Impact of earnings management on bankruptcy prediction

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Abstract

Research background: Managers of the companies intentionally manipulate business earnings to achieve the required status of the company. Earnings management is a legal and widely preferred phenomenon of business finance that financial managers use to maintain and improve the company's competitiveness. The consequence of these activities is to provide a positive view for the owners, encourage the profitability for the creditor and the investors as well as demonstrate economic strengths to competitors. Consequently, these activities lead to the modification of financial statements of the companies, which have a direct impact on the prediction ability of bankruptcy models.

Purpose of the article: The main goal of the paper is to point out the impact of earnings management in the companies on the possibility and ability of bankruptcy prediction. There is a correlation between application of earnings management in companies followed by changes in financial statements of the companies. Therefore, the ability of bankruptcy prediction models to predict possible financial problems of the company is questionable.

Methods: The paper presents the connection of earnings management and its impact on bankruptcy prediction based on the bibliometric overview and deep literature review.

Findings & Value added: The paper presents results, connections and impact of earnings management on bankruptcy prediction.

Keywords: *earnings management; bankruptcy prediction; financial health; prediction models*

JEL Classification: *C53; G30; M21*

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1 Introduction

Managers of the companies have different incentives to manipulate earnings. Therefore, these manipulations may affect the quality of financial statements and alter their reliability. Mainly during a financial crisis, the pressure brought by poor results or tough financial situations is an ideal context for managers to expand the alteration of the current performance of firms. Bankrupt companies manipulate earnings upwards in comparison with healthy firms, managers have stronger motivations for manipulating reported earnings during financial distress situations, such as the period preceding bankruptcy procedures and, in some cases, companies manipulate earnings to hide negative signals of financial distress (Campa and Camacho-Minano, 2015).

Earnings management occurs when management apply their influence to intentionally alter the truth and fairness of a financial statement with the purpose of either hiding real economic condition or achieving private gain out of contractual outcomes which rely on accounting numbers. Earning management is frequently used as a strategy in financial reporting to the extent that it is still capable of providing value-relevant information in accordance with financial reporting standards of IFRS and GAAP. When earnings management complicates investors rational calculation, the devastating effect is undisputable since it can degrade the quality of information related to profits presented in the financial statements.

The low quality of information contained in the financial statements will adversely affect the company's financial performance (Soewarno, 2018). The application of earnings management techniques reduces the explanatory power of financial statements, which on the one hand improves the company's position, but reduces the ability to predict future bankruptcy and increases the risk of bankruptcy (Fialova & Folvarcna, 2020). Empirical evidence regarding earnings management during the crisis varies. Similarly, Jardin et al. (2019) argue that accounting manipulations can distort the results of bankruptcy prediction models. As this issue is weakly presented in the literature this is the main idea of the presented paper to point out this problematic issue.

Therefore, there is a need to point out the prediction ability of bankruptcy models to predict possible bankruptcy or financial problems of the company, while the company applies earnings management. So, these manipulations of financial statements, which represents the main input variables of prediction models, have then a direct impact on this ability. Based on this the main goal of the presented study is according to literature review provide the theoretical overview of this issue. The paper presents bibliographic analysis of studies devoted to the impact of earnings management and earnings manipulation on the bankruptcy prediction models.

2 Literature review

Despite previous studies conducted to investigate the relationship between earnings management and bankruptcy risk as well as business strategy and bankruptcy risk, the results remain inconsistent. Lisboa and Kacharava (2018) discovered that the level of earnings management increased during the last financial crisis. Charitou et al. (2011) stated that the relationship between a company's financial health and earnings management is ambiguous. Campa and Camacho-Minano (2015) claim that companies with a higher risk of bankruptcy are more under pressure and use earnings management techniques more to report higher profits than healthy companies. According to Papadaki and Tzovas (2017) companies in the sample of 19 European countries used accrual earnings management to a lesser extent during the financial crisis. Financially healthy businesses focus on techniques that report profit in order to reduce corporate tax.

