IMPACT OF THE COVID 19 PANDEMIC ON THE NUMBER OF INSOLVENCIES IN THE CZECH REPUBLIC

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Abstract: This research aims to determine whether the covid 19 pandemic affected the bankruptcy of companies for which insolvency proceedings were initiated, or whether it was detectable from their financial statements that the companies were headed for bankruptcy even before the covid 19 pandemic. Part of the research was an evaluation of the economic status of the investigated companies using selected prediction models, i.e. financial analysis tools, from 2016 to 2021.

Keywords: covid 19, insolvency, financial analysis, predictive models

1 Introduction

Insolvency is a specific type of court proceeding in which the debtor's bankruptcy is to be resolved. What constitutes bankruptcy is defined by Act No. 182/2006 Coll., the Act on Bankruptcy and Methods of its Resolution (Insolvency Act) (1). According to the Insolvency Act, a debtor is bankrupt if it is insolvent, i.e. it has multiple creditors (i.e. two or more), has monetary obligations for more than 30 days past due and is unable to meet these obligations. The law also defines when a debtor is unable to meet his obligations. A debtor is deemed to be unable to pay its monetary obligations if it has stopped paying a substantial part of its monetary obligations, or has failed to pay them for more than three months after the due date, or if it is not possible to obtain satisfaction of some of the outstanding monetary claims against the debtor by enforcement of a judgment or execution, or has failed to comply with the obligation to submit the lists required by the insolvency court. Insolvency proceedings in the Czech Republic are in principle public, where all relevant information for creditors or other persons concerned is publicly available in the insolvency register. The Insolvency Register therefore serves as a source of information on the declared solvency status of the debtor. The court enters the commencement of insolvency proceedings in the Insolvency Register, in principle, on the basis of an insolvency petition filed by the creditor or debtor, on the date on which the insolvency court receives such a petition (1). The aim of this research is to determine whether the covid 19 pandemic had an impact on the bankruptcy of the companies studied, or whether it was detectable from the financial statements that the companies were already heading towards bankruptcy before the covid 19 pandemic. In order to meet the objective of this research, data from the insolvency register on debtors who were subject to insolvency proceedings during the period under review will be examined. The pre-insolvency financial health of the firms under study can be assessed mainly from their financial statements, i.e. balance sheet, profit and loss account and cash flow statement.

2 Theoretical Background

During the period of the covid 19 pandemic, government-wide measures were often introduced in the Czech Republic, which affected business activities across sectors quite significantly. Crucial measures from the perspective of Czech businesses were already introduced in early 2020, notably a ban on cultural, sporting and social events of over 30 people, a ban on the public in selected establishments and marketplaces, as well as emergency measures regulating retail sales, a ban on travel to and from the country and many others (2, 3). These measures, combined with the downturn in demand for goods and services, have significantly affected the performance of the affected industries, and contributed to a broader societal depression. This trend has, of course, had an impact on gross domestic product growth, which recorded 3% growth for 2019 but a negative 5.5% result for 2020. By 2021, there has already been a significant recovery, to 3.6% GDP growth (4). The Czech Ministry of Industry and Trade reacted relatively early to the growing problems of Czech entrepreneurs and rushed in with numerous support programmes. For example, the COVID II programme was designed to help finance small and medium-sized entrepreneurs with the guarantee of the Czech-Moravian Development Bank and also offered a contribution of up to CZK 1 million towards the interest paid. COVID III aimed to help improve the availability of operational financing for entrepreneurs employing up to 500 employees, other targeted COVID programmes were introduced for the individual sectors most affected by covid measures, e.g. COVID-Culture, Sport, Gastro, Accommodation (5). Last but not least, the Antivirus programme for employment protection was created by the Ministry of Labour and Social Affairs. The Antivirus program saved jobs at a time when they were most at risk. It succeeded in limiting the incipient labour market crisis and kept unemployment at record lows. In total, Antivir managed to support 1 073 133 workers, each of whom was paid an average of more than 4 months wage compensation thanks to the Ministry of Labour and Social Affairs. (6). The programme contributed to the retention of jobs for 37% of employees working in the private sector. Thanks to these measures and the previous economic upturn, it could have been expected that the number of limited liability companies and joint stock companies subject to insolvency proceedings would not grow exponentially. In order to assess whether these companies had already gone into insolvency as a result of their pre-Covid action, or only as a result of the Covid 19 pandemic, it is necessary to assess their financial health over a sufficiently long period of time into the past when there was no indication of their plight. In order to assess the health of a company, financial analysis methods are used, among other things. The most comprehensive methods are the so-called indicator sets, otherwise known as bankruptcy or creditworthiness models. The biggest advantage of bankruptcy model methods is their simplicity. The observed data are easy to interpret and grasp even for users who do not have expert information in the field of economics and business management. The biggest disadvantage of bankruptcy models is undoubtedly the inaccuracy of the data (7, 8). Svatošová (9) describes bankruptcy models as methods through which it is possible to predict and warn in time of an approaching adverse financial situation of the analysed enterprise. The purpose of the functioning of these methods is to monitor the behaviour of individual indicators. According to Knápková et al. (10) the role of bankruptcy models is to reveal whether the enterprise could be affected by bankruptcy in the future. The cause of bankruptcy is often problems with the amount of net working capital, profitability of own resources and/or liquidity problems. There are a number of such models. For the purpose of this research, four models have been selected that the authors consider sufficiently predictive and for which indicator sets have been developed that reflect the environment of emerging Eastern European economies. The first model used is the Altman model. The Altman model is one of the most widely used bankruptcy models and is based on the so-called discriminant analysis. The result of this model reveals the financial situation of the company. A very good financial situation is indicated by a z-score exceeding 2.99, the neutral phase is made up of a range of 1.81-2.99, and major financial difficulties burden the firm if it has a z-score below 1.81 (10, 11). The equation is based on the following indicators:

X(1) = (current assets − current liabilities) / total assets
X(2) = retained earnings / total assets
X(3) = earnings before interest and tax / total assets
X(4) = market value of equity / book value of total debt
X(5) = sales / total assets
The equation for calculating the Z score is as follows:

Equation 1: Altman Z score

$$Z - score = 0.717 \times X1 + 0.847 \times X2 + 3.107 \times X3 + 0.420 \times X4 + 0.998 \times X5$$

Source: 10.

Another model used was the IN05, which was built by the Neumaiers for the specific conditions of the Czech market. This system reflects the uniqueness of Czech accounting standards and the Czech economy. The IN05 index is ideal for a quick assessment of the financial status of a company, suppliers, customers or competitors. This model is completely objective and accurate, but its shortcoming is the single-number result, which makes it difficult to detect any potential problem. If IN05 comes out below 0.9, the company has an 86% probability of bankruptcy. A range of 0.9 to 1.6 is illegible for a firm but shows room for improvement. For a firm with a result above the 1.6 threshold, there is a 67% chance that it creates value (12). The equation for the calculation is as follows:

Equation 2: Index IN05

$$IN05 = 0.13 \times \frac{total\ assets}{foreign\ capital} + 0.04 \times \frac{EBIT}{interets\ expense} + 3.97 \times \frac{EBIT}{total\ assets} + 0.21 \times \frac{total\ sales}{total\ assets} + 0.09 \times \frac{current\ assets}{current\ liabilities}$$

Source:12.

Taffler model has taken several forms over the years. However, the most widely used version was created in 1977. It is a model that works on the basis of multivariate discriminant analysis and is based on working with four indicators. These ratios are denoted R1-R4. R1 is the ratio of pre-tax results to current liabilities. R2 is current assets divided by foreign resources. R3 is the ratio of current liabilities to assets and R4 is the ratio of total sales to total assets. (13). Svatošová (9) explains the resulting values as follows. If TZ is higher than 0.3, it indicates the financial stability of the firm. The grey zone has been set in the range of 0.2-0.3 and if the result of TZ is lower than 0.2, the enterprise is at risk of bankruptcy.
The equation is based on indicators:

R1 = profit before tax / current liabilities
R2 = current assets / foreign capital
R3 = current liabilities / total assets
R4 = total sales / total assets
The equation for the calculation is as follows:

Equation 3: Taffler model

$$TZ = 0.53 \times R1 + 0.13 \times R2 + 0.18 \times R3 + 0.16 \times R4$$

Source: 13, 9.

