VERIFICATION OF THE USEFULNESS IN IMPLEMENTING DISCRIMINANT ANALYSIS MODELS IN THE ASSESSMENT OF POTENTIALLY BANKRUPT BUSINESSES IN THE WHOLESALE TRADE SECTOR WITHIN THE CONSTRUCTION INDUSTRY

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Abstract

The making of a proper financial assessment of a company may help in the protection of its interests and often prevent it from going bankrupt. If a company's bad financial situation is recognized early enough then the company can still be saved if the right decisions are made. The purpose of this article is to answer the question whether and to what extent the classical multivariate discriminant analysis model predicts the possibility of bankruptcy of companies in the wholesale construction industry, which in the recent years have been having problems due to payment gridlocks. The analysis shows that the bankruptcy models can only be used as a component within a more in-depth analysis, and not as the sole means of evaluating companies.

Introduction

The purpose of this article is to answer whether and to what extent the multivariate discriminant analysis models can predict the risk of bankruptcy of companies in the wholesale construction industry.

Seven multivariate discriminant analysis models were used to conduct an analytical assessment of the possible risk of business failure: D. Hadasik Model (1), A. Hołdy Model (2), the "Poznański"Model (3), D. Appenzeller and K. Szarzec Model (4), B. Prusaka Model (5), D. Wierzby Model (6) and the Z. Altman Model (7). The research group is comprised of ten businesses which were randomly chosen. These businesses belong to the same purchasing groups; they get similar prices for the purchase of goods which largely affects the profit made by their companies. The analysis covers the years of 2005-2011. The research period includes the years of solid economic growth, which was greatly influenced by EU funds, and the beginning of the great financial crisis which was strongly felt throughout the entire construction industry. The source of the data used in the financial analysis are financial statements which were provided directly by the selected companies and published in the Polish Monitor B, as well as business reports from the Euler Hermes and Cofface companies. The names of all the selected companies were replaced with the consecutive letters of the alphabet from A to J.

1 The nature and the leading causes of business failures

The problematic issue of corporate bankruptcy is a process intrinsically connected to the functioning of the market economy. According to economic theories, business failures are often associated with the spontaneous cleansing of the economy from weak business entities. Joseph A. Schumpeter called this process "creative destruction" [12, p. 82-84]. It is caused by the fact that certain companies badly utilize their assets and potential which consequently brings about their downfall while creating room for better organized and newly established businesses.

Bankruptcy can be examined from three standpoints: economic, legal and psychological [2, p. 29]. From the economic point of view, bankruptcy means that the company is not able to meet its own liabilities which, without receiving any additional funding, will lead to the loss of its payment capacity. The formal and legal aspect of bankruptcy is understood as an administrative decision made by the court, according to which the bankruptcy is declared by the debtor to be insolvent. Above-mentioned aspect is related to specific procedures which are stated in the Act of February 28, 2003 "The Bankruptcy and Reorganisation Law" [13]. The least mentioned aspect concerning bankruptcy is the psychological aspect. It is presented as the conscious decision made by the debtor or creditor to file bankruptcy and initiate proceedings (the impulse principle process) [2, p. 29]. More and more often, however, attention is being drawn to the deeper significance of this aspect. All kinds of psychological consequences are ascribed to it affect not only the participants in the proceedings, but also other people (eg, depression, divorce, temporary or lasting social exclusion, and even suicidal tendencies) [14].

The bankruptcy of a business entity is most commonly caused by various factors which act upon the company at the same time. Such factors are divided into two main groups [8, p 52]:

- internal factors which are mainly associated with management failure, erroneous financial policies and excessive risk-taking,

- external factors that influence the company but are not caused by its conduct. These include: interest rates, economic conditions, changes in law and fashion, and globalization.

The data published by Euler Hermes shows that the total number of declared bankruptcies in Poland has increased in the last five years more than twice (from 420 bankruptcies in 2008 to 926 in 2013). The largest number of bankruptcies are ascribed to the construction industry which includes wholesale trade companies which are the subject of this research. The number of bankruptcies in this sector represents almost 30% of court declared bankruptcies [11]. Within this sector, the causes of bankruptcy are greatly influenced by external factors, such as high prices in real estate markets, changes in mortgage loans, intentional lowering of the price-value of contracts, and delays in payments made by investors [6]. All of these factors create payment gridlocks which progressively have a negative impact on suppliers and subcontractors causing serious delays in payment, and also often lead to insolvency.