Ahmadpour and Shahsavari (2016) studied the relationship between earnings management and quality of earnings for the bankrupt and non-bankrupt firms listed in the Tehran Stock Exchange from 2007 to 2012. They measure the earnings quality by four separate accounting-based earnings attributes: accruals quality, earnings persistence, earnings predictability; earnings and is also examined by testing the relationship between discretionary accruals as a measure of earnings management, being opportunistic or efficient earnings management. The results show that the bankrupt firms tend to use opportunistic earnings management, and the non-bankrupt choose efficient earnings management. Moreover, the results show that earnings management performs better than earnings quality in predicting future profitability.

Campa and Miñano (2015) investigate earnings manipulation behaviour of 1,387 unlisted companies filing for bankruptcy in Madrid in 2010 and reveal that management inflate earnings upwards in extensive amounts for non-healthy firms, covering their poor performance. Tabassum et al. (2015) find the effect of earnings management to future performance using 119 companies listed on the Karachi Stock Exchange from 2004 to 2011. The result affirms that earnings management negatively influences future financial performance ratios. On the other hand, Charitou et al. (2007) and Agrawal and Chatterjee (2015) suggest that healthy companies engage in higher earnings management and distressed companies tend to be more conservative about their financial condition.

Furthermore, in spite of previous studies conducted to distinguish earnings management, business strategy, and bankruptcy risk, the approaches are retrospective on whether bankrupted companies used to engage in earnings management.

Agustia et al. (2020) investigate the relationship between earnings management, business strategy and bankruptcy risk. On the sample of 1,068 firm-year observations of companies listed on the Indonesia Stock Exchange (IDX) for the period of 2014–2016. Their result shows that earnings management has no relationship with bankruptcy risk, while business strategy has positive and significant effect towards bankruptcy risk.

Chunhao et al. (2021) focused their research on three issues. Firstly, whether managers in bankrupt companies manipulate earnings through real earnings management (REM). Secondly, what are the incentives and trade off strategies engage in REM. Thirdly, how REM influences the subsequent companies' performance and bankruptcy probability. They point out that bankrupt companies are more likely to manipulate earnings via REM than continuous companies and also that there is an increasing trend of REM activities in the 5-year window before bankruptcy. The major motivation for bankrupt companies to engage in REM is the issue of new debt. Bankrupt companies treat REM and accrual-based earnings management (AEM) as complementary tools for earnings management. They also found out that REM is associated with low future companies' performance. The REM score defined in this study can more accurately predict bankruptcy than the Altman Z score by 15%.

Durana et al. (2021) investigated the impact of corporate life cycle and bankruptcy on earnings management, in order to describe behaviour of companies at different stages of corporate life cycle. They applied a hierarchical mixed model with a random time and industry effect. They argued that earnings management and bankruptcy risk have a U-shape, indicating that financially distressed companies reduce reported accounting profit at the Introduction, Decline and, to a lesser extent, at the Growth stage.

The possibility of improvement of bankruptcy prediction models by earnings management in its two forms (accruals and real activities manipulation) was investigated by Severin and Véganzones (2021). They examined whether special information extracted from earnings management, including potential manipulations of the reported earnings found in

financial statements, might improve the accuracy of bankruptcy prediction models. They apply earnings management-based models, based on financial ratios and earnings management variables, to a sample of 6,000 French small and medium-size enterprises, then compare the classification rates obtained by these models with a model based solely on financial ratios.

3 Results and discussion

Based on the provided literature review, we analysed studies devoted to the issue of earnings management and its impact on bankruptcy prediction models. The analysis was based on the bibliographic map provided by the application VOSviewer to present visually the connections.

We analysed articles listed in the Web of Science database and the selection criteria was the occurrence of the words *earnings management* and *bankruptcy*. Based on these we have selected 187 articles and the bibliographic map was constructed according to key words used and countries of authors' origin.