The last model used is Kralicek Quick test. The Kralicek Quick test is based on four basic indicators which are classified after evaluation and finally the results of the whole test are assessed using a simple arithmetic average. By evaluating the financial stability of the company and profitability, we assess the overall situation of the company. The test consists of four basic indicators, namely:

1. equity quotas = equity/total balance sheet,
2. debt maturity with CF = short-term + long-term liabilities / current CF amount,
3. return on assets=EBIT/total assets
4. profitability of sales = CF / (sales of own products and services + sales of goods) (14, 15).

Then, after calculating the above indicators, it is necessary to evaluate the results using Table 1.

Tab. 1: Kralicek Quick test test evaluation

V.N.	- 1 -	- 2 -	- 3 -	- 4 -	- 5 -
	Very good	Good	Middle	Bad	Insolvent
1.	>30%	>20%	>10%	≤10%	≤0%
2.	<3y.	<5y.	<12y.	≥12y.	>30y.
3.	>15%	>12%	>8%	≤8%	≤0%
4.	>10%	>8%	>5%	≤5%	≤0%

Source: 14.

3 Research methodology and data collection

This research relies on primary data collection of a sample of 639 companies, of which 568 were limited liability companies and 71 were joint-stock companies. The primary sample consisted of 1054 companies that were subject to insolvency proceedings during the period under review, but only for 639 could the calculations of financial ratios be performed and only for these were complete and properly completed financial statements available. It should be noted that not all indicator sets use the same data sources, so the number of companies examined varies from model to model. The data extraction from insolvency registers was carried out over the period 2023 to capture as many proceedings as possible given the lag between the actual status of companies and the initiation of insolvency by the court. The data download was done manually with a filter set for only active insolvency proceedings in the period from the beginning of 2019 to the end of 2021. During this period, there were the aforementioned 1054 active insolvency proceedings on joint-stock companies and limited liability companies throughout the Czech Republic. To assess the health of the companies, financial statements for all 1054 companies were obtained from the Amadeus database. Corporate health was assessed using Altman's Z score model, Taffler's model, Kralicek Quick test and IN 05 model. Companies whose health could not be assessed due to the nature of the available data were subsequently excluded from the measurement. The period for which the health of the companies was assessed was from 2016 up to and including the end of 2021. In order to refine the information on the selected companies, data was also obtained from the Czech Statistical Office. The analysis of this data revealed that the largest number of companies came from the Capital City of Prague and this number accounted for just under half of all companies surveyed. The next highest number of companies in insolvency came from the Moravian-Silesian Region and the South Moravian Region. Thus, 67% of all insolvencies in the sample took place in these 3 regions. The distribution of the number of insolvencies among the other regions did not show large differences. An overview of the number of individual insolvencies per region is shown in Table 2. This distribution of insolvencies can be explained mainly by the size of the regions in question, where the three largest cities of the Czech Republic are located, and also by the number of companies that have their headquarters or branches there. The location of these cities is also an important strategic advantage, as they are connected to the backbone national infrastructure and thus it is easier for companies to conduct their business activities from threre. Another characteristic observed was the type of business activity, which can be identified using the NACE code in the business register. The main business activity and secondary activities were observed. Of the selected companies, 94 were engaged in wholesale trade excluding motor vehicles, followed by real estate, catering and hospitality, construction of buildings and others.

Tab. 2: Number of companies per region

Region	**Count of IN**
Capital City of Prague	285
South Bohemian region	21
South-Moravian region	71
Karlovy Vary Region	11
Vysocina region	18
Hradec Kralove region	22
Liberec region	20
Moravian-Silesian Region	73
Olomouc region	22
Pardubice region	19
Pilsen Region	11
Central Bohemian Region	28
Usti Region	21
Zlin Region	17
Grand Total	**639**

Source: Authors, 2024.

The detailed breakdown of companies by NACE code of the main business activity is shown in Table 3. Again, the most common secondary activities were wholesale and retail trade, real estate activities and other professional, scientific and technical activities. Secondary activities were repeated for a number of companies and the highest number of repetitions was wholesale and retail trade, with 440 and 290 hits respectively.

