

INSOLVENCY PROCEEDINGS – ANALYSIS OF ENTERPRISE LEVERAGE

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Abstract

The paper is focused on companies entering insolvency proceedings in the Czech Republic because they have met conditions for declaring bankruptcy according to the Insolvency Act No. 182/2006 Coll. The paper deals with a specific enterprise feature – leverage. Leverage characterizes financial structure. It shows the relationship between financing by the owners and by creditors. Sources provided by the creditors have to be repaid and therefore they constitute a financial risk for the enterprise. It is generally assumed that the companies declared bankruptcy are more indebted than the companies without existential problems. This paper wants to verify if there are significant differences among the insolvent enterprises and if there can be detected industry branches with higher indebtedness and lower indebtedness. It can be proved that the influence of industry sector is not relevant for the used financial structure. The data sample is obtained from the corporate database Albertina. The leverage analysis is based on the total debt ratio. The results are interpreted and summarized with the use of descriptive statistics.

Key words: insolvency proceedings, financial structure, Czech Republic

JEL Code: G30, G33

Introduction

Insolvent companies are a special group of business entities whose business activities or management have not been fully successful and therefore they entered insolvency proceedings. According to the Insolvency Act No. 182/2006 Coll. there are two reasons for an insolvency proposal in the Czech Republic. First the company is not able to repay its commitments anymore and second the company is over indebted. As the reasons show it depends on the business financing which results in the insolvency although it is usually not a primary cause for a default. Financial standing is one of the best visible features of the corporate performance. Kapliński (2008) summarizes elements on which financial standing

depends – the company's financial structure, financial liquidity, solvency, the company's capability to adapt, economic resources, capability to generate profit, capability to maximize the company's market value. Many of these elements are included in classical models predicting financial distress (Schönfeld, 2018) which help forecast the corporate insolvency. Kapliński (2008) mentions the financial or capital structure first. Second also the insolvency law builds on over indebtedness. This creates rational basis why corporate indebtedness or leverage should be analysed more detailed in this paper.

1 Capital structure

Capital structure shows the relationship between financing by the owners and by creditors. Creditors' sources increase financial risk and influences vulnerability in a negative way. From the region of Central Europe Culkova et. al (2018) warn that many companies overreach an recommended level of leverage and it threatens their future activities and going concern principle. There are many papers discussing and analysing optimal capital structure. It must be noted that there does not exist one optimal kind of capital structure because the observed capital structure is always influenced by many factors related to the environment. Oztekin (2015) concludes that the reliable elements influencing the corporate leverage are company's size, tangibility, industry leverage, profits and inflation. Comparable factors were analyses by Frank and Goyal (2009). They confirmed the following relationships on leverage - median industry leverage (+), market-to-book assets ratio (-), tangibility (+), profits (-), log of assets (+), and expected inflation (+). Positive sign means positive relationship and negative vice versa. Surprisingly Booth et al. (2001) confirmed that the capital structure has the same determinants in developed and developing economies. The level of development is not one of the determinants of the capital structure but it is necessary to take into account other factors influencing countries conditions.

Capital structure itself is very sensitive. First the countries specifics have to be taken into account (Booth et al., 2001). Second the capital availability has its serious impact (Faulkender and Petersen, 2006) and even like that special capital source available can increase the leverage by tens of per cent. According to DeAngelo and Roll (2015) the capital structure is not stable and it changes over time significantly. Martirosianiene (2014) analyses the level of leverage of the Lithuanian companies. This paper focuses on the changes caused by specific stages of the economic cycle. Not only external factors as overall economic conditions, capital availability, expected inflation or industry leverage are studied. The

internal factors consist of aforementioned – size, profitability or tangibility. Alves et al. (2015) focuses on the complete different internal element and it is a board of directors (size, number of females, number of independent directors included etc.).

2 Research idea and data sample

This chapter is dedicated to explaining of the paper's idea and description of data sample. The first subchapter focuses on the solved research question and methods which will be applied. The second subchapter defines the data sample and source of the data.

2.1 Paper's idea and used methods

The paper's idea works with corporate leverage which should be analyse. The special focus is dedicated to the insolvent companies. Capital structure and the level of leverage are important features which show financial health, say something about the performance and the position of the company. On one hand extremely high leverage is considered to be poor and the company's situation is weak, unstable and can result in the market exiting on the other hand extremely low leverage is connected with company's policy or capital unavailability general or individual when the position of the company is not strong in the relation to creditors.

