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GDAŃSK ROAD FREIGHT TRANSPORT COMPANIES – DEVELOPMENT OR DECLINE

Abstract

Road transport plays an important role in the process of shaping economic efficiency. Over the period considered, the number of road freight transport companies that went bankrupt increased. The aim of the article is to assess the financial condition of road freight transport companies using discriminant methods and to determine whether the surveyed companies are developing or are in danger of falling. The research was carried out in relation to entities that publish their financial statements, are limited liability companies and have their registered office in Gdańsk.

Keywords: road freight transport companies, development, bankruptcy, bankruptcy factors, discriminant methods, financial condition

JEL: R400, G140, G330, G170

Introduction

The assessment of the company's ability to conduct business in the future and, therefore, its development, is the basis for all decisions made by the business entity.

Statistical surveys show that the number of enterprises in the road transport industry declaring bankruptcy and terminating operations is growing. It is therefore necessary to consider whether there are ways to predict a bad financial situation that will help protect against falling. In addition to closely watching the market in which the company operates, discriminant models based on selected financial indicators can be used. Models are a quick and cheap method of assessing financial condition, the use of several models with a high probability determines whether the condition of the company is bad or good.

The purpose of the article is to use discriminant analysis models to examine selected road freight transport companies based in Gdańsk in 2013–2017 and to determine their financial condition.

The article presents the following research hypothesis: Gdańsk road freight transport companies are developing.

1. Development of road freight transport companies

The economic activity of providing road freight transport services is subject to fluctuations in the business cycle. Therefore, factors that shape development should be found in functional changes of the company and in adaptive changes in relation to the environment. The most important factors shaping development include (Transport, 2016, p. 87):

- innovation in the field of transport;
- efficiency resulting from the rules of regulation of the transport services market;
- financial capital, shaping future market behavior.

The economic and financial results of road freight transport enterprises, monitored by the Central Statistical Office, improved. The volume of road freight transport in 2017 increased by 13% compared to the previous year (an increase of 11.8% for all transport companies). Transport performance also increased by 14.8% (increase by 12.8%, and for all transport companies). Thus, road freight transport against the background of average results achieved by transport companies achieved more favorable economic results. The increase in the above economic figures resulted in an increase in revenues from road freight transport from PLN 98 million in 2016 to PLN 105 million in 2017 (Transport, 2017). The financial results are favorable, however, the number of bankruptcy proceedings regarding entities that carried out transport activities since 2016 has been growing successively.

2. Environment of the road freight transport enterprise – a source of opportunities and threats

Opportunities for development or threats leading to the bankruptcy of entities from the transport services sector, as in other sectors of the economy, should be seen in the company's environment. This environment can be divided into internal and external. The internal environment, and thus the production factors inherent in the transport company itself and external, independent of the company, e.g. related to economic, legal and political conditions, the economic situation of the country, industry, ecology (Przedsiębiorstwo, 2007, pp. 56–59).

Without an environment, an enterprise cannot function, and in order to function effectively, it must constantly analyze, evaluate and control it (Przedsiębiorstwo, 2007, p. 58). Changes occurring in it may be a source of opportunities, but they can also mean threats to the continuation of the business entity's operations. Enterprises should therefore constantly monitor the opportunities and threats arising from

the market environment and assess business activities and financial results obtained in order to make a diagnosis and assess the condition of the enterprise. Information gathered about the environment and the course of economic processes taking place in the company and their skillful and quick processing, helps to make the right decisions that are important from the point of view of the effective functioning of the company.

The natural stages of an enterprise's life are development, stability and liquidation, which may mean the company's bankruptcy. Since 2016, the number of newly established enterprises in the transport and storage sector has been growing, but also the number of bankruptcy economy in a given department and the number of proceedings initiated for the dissolution of the company without liquidation proceedings (Table 1).

Table 1. The number of companies registered in the Register of Entrepreneurs of the National Court Register and the number of bankruptcies declared according to the PKD class Transport and warehouse management

Specification	2014	2015	2016	2017	2018
Registration of companies in the Register of Entrepreneurs of the National Court Register	No data	No data	2,405	2,489	2,636
Number of proceedings initiated for the dissolution of economic activity	No data	92	381	578	No data
Number of bankruptcies declared	33	46	19	29	35

Source: (own elaboration based on data obtained from www.coig.com.pl [Accessed 30 April 2019])

Road freight transport companies, not wanting to fall, should monitor the main factors indicating emerging threats on an ongoing basis. A preliminary diagnosis of the impending crisis in the enterprise can be made by observing the factors of the weakening economic and financial condition of the enterprise. These factors can be divided into three groups (Marzec, Śliwa, 2016, pp. 44–49; Gołębiowski, Tłaczała, 2006, pp. 239–242; KSRF570, 2017):

- financial;
- operating;
- other.