Tab. 3: Top main business activities based on NACE classification

Name of NACE codes	Total
Wholesale, except motor vehicles	94
Real estate activities	56
Catering and Hospitality	54
Construction of buildings	43
Land and pipeline transport	39
Other professional, scientific and technical activities	39
Specialized construction activities	32
Retail trade, except motor vehicles	31
Manufacture of metal structures and metal products, except machinery and equipment	28
Production of food products	19
Architectural and engineering activities; technical tests and analyses	18
Plant and animal production, hunting and related activities	16
Wholesale, retail and repair of motor vehicles	11
Repairs and installations of machines and equipment	9
Collection, collection and disposal of waste, treatment of waste for further use	9
Activities in the field of information technology	8
Advertising and market research	7
Financial intermediation, except for insurance and pension financing	6

Source: Authors, 2024.

4 Research results

A total of 639 selected joint-stock companies and limited liability companies were surveyed. Their financial statements were subjected to an in-depth financial analysis and the data obtained was then used to calculate 4 sets of ratios. These were the Altman model, the IN05 model, the Taffler model and the Kralicek Quick test. For each model, the reports of all companies that duly filed their reports and published them in the Amadeus database at least between 2016 and 2021, when the period under study ended, were analysed. However, as the resulting tables show, it was not always possible to perform the calculations due to the absence of some parts of the statement. The numbers of resulting calculations may therefore vary for each year under review.

As shown in Table 4, a total of 428 companies could be analysed using Altman's model in 2016; in that year, 265, or 62%, could be assessed as financially strong, 41, or 10%, were in the grey zone, and 122, or 29%, were already candidates for bankruptcy. In 2017, it was possible to analyse even more of these selected companies, a total of 464. 301 of them, or 65%, were financially strong, 45, or 10%, were in the grey area and 118, or 25%, were candidates for bankruptcy. In 2018, most of the companies had assessable published accounts from the period under review. The total number was 448 companies, where 318, or 66%, were financially strong, 42 or 9%, were in the grey zone and 124, or 26%, were bankruptcy candidates. These years were generally considered to be years of strong economic growth not only in this country but also in the related European economies, which may be the reason why the number of financially strong companies increased and those companies that had not achieved the best results in previous periods were able to temporarily emerge from their financial problems. A downward trend can be observed in 2019, when the declining demand for goods and services in neighbouring Germany and other related economies had already started to show and Czech companies were facing an economic downturn. The number of companies that could be described as financially strong fell to 448, where 282, or 63%, were financially strong, 28, or just 6%, were in the grey zone, and 138, or 31%, were candidates for bankruptcy. The years 2020 and 2021 marked a period for the Czech economy, and not only for it, in which a number of sectors found themselves in financial distress. These factors in particular, but also others, such as the unpreparedness of local entities, may have been the reason why, in 2020, the number of companies that were financially strong fell again to a total of 242, or 56%, furthermore 35, or, 8% of the companies were in the grey zone and 153, or 36%, of them were candidates for bankruptcy. In 2021, there was both a decrease in the number of companies in the sample that provided their statements and a significant decrease in the number of those that were financially strong. The number of financially strong companies was 172, or 52%, 33, or 10%, were in the grey zone and 127, or 38%, were candidates for bankruptcy.

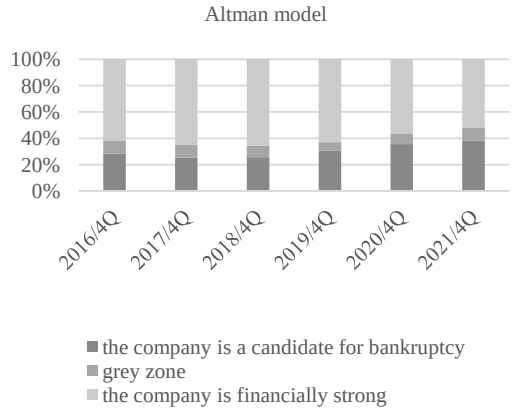
Tab. 4: Research results for Altman model

Altman	candidate for bankruptcy	grey zone	the company is financially strong	Total
2016	122	41	265	428
2017	118	45	301	464
2018	124	42	318	484
2019	138	28	282	448
2020	153	35	242	430
2021	127	33	172	332
2016	29%	10%	62%	100%
2017	25%	10%	65%	100%
2018	26%	9%	66%	100%
2019	31%	6%	63%	100%
2020	36%	8%	56%	100%
2021	38%	10%	52%	100%

Source: Authors, 2024.