An indicator or leverage used in this paper is defined as the value of total debts divided by the value of total assets without respect to capital owners. This basic leverage ratio will be analysed from the point of view of descriptive statistics measures. A crucial issue is that there will be compared the level of leverage for the companies belonging to different industrial sectors (detail in the subchapter Data sample). It is believed that many company characteristics are industry specific. This paper verifies if there are significant differences among industrial branches in the case of the leverage level.

2.2 Data sample

The paper's idea presented above can be analysed only with a help of the corporate data. The corporate data has been extracted from the corporate database Albertina. The selected industry branches are Manufacture of fabricated metal products, except machinery and equipment (CZ-NACE 25), Manufacture of machinery and equipment (CZ-NACE 28) and Construction (CZ-NACE F). Two kinds of the companies are studied. First the insolvent companies and second the healthy companies. The insolvent companies are entities for which the insolvency proposal was accepted by the insolvency court. The healthy companies are entities creating

positive economic value added (EVA). Positive economic value is created when return on equity exceeds required level of return published by Ministry of Industry and Trade (2013 and 2018). In the case of the insolvent companies there are extracted the financial data 1-2 years prior to the insolvency proposal (depends on the data availability). The data sample works with two time periods – insolvency proposals in the years 2012 and 2013 and insolvency proposals in the period 2014-2019. First group has a strong connection to the last global economic crisis and its consequences. Second group contrary is connected with the stable economic conditions. The group of the healthy companies can be also divided into two time parts – financial statements published for the year 2012 or 2017. It follows the same logic described in the case of the insolvent companies.

The size of the used data sample is shown by the following table. The number of the insolvent companies is not really high but it must be noted that there is an obstacle of the financial statements availability discussed by Bokšová and Randáková (2013) and therefore the paper is based on all available cases.

Tab. 1: Data sample

Industry	Insolvency old	Healthy 2012	Insolvency new	Healthy 2017
CZ-NACE 25	40	390	39	816
CZ-NACE 28	12	33	12	330
CZ-NACE F	46	237	149	2136

Source: author

3 Results

This chapter will present gained results for three selected industry branches. The results are organized in tables which are divided according to the data sample – insolvency cases from crisis period, healthy companies 2012, insolvency cases from the stable period 2014-2019 and healthy companies 2017. Each subsample is analysed with the respect to the selected industries.

Table 2 is dedicated to the old insolvency cases. Measures mean and median show a reality which is normally not expected. Their values exceed one that means that the value of total debts is higher than the value of assets and therefore equity is negative. Negative equity is a consequence of the negative net income and cumulated losses which exceed positive

items of equity. Some companies have higher indebtedness than the others if we look at maximum or standard deviation. According to the median half of the companies have negative equity and therefore their leverage ratio is higher than one. The comparison among the industry branches is quite hard because of the sample size (especially in the case of CZ-NACE 28). Trimmed mean excludes some outliers, specifically 10% of the data sample in the case of CZ-NACE 25 and F. Construction industry shows slightly higher level of indebtedness than Manufacture of fabricated metal products.

Tab. 2: Descriptive statistics of leverage – old sample of insolvent companies

Industry	CZ-NACE 25	CZ-NACE 28	CZ-NACE F
Mean	1.60	132.94	8.53
Median	1.05	1.29	1.06
Minimum	0.00	0.59	0.35
Maximum	15.72	1569.00	308.00
1st quartile	0.94	0.77	0.89
3rd quartile	1.40	1.71	1.86
St. deviation	2.35	433.01	44.71
Trim mean	1.24 (10%)	2.57(20%)	1.61(10%)

Source: author's computation

The insolvent companies are not typical entrepreneurial entities and there are different reasons why they have become insolvent. The group of healthy companies should show much more stable results in the analysed area. The level of variability is much lower (comparison of mean and median, taking into account maximum below 1 and standard deviation as well). There are not extremely significant differences among the individual companies. The most indebted industry is Construction because its values are significantly higher in the comparison with Manufacture of fabricated metal products and Manufacture of machinery. It is confirming the statement connected with the previous data sample.