Financial factors include:

1. systematic decrease in sales revenues, including a decrease in sales of products/ services on foreign markets;
2. net loss or increase or significant decrease in net profit;
3. loss of financial volatility manifested in:
 - negative balance between cash inflows and outflows; in particular, continuing negative cash flow from operating activities,
 - inability to settle obligations on time,
 - inability to comply with the loan agreement,
 - changing the mode of settlements with suppliers from a trade credit for immediate payment at the time of delivery;

4. visible increase in demand for loans (usually short-term) and disruptions in their repayment:
 - approaching maturity of term loans in the absence of realistic prospects for extension or repayment,
 - excessive dependence on short-term loans used to finance long-term assets;
5. events or conditions indicating the withdrawal of financial support from creditors;
6. adverse development of key financial indicators, including:
 - decrease in the profitability of some products,
 - increase in stocks of finished products not selling out,
 - increase in the volume of work in progress,
 - occurrence of overdue material stocks and their defective structure;
7. delay or suspension of dividend payments;
8. inability to provide funding for necessary development work on the new product or necessary investments.

The main operational factors will be:

1. loss of basic market, licenses, main supplier, key recipient(s), favorable supply sources;
2. departure of key management personnel and lack of successors;
3. difficulties in retaining and recruiting employees;
4. shortage of important raw materials;
5. threat from a serious competitor;
6. plans related to the limitation of operations, e.g. the sale of an organized part of the enterprise;
7. implementation of obligations under concluded long-term contracts in adversely changed economic conditions (e.g. with a significant increase in the prices of raw materials/materials, remuneration);
8. sales strategy focused on countries with unstable economic situation.

The last group consists of other factors:

1. failure to comply with capital requirements or other statutory requirements;
2. legal or administrative proceedings pending against the entity that, if they are unfavorably resolved, will result in claims that the enterprise will not be able to satisfy;
3. changes in government law or policy that may have a negative impact on the individual;
4. the company's decreasing share in total market sales;
5. lack of strategies and realistic plans for enterprise development;
6. low technological level of production;
7. problems with completing the investment on time.

Road freight transport is the third industry in which the most bankruptcies were announced in 2018, i.e. as much as 22. More bankruptcies were recorded only in the construction industry and related to the implementation of construction projects for the erection of buildings. Since 2015, a growing number of proceedings initiated for dissolution of the entity without liquidation proceedings from 260 in 2016 to 404 applications submitted in 2017 is noticeable (Table 2) (www.coig.com.pl).

Table 2. Number of registered entities, initiated proceedings for termination of activity and the number of entities declaring bankruptcy from the road freight transport sector

Specification	2014	2015	2016	2017	2018
Registration of companies in the Register of Entrepreneurs of the National Court Register	No data	881	No data	1,416	1,610
Number of proceedings initiated for the dissolution of economic activity	No data	60	260	404	No data
Number of bankruptcies declared	24	31	16	17	22

Source: (own elaboration based on data obtained from www.coig.com.pl [Accessed 01 May 2019])

Cargo road transport enterprises, among the main reasons for bankruptcy, indicate the following problems (Przyczyny, 2015):

- difficulties in finding the right drivers;
- susceptibility to rising costs, e.g. fuel prices;
- long payment periods resulting in so-called payment gridlocks;
- EU regulations eliminating the competitiveness of Polish companies against German or French entities;
- contractual penalties for delay in delivery;
- escaping the EU, Great Britain, will result in longer check-in times and higher costs.

4. Discriminant analysis as an assessment tool (Research methods used)

Assessment of enterprises in terms of early consideration of the symptoms of a threat of potential crisis can be made using various methods. The classification of these methods is based on the appropriate grouping of factors considered. Discriminant analysis is a method that allows classification of basic indicators in the field of financial analysis (Antonowicz, 2007, p. 28). Its task is to indicate possible threats that may appear in the enterprise.

One of the first models was the Altman model built of five indicators from the groups of profitability, liquidity and turnover ratios. The model was used to assess 66 enterprises, mainly American (Analiza, 2009, p. 267). The model is shown in formula No. 1.

$$Z_A = 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.42 X_4 + 1.0 X_5 \quad (1)$$

where:

- X1 – working capital/total assets,
- X2 – retained earnings/total assets,
- X3 – financial result before interest and tax/total assets,
- X4 – value of share capital/total liabilities,
- X5 – sales revenues/total assets.