Graph 1 shows the evolution of the financial situation of all the companies monitored in each individual year. The graph shows that there has been some increase in the number of companies in financial difficulties. For most of them, it was not apparent from their financial statements that insolvency proceedings were imminent.

Graph 1: Evolution of the financial situation of the Altman model sample



Source: Authors, 2024.

The results of the calculations using the IN05 model are shown in Table 5.

Like Altman's model, the IN05 model classifies companies into those that create value, are in the grey zone, or are headed for bankruptcy. This model had the fewest usable statements of any company. Crucially, a number of companies had no interest expense or other value required for the calculation in their statements. According to this model, in 2016, out of 185 companies, only 50, or 27%, had value, 36, or 19%, were in the grey zone and 99, or 54%, were bankrupt. Year 2017 brought the total number of assessable companies to 206. Of these, 60, or 29%, were of value, 39, or 19%, were in the grey zone and 99, or 52%, were bankrupt. 2018 had the highest number of assessable returns. A total of 222 companies were assessed for financial health. Of these, 63, or 28%, were value, 47, or 21%, were in the grey area and 112, or 50%, were heading for bankruptcy. The year 2019 again saw a lower number of total assessable statements of 184 companies. 40 companies, 22%, still

constituted value, 27, 15%, were in the grey zone and 117, 64%, were heading for bankruptcy. In 2020, there was a sharper reduction in assessable statements to 144. Of these companies, 21, or 27 %, were still of value, 22, or 15 %, were in the grey area and 101, or 70%, were bankrupt. In the last year, the lowest number of assessable statements was only 99. 14 companies, 14 %, were still of value. 13 companies, 13 %, were already in the grey zone and 72 companies, 73 %, were in danger of bankruptcy.

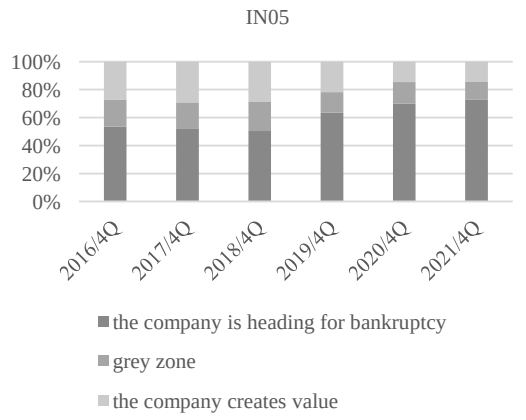
Tab. 5: Research results IN 05 model

IN05	is headed for bankruptcy	grey zone	form the value of	Total
2016	99	36	50	185
2017	107	39	60	206
2018	112	47	63	222
2019	117	27	40	184
2020	101	22	21	144
2021	72	13	14	99
2016	54%	19%	27%	100%
2017	52%	19%	29%	100%
2018	50%	21%	28%	100%
2019	64%	15%	22%	100%
2020	70%	15%	15%	100%
2021	73%	13%	14%	100%

Source: Authors, 2024.

Graph 2 shows the evolution of the sample of companies using the IN05 model. In contrast to the previous model, this one gives a rather more pessimistic assessment of the financial situation of the companies concerned in the period under review. The companies that constituted the value were in the minority in all years, and the majority were those that were heading for bankruptcy or already fell into the so-called grey zone, which portends a difficult financial situation heading towards bankruptcy in the near future.

Graph 2: Evolution of the financial situation of the observed sample of companies in the IN 05 model



Source: Authors, 2024.