As can be seen by the following simplified cash-flow diagram, construction wholesalers are the intermediary-link between the contractors and the producers of building materials, in which payment issues are often accumulated.
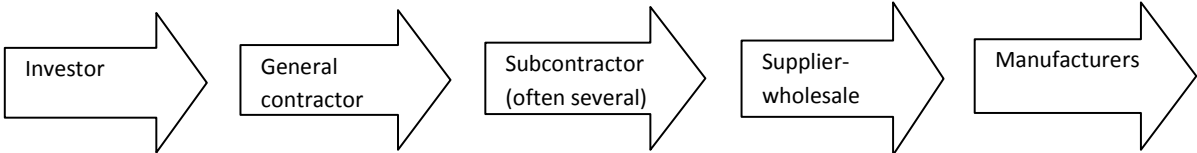
Source: Own elaboration
Fig. 1: *A simplified cash-flow chain in the construction industry*

The amount of money given by the investor to the general contractor decreases due to various expenses, and in the case of an undervalued estimate, there may be no funds to pay the wholesalers for the building materials. That is why manufacturers must often analyze potential wholesale clients so as to avoid bearing the costs associated with insolvency.

Commercial credits are granted in the same way as bank credits. Companies who wish to provide commercial credit must carry out an analysis of the credit risk of contractors in order

to make a selection of solvent entities, which in the future would be able to fulfill their commercial agreement and settle liabilities there. For this purpose, financial analysis indicators and "bankruptcy" models are used.

2   Attributes of the selected discriminant analysis models

Seven models, including six Polish ones, were selected to verify the usefulness of discriminant analysis models in assessing the insolvency of wholesalers. Please note that these models are solely based on the financial data which was presented by each company according to their own accounting rules. This means that similar business transactions may be presented differently on the financial statements which may make it difficult to compare results. However, since the available data makes it possible to use the models, they can form the basis for the financial analysis which may be used by contractors. In the empirical research, the selected companies were assessed by using the following discriminant analysis models:

- **D. Hadasik Model** [3, p.72-78,157-158]

$$Z_{HA} = 0.365425\ X_1 - 0.765526X_2 - 2.40435X_3 + 1.59079X_4 + 0.0023025X_5 - 0.0127826X_6 + 2.36261 \quad (1)$$

where

X_1 – current assets / current liabilities;
X_2 – (current assets - inventory) / current liabilities;
X_3 – liabilities / total assets;
X_4 – (current assets - short-term liabilities) / total liabilities;
X_5 – short-term receivables * 365 / net revenues from sale;
X_6 – inventory * 365 / net revenues from sale.

The company is considered to be threatened if the value is below the threshold of – 0,374345.

- **Hołdy Model** [5, p.307]

$$Z_H = 0.605 + 0.681X_1 - 0.0196X_2 + 0.157X_3 + 0.00969X_4 + 0.000672X_5 \quad (2)$$

where

X_1 – current assets / short-term liabilities;
X_2 – (total liabilities / total balance) * 100;
X_3 – total activity revenues / total assets average;
X_4 - (net profit [loss] / total annual assets) * 100;
X_5 – (annual short-term liabilities / value of goods and materials sold)*360.

The value Z_H below the threshold of –0.3 means high probability, Z_H in the range of <– 0.3, + 0.1> means undefined probability, and the value of Z_H above +0.1 means small probability of bankruptcy.

- **The "Poznański" Model** [4, p.38]

$$Z_{HCP} = 3.562X_1 + 1.588X_2 + 4.288X_3 + 6.719X_4 - 2.368 \quad (3)$$

where

X_1 – net profit / total assets;
X_2 – (current assets – inventory) / short-term liabilities;
X_3 – fixed capital / total assets;
X_4 – profit [loss] of sales / net revenues from sales.

The company is considered to be threatened if the value is below the threshold of 0.