Changes that took place in the Polish economy in the 1990s caused that Polish authors became interested in the models, who pointed out that the Altman model was not adapted to Polish conditions. Therefore, models of Polish authors were created (Tłuczak, 2013, p. 426).

The Hołda model was created as a result of examining 40 companies in good and 40 in bad condition. Originally, the model included 28 indicators (Tłuczak, 2013, p. 426). Finally, a concept based on five indicators was developed, where each belongs to a different group of indicators, thanks to which they include: volatility, profitability, turnover, rotation and debt. The formula of the model is as follows:

$$Z_H = 0.605 + 0.681 W1 - 0.0196 W2 + 0.157 W3 + 0.00969 W4 + 0.00672 W5 \quad (2)$$

where:

W1 – current assets/short-term liabilities,

W2 – (total liabilities/total assets) × 100,

W3 – (net profit/total assets) × 100,

W4 – (short-term liabilities/cost of products, goods and materials sold) × 365,

W5 – total revenues/total assets.

The Hadasik model includes six ratios from the liquidity, debt and rotation groups. As a result of the research, as many as nine models were created covering state-owned enterprises, joint-stock companies and limited liability companies (Tłuczak, 2013, p. 426). The formula of the model is shown in formula No. 3.

$$Z_{HD} = 2.36261 + 0.365425 W1 - 0.765526 W2 - 2.40435 W3 + 1.59079 W4 + 0.00230258 W5 - 0.0127826 W6 \quad (3)$$

where:

W1 – current assets/current liabilities,

W2 – (current assets – inventories)/current liabilities,

W3 – total liabilities/total assets,

W4 – (current assets – current liabilities)/total liabilities,

W5 – receivables * 365/revenues from sales,

W6 – inventories * 365/revenues from sales.

The Mączyńska model was based on 80 companies listed on the stock exchange. Initially, it consisted of 45 indicators (Antonowicz, 2007, p. 52). The final version of the model contains six indicators from the groups: debt, rotation, profitability and turnover. Model version is shown in the formula No. 4.

$$Z_M = 1.5 W1 + 0.08 W2 + 10.0 W3 + 5.0 W4 + 0.3 W5 + 0.1 W6 \quad (4)$$

where:

W1 – (gross profit + depreciation)/total liabilities,

W2 – total assets/total liabilities,

W3 – financial result before tax/total assets,

W4 – profit before tax/loss on sales,

W5 – inventory/sales revenues,

W6 – sales revenues/total assets.

The Willow model was developed on the basis of 48 enterprises, 24 of which were in good condition and 24 in poor condition (Antonowicz, 2007, p. 70). The model has four components, including debt and profitability ratios. The formula is as follows:

$$Z_W = 3.26 W1 + 2.16 W2 + 0.3 W3 + 0.69 W4 \quad (5)$$

where:

W1 – (operating profit – depreciation)/total assets,

W2 – (operating profit – depreciation)/sales revenues,

W3 – total current assets/liabilities,

W4 – working capital/total assets.

Each of the presented models has its own border point, on the basis of which the decision about the condition of the enterprise is made. These points are presented in Table 3.

Table 3. Interpretation of results of discriminant models

Model	Criterion
Altman model	$Z_A < 1.23$ enterprise in danger of bankruptcy $1.23 < Z_A < 2.9$ no interpretation of results (informal economy) $Z_A > 2.9$ good financial condition
Hołda model	$Z_H < -0.3$ enterprise in danger of bankruptcy $-0.3 < Z_H < 0.1$, probability of bankruptcy is unspecified $Z_H > 0.1$ good financial condition
Hadasik model	$Z_{HD} < 0$ poor financial condition $Z_{HD} > 0$ good financial condition
Mączyńska model	$Z_M < 0$ enterprise in danger of bankruptcy $0 < Z_M < 1$ enterprise with a poor condition but not in danger of bankruptcy $1 < Z_M < 2$, good financial condition $Z_M > 2$ very good financial condition
Wierzba model	$Z_W < 0$ poor financial condition $Z_W > 0$ good financial condition

Source: (Tłuczak 2013)

3. Assessment of the condition of Gdańsk road transport companies in the light of evaluation by discriminant methods (Research results and discussion)

Considering the increase in the number of road freight transport companies that ceased operations in the period under review, it was decided to check what Gdańsk companies looked like in 2013–2017. The selection of the research sample was deliberate, only road transport companies that publish their reports in the EMIS database were included in the research, they are limited liability companies, they were in the top ten of the 484 Gdańsk companies taking into account their sales revenues in 2013–2017 and have their headquarters in Gdańsk. The study covered

6 business entities: Skat Transport Sp. z o.o., Omida Group Sp. z o.o., Eurotrans Sp. z o.o., Sostmeier Polska Sp. z o.o., BetBud Sp. z o.o., Nosta Logistik Sp. z o.o. The models presented in the article were used to assess the condition.