The Taffler model was another one that was used to examine the financial health of companies. The Taffler model divides the results into two possible developments. Companies may be in a situation where they are unlikely to go bankrupt or, conversely, in a situation where there is a high risk of bankruptcy. Even in this model, it was not possible to work with data from all companies, as some did not properly disclose their statements. For example, the profit or loss or current liabilities were often missing. Whether the companies did not fill in these data intentionally or by accident cannot be determined. According to the Taffler model, 268 companies were assessable in 2016. 75, or 28%, were in a situation where bankruptcy was unlikely and 193, or 72%, were at high risk of bankruptcy. In 2017, 285 companies were assessable, of which 93, or 33%, were not bankrupt and 192, or 67%, faced a high risk of bankruptcy. In 2018, the number of companies was the highest, 310 in total. 104, or 33%, did not face bankruptcy and 195, or 67%, did. The year 2019 brought another significant drop in the number of companies to 270. 65 companies, 28%, were in good financial health, but 195, 72%, were already very likely to go bankrupt. In 2020, the number of companies facing bankruptcy increased further. Of the 270 companies, 165, or 76%, were bankrupt. 65 companies, or 24%, were very likely to go bankrupt. The absolute lowest number of companies submitted statements in 2021, only 202. 37, or 18%, did not face bankruptcy and 16,5 or the remaining 82%, faced a high risk of bankruptcy.

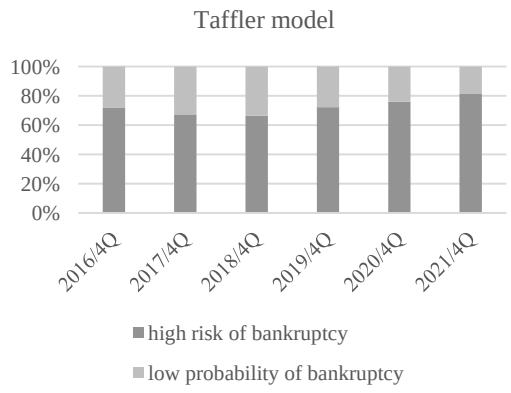
Tab. 6: Research results Taffler model

Taffler	high risk of bankruptcy	low probability of bankruptcy	Total
2016	193	75	268
2017	192	93	285
2018	206	104	310
2019	195	75	270
2020	205	65	270
2021	165	37	202
2016	72%	28%	100%
2017	67%	33%	100%
2018	66%	34%	100%
2019	72%	28%	100%
2020	76%	24%	100%
2021	82%	18%	100%

Source: Authors, 2024.

Graph 3 shows the evolution of the sample of companies using the Taffler model. Here again, a limited number of companies were evaluated due to missing data as mentioned above. Even so, the results show that the number of viable companies decreased with the advent of the pandemic and that a large number of companies that were still in business in 2018 were bankrupt in 2021 and this corresponds with their initiated insolvency proceedings.

Graph 3: Evolution of the financial situation of the sample of Taffler model companies



Source: Authors, 2024.

The last model used to assess the financial health of the companies was the Kralicek Quick test. This test assesses the health of a company on a scale of 1 to 5, where 1 indicates very good health and 5 indicates an insolvent company. Table 7 shows the resulting scores for all the companies studied. This model was able to assess the second largest number of companies overall after the Altman model. In particular, the limitation of the assessability of this model was the debt maturity indicator.

In 2016 it was possible to assess 305 companies, of which 28 companies, or 9%, received a grade 1 (insolvent), 57 companies, or 19%, received a grade 2 (poor), the largest number of companies, 118 companies, or 39%, received a grade 3 (medium), 101 companies, or 33%, received a grade 4 (good), 0 companies received a grade 5 (very good). In 2017, the final grades were determined for 324 companies. 29 companies, or 9%, received a grade 1 (insolvent), 76 companies, or 19%,

