmark test in the process of decision-making.

*Keywords:* corporate bankruptcy, assets, liquidity, profitability, profit yield.

Received by the editors: 14.11.2014
and final form 23.12.2014