The financial condition of each enterprise is largely the result of its ability to generate sales revenues (Rydzkowski, Rolbiecki, 2017, p. 28). The revenues obtained by the surveyed enterprises in 2013–2017 are presented in Table 4.

Table 4. Value of sales revenues (PLN) of the surveyed enterprises

Year	Skat Transport Sp. z o.o.	Omida Group Sp. z o.o.	Eurotrans Sp. z o.o.	Nosta Logistik Sp. z o.o.	Sostmeier Polska Sp. z o.o.	Bet-Bud Transport Sp. z o.o.
2013	184,990,992.98	82,357,747.97	18,311,452.98	–	31,541,014.93	0
2014	282,281,168.53	169,428,698.42	22,995,202.11	4,468,373.90	29,132,457.59	2,915,230.10
2015	307,371,835.19	191,912,184.39	31,916,544.20	20,524,101.05	29,442,991.71	7,071,335.02
2016	373,316,685.77	248,666,184.33	30,187,620.56	36,438,746.40	25,130,988.98	11,400,687.60
2017	408,019,334.69	319,703,414.54	39,077,485.20	47,129,628.59	20,959,327.60	22,731,190.09

Source: (own elaboration)

The value of sales revenues of all surveyed enterprises in the period considered (2013–2017) increased. Thus, it can be said that enterprises were developing and their activities were effective.

The discriminant models described in the article were used to determine the financial condition of the surveyed enterprises and to investigate the potential danger of bankruptcy. The results of these tests are presented in Tables 5–10.

Table 5. The results of the survey on discriminant models of Skat Transport Sp. z o.o.

Year	Altman model	Hołda model	Hadasik model	Mączyńska model	Wierzba model
2013	3.2867	2.2768	1.2185	2.0963	0.9091
2014	4.1794	1.6655	1.0249	2.7423	0.8810
2015	4.2389	1.3819	1.1396	3.4592	0.9926
2016	3.9825	1.5779	1.1855	2.6726	1.0470
2017	3.9848	1.6022	1.1725	2.0176	1.0183

Source: (own elaboration)

Enterprise Skat Transport Sp z o.o. has been on the market since 1997. Currently, domestic and international road transport is served by over 500 own vehicles and vehicles of subcontractors. The company has 150 own tractor units and 150 semi-trailers. The average age of rolling stock does not exceed 1.5 years. According to the calculated models, the company was in very good financial condition in 2013–2017 and was not in danger of bankruptcy. His revenues achieved in 2016 allowed him to be in the first place among Gdańsk road transport companies in the EMIS database.

Table 6. The results of the survey on discriminant models of Omida Group Sp. z o.o.

Year	Altman model	Hołda model	Hadasik model	Mączyńska model	Wierzba model
2013	3.0153	2.4146	-0.0201	0.8039	0.4698
2014	4.1876	2.0875	0.0772	1.2863	0.5925
2015	3.6851	2.1490	0.1331	1.5719	0.6869
2016	3.4263	2.2512	0.2867	1.7158	0.7210
2017	2.9423	2.3985	0.2721	1.0986	0.6238

Source: (own elaboration)

Omida Group Sp. z o.o. was founded in 2010 and deals with domestic and international transport and forwarding. The company's fleet consists of 650 sets. According to the calculated models of Altman, Hołda and Wierzba, the company was in very good financial condition in 2013–2017. According to Mączyńska model, she was in good condition. The Hadasik model showed poor condition in 2013, while in the following years the financial condition was good.

Table 7. The results of the survey on discriminant models of Eurotrans Sp. z o.o.