received a grade 2 (poor), 120 companies, or 37%, received a grade 3 (medium), 92 companies, or 28%, received a grade 4 (good) and 7 companies, or 2%, received a grade 1 (very good). In 2018, 32, or 10% of companies, received a grade 1 (insolvent), 64, or 20%, received a grade 2 (poor), 127, or 39%, received a grade 3 (medium), 100, or 31%, received a grade 4 (good) and only 2, or 2%, received a grade 5 (very good). In 2019, the number of companies monitored has decreased to 279. A total of 18, or 6% of the companies, received a grade 1 (insolvent), 47, or 17%, received a grade 2 (poor), 114, or 41%, received a grade 3 (medium), 99, or 35%, received a grade 4 (good) and 1 company received a grade 5 (very good). In 2020, 233 companies were assessable. 11, or 5%, of companies received a grade 1 (insolvent), 33, or 14%, received a grade 2 (poor), 108, or 46%, received a grade 3 (medium), 79, or 34%, received a grade 4 (good) and 2, or 1%, received a grade 5 (very good). In the last year under review, the number of companies that had not yet published statements from which calculations could be made was 168. Of these companies, 7, or 4%, were rated 1 (insolvent), 20, or 12%, were rated 2 (poor), 66, or 39%, were rated 3 (medium), 73, or 43%, were rated 4 (good) and 2, or 1%, were rated 5 (very good). Table 7 summarises the data for the companies surveyed. According to these results, it is evident that a significantly larger number of the companies surveyed were still in good financial condition during the economic upturn. However, in the period of the covide, the number of financially healthy companies dropped significantly and the number of those that still published full statements or had their statements usable for calculations also decreased.

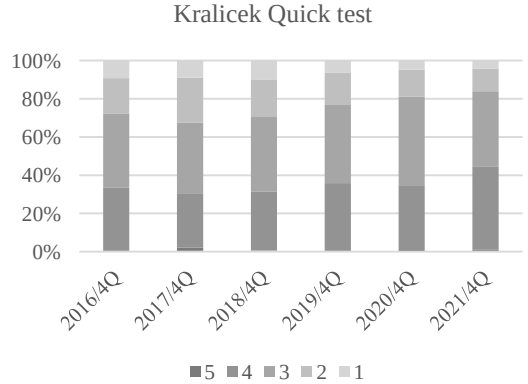
Tab. 7: Research results Kralicek Quick test

Kralicek Quick test	5	4	3	2	1	Total
2016	1	101	118	57	28	305
2017	7	92	120	76	29	324
2018	2	100	127	64	32	325
2019	1	99	114	47	18	279
2020	2	79	108	33	11	233
2021	2	73	66	20	7	168
2016	0%	33%	39%	19%	9%	100%
2017	2%	28%	37%	23%	9%	100%
2018	1%	31%	39%	20%	10%	100%
2019	0%	35%	41%	17%	6%	100%
2020	1%	34%	46%	14%	5%	100%
2021	1%	43%	39%	12%	4%	100%

Source: Authors, 2024.

Graph 4 shows how negatively the onset of the covid 19 pandemic affected the sample of companies.
Most of the companies scored rather well in the early years under review, whereas the number of companies declined during the pandemic.

Graph 4: Evolution of the financial situation of the observed sample of companies in the Kralicek Quick test test



Source: Authors, 2024.

5 Conclusion

The aim of this research was to determine whether the covid 19 pandemic had an impact on the bankruptcy of the companies studied, or whether the financial statements showed that the companies were already heading towards bankruptcy before the covid 19 pandemic. The financial statements of these companies, i.e. balance sheet, profit and loss account and cash flow statement were analysed using selected sets of ratios or prediction models. A total of 4 models were used to assess the financial health of the companies under study. The models used are widely recognized and have a predictive power. These were the Altman model, the IN05 model, the Taffler model and the Kralicek Quick test. The period under study was chosen between 2016 and 2021 to assess whether the companies were already showing some financial problems in the period before the Covid 19 pandemic, which was characterised by a significant economic upturn, or whether their financial situation was already showing signs that they might go into insolvency proceedings. From the analyses carried out, it can be concluded that all the models show a worrying trend in the financial development of the companies studied, i.e. that indeed the general economic shutdown, government measures, the downturn in household demand and other factors had a direct impact on their financial health. Clearly, in 2016, 2017 and 2018, a much larger proportion of the companies surveyed are still able to pay their liabilities and are not heading towards bankruptcy; by the end of 2019, a reduction in the number of viable companies can already be seen, and in 2020 and 2021, the number of companies heading towards bankruptcy or in the so-called grey zone is increasing significantly. The limitations of this research can be seen in particular in the nature of the data that can be obtained from public sources, as not all companies, although legally obliged to do so, publish their accounts in full.

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Primary Paper Section: A

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