The first map (Figure 1) shows the connection between keywords of selected articles. 945 keywords were detected, but only 62 meet the threshold, thus minimum number of occurrences of a keyword was set as 5.

Figure 1. Bibliographic map – keywords analysis.

Source: own processing

According to the figure 1, five clusters were constructed and we can conclude that there is a strong intercorrelation between investigated words. So other words as corporate failure, performance, impact, financial ratios, default risk, failure and so on are connected to the issue of earnings management.

It is interesting also to point out the countries in which these studies were made. Based on this criterion 49 countries have been selected and 15 meet the threshold, thus minimum number of occurrences of a country was set as 5. We can conclude that 4 clusters were

constructed and the main interest in this issue is in USA (Figure 2). Slovakia and Czech Republic are listed together with Spain and Taiwan.

Figure 2. Bibliographic map – countries analysis.

Source: own processing

The goal of the presented study was also to conclude the main impact of earnings management on the prediction accuracy of the bankruptcy prediction models. We can see in the Table 1 the summarization of main ideas presented in the previous studies devoted to the studied issue.

Table 1. Summarization of studies devoted to the analysed issue

Authors	Sample	Main idea	Results
Agustia et al. (2020)	Firms listed on the Indonesia Stock Exchange	Effect of accrual earnings management and business strategy to bankruptcy risk	<ul style="list-style-type: none">- No relationship between EM and bankruptcy risk- Negative relationship between business strategy and bankruptcy risk
Durana et al. (2021)	Central European companies	Impact of corporate life cycle and bankruptcy on earnings management	<ul style="list-style-type: none">- Earnings management and bankruptcy risk have a U-shape, indicating that financially distressed firms reduce reported accounting profit at the Introduction, Decline and, to a lesser extent, at the Growth stage.
Ahmadpour and Shavsavari (2016)	Firms listed in the Tehran Stock Exchange	Relationship between earnings management and quality of earnings for the bankrupt and non-bankrupt firms	<ul style="list-style-type: none">- Bankrupt firms tend to use opportunistic earnings management, and the non-bankrupt choose efficient earnings management,- Earnings management performs better than earnings

			quality in predicting future profitability
Campa and Camacho-Minano (2015)	Unlisted companies filing for bankruptcy in Madrid	The pressure caused by the non-temporary level of financial distress, conditions the choice between real activity and discretionary accrual manipulation	- Before bankruptcy, firms with higher non-temporary levels of financial distress manage earnings upwards using real transaction manipulation more than other lower-distressed bankrupt companies
Chunhao et al. (2021)		Managers in bankrupt firms manipulate earnings through real earnings management (REM)	- Increasing trend of REM activities in the 5-year window before bankruptcy - Bankrupt firms treat REM and accrual-based earnings management (AEM) as complementary tools for earnings management.
Severin and Vezanones (2021)	French small and medium-size enterprises	Earnings management in its two forms (accruals and real activities manipulation) can improve bankruptcy prediction models	- The contribution of earnings management-based variables, in the form of static and dynamic indicators, to model performance is revealed, - Revealing the influence of these variables on the forecasting horizon of bankruptcy prediction models - Establishing that earnings management information provides a complementary explanatory variable for enhancing model performance.

Source: own processing

4 Conclusion

In current macroeconomic environment and conditions, the competitive position of companies is worsening and the pressure on financial managers is increasing. In the high chance of bankruptcies of companies, stakeholders examine financial statements in more detail and apply a conservative policy towards risky companies. These practices are strongly affected by the application of earnings management in the companies, because the financial health and reliability of their reported profits are significantly affected by these earnings manipulations. Therefore, the ability of bankruptcy prediction models to predict potential failure, bankrupt or financial problems of the company is lowered.

In the presented study we provided deep literature and bibliographic review of selected issue of earnings management and bankruptcy models. Based on these we can conclude that this represents various possibilities for future research.

Acknowledgements

The paper is an output of the science project VEGA 1/0210/19 Research of innovative attributes of quantitative and qualitative fundamentals of the opportunistic earnings modelling.

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