- **D. Appenzeller and K. Szarzec Model** [7, p.108-109]

$$Z = 0.819X_1 + 2.567X_2 - 0.005X_3 - 0.0095X_4 + 0.0006X_5 - 0.556 \qquad (4)$$

where

X_1 – current assets / short-term liabilities;
X_2 – profit [loss] on operating activities / net revenues from sales;
X_3 – (average inventory / net revenues from sales) * number of days;
X_4 – liabilities and provisions for liabilities / (profit [loss] on operating activities + amortisation and depreciation) * (12 / accounting period)
X_5 – turnover of due payments + turnover of inventory (on days)

The company is considered to be threatened if the value is below the threshold of 0.

- **B. Prusak Model** [10, p.23]

$$Z = 1.438X_1 + 0.188X_2 + 5.023X_3 - 1.871 \qquad (5)$$

where

X_1 – (net profit [loss] + amortisation and depreciation) / total liabilities;
X_2 – operating expenses / short-term liabilities;
X_3 – profit [loss] on sales / total balance.

The company is considered to be threatened if the value Z is below the threshold of –0.295, the company is not threatened if $Z > –0.295$. The value of Z in the range of $<–0.7, 0.2>$ means "gray area", which was introduced in order to better fit the model and reduce the number of wrongly classified observations.

- **D. Wierzba Model** [7, p.109-110]

$$Z = 3.26X_1 + 2.16X_2 + 0.3X_3 + 0.69X_4 \qquad (6)$$

where:

X_1 – (profit [loss] on operating activities – amortisation and depreciation) / total assets;
X_2 – (profit [loss] on operating activities – amortisation and depreciation) / total sales;
X_3 – current assets / liabilities;
X_4 – working capital / total assets.

The company is considered to be threatened if the value is below the threshold of 0. Companies that have a good financial situation have a high Z value.

- **Z-Score Altman Model** (for companies trading outside of public circulation) [1, p. 237]

$$Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5 \qquad (7)$$

where

X_1 – net working capital / total assets;
X_2 – net profit / total assets;
X_3 – EBIT / total assets;
X_4 – accounting value of share capital / total capital value;
X_5 – turnover / total assets

The index value $Z > 2.9$ – safe area, Z in the range of $<1.23; 2.9>$ – indefinite area, $Z < 1,23$ – area of financial difficulties.

3   Results of the empirical research

The verification of the effectiveness of the selected discriminant analysis models in predicting the risk of bankruptcies in the chosen businesses has showed significant differences between the models. Results of the respective companies are presented in Table 1. Indications of the poor financial conditions of the threatened companies are marked in dark-gray and named as "Bankrupt". Companies not at risk of bankruptcy are marked as "Healthy" without any highlighting color, and the companies that are "undefined" by the Z-Score Altman (7) Model and the companies located in the "gray zone" according to the B. Prusak (5) Model are marked in light-gray and named as "Gray Zone".

Tab. 1: *A collective list of models that predict the risk of bankruptcies of researched businesses in the years of 2005-2011.*

	Business "A"	2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
5	Model B. Prusaka	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Gray Zone
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
	Business "B"	2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
5	Model B. Prusaka	Gray Zone	Gray Zone	Bankrupt	Gray Zone	Gray Zone	Bankrupt	Bankrupt
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Gray Zone	Gray Zone	Bankrupt	Healthy	Healthy	Gray Zone	Gray Zone
	Business "C"	2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
5	Model B. Prusaka	Gray Zone	Gray Zone	Healthy	Healthy	Healthy	Gray Zone	Gray Zone
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
	Business "D"	2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
5	Model B. Prusaka	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Healthy
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
	Business "E"	2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Healthy

4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Bankrupt	Bankrupt	Healthy	Healthy
5	Model B. Prusaka	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Gray Zone	Gray Zone	Healthy	Gray Zone	Gray Zone	Healthy	Healthy

	Business "F"							
		2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data
5	Model B. Prusaka	Healthy	Gray Zone	Gray Zone	Gray Zone	No Data	No Data	No Data
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	No Data	No Data	No Data

	Business "G"							
		2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Bankrupt	Bankrupt	Bankrupt	Healthy	Healthy	Healthy	Bankrupt
4	Model D. Appenzeller i K. Szarzec	Bankrupt	Bankrupt	Healthy	Healthy	Healthy	Healthy	Bankrupt
5	Model B. Prusaka	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Bankrupt	Gray Zone
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy

	Business "H"							
		2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Bankrupt	Bankrupt
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Bankrupt	Healthy
5	Model B. Prusaka	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone

	Business "I"							
		2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Bankrupt	Bankrupt	Bankrupt
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Bankrupt	Bankrupt	Bankrupt
5	Model B. Prusaka	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone	Gray Zone

	Business "J"							
		2005	2006	2007	2008	2009	2010	2011
1	Model D. Hadasik	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
2	Model A. Hołdy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
3	Model "poznański"	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
4	Model D. Appenzeller i K. Szarzec	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
5	Model B. Prusaka	Healthy	Healthy	Healthy	Healthy	Healthy	Gray Zone	Gray Zone
6	Model D. Wierzby	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
7	Model Z Altmana	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy

Source: Own elaboration

The obtained results allow us to categorize the analyzed companies into two groups. The first group consists of companies whose bankruptcy risk has been identified by only one model – the Model B. Prusak (5) and only in the "gray area". This means that these companies are in

good financial condition and may be considered reliable business partners in the future. This group includes the companies A, C, D, F, J. All these companies within the analyzed period were characterized by a constant or rising increase in revenue and profit. There was also a dynamic increase in the value of assets, which may indicate that the companies' profit earned in the previous years was used in the reinvestment of their development. Even though the financial statements confirm the validity of the assessments made, we should remember to take all results with a grain of salt and make further and more precise analyses.

The negative indication of the B. Prusak Model (5) in the first group of companies may be due to the fact that the model is one of the newer models used for discriminant analysis. In addition, when this model was under development it achieved a very high percentage of effectiveness on both the learning and test sample (from 88.46% to 97.40%), which may indicate an appropriate selection of variables, and thus a high accuracy of results.

The second group are companies B, E, G, H, I. Their bad financial situation was repeatedly indicated by several models. In this group, the poor conditions of the analyzed companies were identified by the B. Prusak Model (5), the "Poznański" Model (3), D. Appenzeller and K. Szarzec Model (4) and Z-Score Altman Model (7). It should be noted that there is a great similarity between the evaluations of the B. Prusak (5) and Altman Z-Score Model (7). Companies identified as entities with a high risk of bankruptcy by the Model B. Prusak (5) are also found in the "undefined area" within the Z-Score model.

The bad financial situation of business entities from the second group is also confirmed by their published financial statements. Despite the frequent increase in the volume of sales during the research period, these companies recorded a negative financial result. The amount of accumulated debt was also at a critical level; it usually exceeded the safe debt level, reaching 93% in some cases (total liabilities / total assets). What is worrying is the cycle of debt repayment which exceeds 170 days past deadline in the most extreme of cases, but is normally maintained at 130 days; compared to others companies within the industry. The average is 60 days.

The results of this group should be considered and carefully checked. These assessments were accurate in proving the bankruptcy risk by the fact that business H declared bankruptcy in June 2013, and the other four were confirmed to have bad financial situations by economic reports. Businesses E and G have undergone restructuring and proposed a wider product range. Because of its bad financial situation, a few major suppliers stopped providing Business I with the option of buying goods by deferred payment. In addition, in the fall of 2013 the Euler Hermes company stopped providing credit limits to the company, which in subsequent periods may further exacerbate its financial problems since suppliers may be reluctant in providing deferred payment sales to an uninsured business entity.

Among the selected models, there were also models which results never pointed out the poor financial conditions of any of the researched companies. Models which belong to this group are: D. Hadasik Model (1), A. Hołda Model (2) and D. Wierzba Model (6). These models were created in the 90's during the time when Polish businesses were undergoing a radical economic transformation. The fact that these models did not indicate any threats has proven that they give erroneous results and are inappropriate for use in the modern market economy.

Conclusion

As the research analysis shows, not all discriminant analysis models provide the same results when it comes to the prediction of business bankruptcy. This may be because of the fact that bankruptcies are decisively influenced by external factors which are not taken into account in these models. Additionally, there were only seven models selected from a list of dozens of other models which would make it inappropriate to generalize the results. The precision of the verification may also be determined by the fact that some models were created based on research conducted in the years of 1990-2004, which would prove some models to be incompatible with the current economic reality.