Tab. 3: Descriptive statistics of leverage – healthy companies 2012

Industry	CZ-NACE 25	CZ-NACE 28	CZ-NACE F
Mean	0.43	0.46	0.55

Median	0.41	0.49	0.59
Minimum	0.01	0.09	0.00
Maximum	1.00	0.84	0.98
1st quartile	0.22	0.31	0.35
3rd quartile	0.63	0.61	0.75
St. deviation	0.25	0.20	0.24
Trim mean	0.43 (5%)	0.46 (10%)	0.56 (5%)

Source: author's computation

The newer sample of the insolvent companies confirms the results gained for previous insolvencies. There is high variability, leverage exceeding one observed regularly. CZ-NACE 28 has the lowest leverage but it must be noted the extremely small sample size. Leverage of Construction is lower than in the case of CZ-NACE 25. The previous data showed that Construction is connected with higher leverage. There are almost four times more statistical units in the group CZ-NACE F than CZ-NACE 25 which is more influenced by the individual cases. Surprisingly the comparison of old and new insolvent companies belonging to Construction provides comparable results. The level of leverage does not significantly differ between the two periods in Construction. It could show some practice that higher credit is not provided that there exist some limits.

Tab. 4: Descriptive statistics of leverage – new sample of insolvent companies

Industry	CZ-NACE 25	CZ-NACE 28	CZ-NACE F
Mean	5.73	1.79	19.03
Median	1.14	0.86	1.00
Minimum	0.39	0.03	0.03
Maximum	110.37	13.59	2351.00
1st quartile	0.77	0.54	0.85
3rd quartile	1.72	0.93	1.45
St. deviation	17.82	3.57	192.53
Trim mean	3.05 (10%)	0.78 (20%)	1.61 (10%)

Source: author's computation

Details about in indebtedness of insolvent can be found in table 4. The last piece of the analysis is leverage of the healthy companies expressed for the year 2017. In the case of

healthy units it is again observed low variability in the individual data samples and not serious differences among the industry branches as in the case of the insolvent companies. Come back to the previous results. It is expected higher leverage for Construction. This statement can be fully confirmed because the companies belonging to CZ-NACE F are more levered than the companies operating in the manufacturing (specifically CZ-NACE 25 and 28). The level of leverage increased for CZ-NACE 25 and CZ-NACE F comparing 2012 and 2017 which can be caused by the economic cycle. It is influenced by the supposed level of risk (Volejníková and Řezníček, 2016). In the time of an economic expansion debts are more available, creditors are more willing to lend and debtors are more willing to borrow. On the other hand this conclusion cannot be confirmed for the group CZ-NACE 28 which has lower leverage in 2017 than in 2012. It can be caused by some specific situation in Manufacture of machinery and equipment but the influence has also the small size of the data sample 2012.

Tab. 5: Descriptive statistics of leverage – healthy companies 2017

Industry	CZ-NACE 25	CZ-NACE 28	CZ-NACE F
Mean	0.49	0.44	0.58
Median	0.48	0.41	0.60
Minimum	0.01	0.00	0.00
Maximum	1.31	0.98	7.12
1st quartile	0.26	0.20	0.36
3rd quartile	0.70	0.65	0.81
St. deviation	0.27	0.26	0.30
Trim mean	0.48 (5%)	0.43 (5%)	0.58 (5%)

Source: author's computation

Conclusion

The paper was focused on the enterprise leverage. The analysis worked especially with the specific group of the insolvent companies. The main conclusion is that the insolvent companies are more levered than the healthy companies. It does not depend if the observation is done in the time of the economic recession or expansion. There can be extreme differences among the companies. The analysis showed that some companies are heavily indebted that they do not use any equity for financing their activities because of the cumulated losses.

The most levered industry is Construction. This statement is valid for three of four data sample subparts. The only exception is the group of the new insolvent companies but there is an influence of the small data sample. The level of leverage does not significantly differ between 2012 and 2017 for the healthy companies.

The ways of the future research are connected with adding other sectors of manufacturing because there are not serious differences in functioning of CZ-NACE 25 and 28. It would show if there are differences among the industry branches. These differences can be caused by the situation in industry, companies' size, kind of ownership etc. One limitation of the conducted research is the size of some subsamples which is caused by the data availability and narrow definition of some subsamples.

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