Year	Altman model	Hołda model	Hadasik model	Mączyńska model	Wierzba model
2013	4.3574	2.2962	0.7568	1.4680	0.8665
2014	5.0562	2.1245	0.6964	1.9761	0.9252
2015	5.3696	2.0848	1.4627	2.1724	0.9750
2016	5.0596	2.1172	0.7335	1.7843	0.9254
2017	5.0106	2.1389	0.6984	2.3330	1.0367

Source: (own elaboration)

Enterprise Eurotrans Sp. z o.o. founded in 2003. He deals mainly with forwarding. To provide road transport, it has a rolling stock consisting of road tractors and car sets with a trailer, as well as specialized vehicles. The financial condition of the enterprise determined by means of discriminant models in the examined period was very good (Altman, Hołda, Wierzba) and good (Mączyńska, Hadasik).

Table 8. The results of the survey on discriminant models of Sostmeier Polska Sp. z o.o.

Year	Altman model	Hołda model	Hadasik model	Mączyńska model	Wierzba model
2013	2.6949	2.8764	0.4204	3.5271	1.3268
2014	2.7740	3.8348	1.3708	2.3663	1.7896
2015	2.6356	3.5750	1.4445	2.2305	1.6694
2016	2.3831	4.4720	-0.092	2.6680	1.9039
2017	1.9887	4.4386	-0.0806	0.1086	1.5348

Source: (own elaboration)

Sostmeier Polska Sp. z o.o. exists on the market since 2002 and deals with international transport and forwarding and is the Polish branch of the company existing since 1927. The company has 225 fleets, whose average age is 2 years. The company was in good financial condition in 2013–2015, it deteriorated in 2016–2017. The Hadasik model indicates poor condition in these years. The calculated models, however, show that it was not in danger of bankruptcy.

Table 9. The results of the survey on discriminant models of Bet-Bud Transport Sp. z o.o.

Year	Altman model	Holda model	Hadasik model	Mączyńska model	Wierzba model
2013	0.9777	269.2322	-15.9669	4.8831	15.3420
2014	0.3048	11.2348	0.3636	3.7347	-0.1916
2015	0.8291	2.26863	-1.1565	29.7697	-3.2941
2016	1.2489	3.5424	-0.7658	16.1872	-0.2147
2017	5.0602	1.9697	-0.2942	48.8555	1.06787

Source: (own elaboration)

Bet-Bud Transport Sp. z o.o. has been involved in road transport since 2008. The company's financial results were not stable. Although sales revenues increased during the period considered, the condition could not be considered good until 2017. During the period under review, the Altman, Hadasik and Wierzba models indicated a threat to continuing operations.

Table 10. The results of the survey on discriminant models of Nosta Logistik Sp. z o.o.

Year	Altman model	Holda model	Hadasik model	Mączyńska model	Wierzba model
2013	-	-	-	-	-
2014	1.4736	3.0002	-0.4997	-1.7109	-0.4368
2015	5.9090	1.9209	-0.2446	1.6224	0.7218
2016	5.4718	2.0742	0.2922	2.5218	1.1437
2017	5.5079	2.1168	0.5399	2.3874	1.3380

Source: (own elaboration)

Nosta Logistik Sp. z o.o. has been involved in road transport since 2014, hence is the youngest of the surveyed enterprises. The company's fleet consists of over 450 vehicles. The first year related to the start of operations showed weaker financial results, while the Mączyńska and Wierzba models showed that the continuation of operations was at risk. The Hadasik model showed poor condition during the first two years. However, since 2015 the company has been growing and its revenues have been growing and its condition could be described as good.

Conclusions

The presented discriminant models are not fully reliable as they contain methodological simplifications. They do not take into account all areas of activity, do not include factors of operational activity assessment, employee and management input or competition, and are not adapted to the industry in which the enterprise operates. They focus only on financial indicators.

The obtained research results allow to state that the financial condition of Gdańsk road freight transport enterprises in the examined period of 2013–2017 was good and indicates the further development of these enterprises, there are no symptoms of bankruptcy. The research therefore confirms the hypothesis set out in the introduction. The discrepancy of results in the models within one enterprise resulted from the different classification of indicators by the model authors. The Hadasik model showed the largest fluctuations in results, which, unlike other models, do not take into account profitability and turnover ratios. The most real results were indicated by the Holda model, based on all groups of financial indicators (volatility, profitability, debt, rotation and turnover).

Therefore, it should be stated that the results obtained should be approached with great caution. It is unrealistic, or at least very difficult, to find one universal model that can be used in any enterprise, regardless of its legal form, type of business and additionally taking into account current management conditions. To determine your financial condition well, you need to use several models.

The extension of the above research may become the starting point for further research – creating a model focused on examining the financial condition of enterprises in the road freight transport industry.

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