The analysis shows that the bankruptcy models can only be used as an element of a broader analysis (eg, ratio analysis, legal analysis, economic intelligence), and not as the only indicator. The models provide a good foundation for the assessment of the financial condition based on the availability of data and ease of use. Every business should carry out a discriminant analysis in order to better choose the actions which would best suit its needs.

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PROVĚŘENÍ POUŽITELNOSTI MODELŮ DISKRIMINAČNÍ ANALÝZY K HODNOCENÍ
RIZIKA ÚPADKU VELKOOBCHODNÍCH PODNIKŮ VE STAVEBNÍM ODVĚTVÍ

Správné posouzení finanční situace obchodních partnerů dává možnost zajistit zájmy podniku a často i předejít jeho úpadku. Včas zjištěné známky poukazující na špatné finanční zdraví obchodních partnerů a včasné učinění správných rozhodnutí může předejít finančním problémům společnosti. Tento příspěvek si klade za cíl najít odpověď na otázku, zda a v jaké míře klasické vícerozměrné modely diskriminační analýzy poukazují na riziko úpadku velkoobchodních podniků z oboru stavebnictví, které má v poslední době velké problémy způsobené řetězovou platební neschopností. Ze zpracované analýzy vyplývá, že použité modely lze aplikovat pouze jako jednu ze součástí širší analýzy zkoumaných podniků, nikoliv jako jediný ukazatel hodnocení obchodních partnerů.

VERIFIZIERUNG DER NÜTZLICHKEIT DER ANWENDUNG VON MODELLEN DER
DISKRIMINANZANALYSE FÜR DIE BEWERTUNG DER INSOLVENZGEFAHR VON
UNTERNEHMEN AUS DEM BEREICH DES GROßHANDELS IN DER BAUBRANCHE

Die richtige Beurteilung der Finanzlage der Zulieferer ermöglicht es, die Interessen des Unternehmens abzusichern und sogar oft vor einer Insolvenz zu schützen. Rechtzeitig wahrgenommene Anzeichen schlechter Finanzkonditionen der Kontrahenten sowie eine entsprechende Entscheidungsfindung können finanzielle Probleme des Unternehmens verhindern. Dieser Artikel soll die Frage beantworten, ob und in welchem Umfang die klassischen mehrdimensionalen Modelle der Diskriminanzanalyse die Insolvenzgefahr der Unternehmen aus dem Bereich des Großhandels in der Baubranche erkennen können, da diese Branche sich in der letzten Zeit durch enorme Probleme, die aufgrund von Zahlungsstockungen entstehen, auszeichnet. Die Analyse zeigt, dass Insolvenzmodelle nur als ein Bestandteil einer umfassenden Unternehmensanalyse eingesetzt werden können und nicht als einziger Bewertungsmaßstab der Kontrahenten dienen sollten.

WERYFIKACJA PRZYDATNOŚCI ZASTOSOWANIA MODELI ANALIZY
DYSKRYMINACYJNEJ DO OCENY ZAGROŻENIA UPADŁOŚCI PRZEDSIĘBIORSTW
Z SEKTORA HANDLU HURTOWEGO W BRANŻY BUDOWLANEJ

Właściwa ocena sytuacji finansowej kooperantów pozwala zabezpieczyć interesy firmy a często nawet zapobiec jej upadłości. Odpowiednio wcześnie dostrzeżone sygnały o złej kondycji finansowej kontrahentów i podjęcie na czas właściwych decyzji może zapobiec problemom finansowym przedsiębiorstwa. Celem artykułu jest odpowiedź na pytanie, czy i w jakim stopniu klasyczne wielowymiarowe modele analizy dyskryminacyjnej sygnalizują o zagrożeniu upadłości przedsiębiorstw z sektora handlu hurtowego branży budowlanej, która w ostatnim okresie ma bardzo duże problemy wynikające z zatorów płatniczych. Dokonana analiza pokazuje, że modele upadłościowe mogą być wykorzystywane jedynie jako jeden ze składników szerszej analizy badanych przedsiębiorstw, a nie jako jedyny miernik oceny kontrahentów.