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Business bankruptcy analysis

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Abstract: Improper corporate management decisions often result in conditions that are generally referred to as crises. The identification of a potential crisis during decision-making is very difficult to define precisely. The Business Code puts the concept of a "company in crisis" into practice. A business entity is in a crisis when it is in decline or it is threatened with bankruptcy.
The aim of this paper is to analyze and assess the state of bankruptcy or other business crisis of a firm in terms of applicable laws, such as the applicable Business or Commercial Code, point to the crisis as a state of the enterprise, and to quantify this financial analysis as a tool for identifying the crisis in an enterprise. The starting point for the analysis is the model status items from the financial statements of the Slovak Republic Registry.

Keywords: Crisis, bankruptcy, firm, Equity, Liabilities.

JEL Classification: G23, G39

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1. Introduction

Consecutive acts of misconduct, such as ignoring general instructions and recommendations that are essential to the decision-making process, inevitably create a state of crisis.

The Commercial Code added extensive provisions for companies in crisis in citations § 67a to 67i. The concept of a company in crisis is defined by the state of bankruptcy, or the threat of bankruptcy, or the ratio of equity to debt. Insolvency is defined in commercial and criminal law as being overwhelmed by long-term debt and against several creditors. Prolongation is, in turn, caused by the economic failure of a company, usually through a bankruptcy to the dissolution of the company, Jusková (2015a, 2015b). Provisions for a company in crisis apply only to limited liability companies, joint stock companies and limited partnerships, which are not a natural person. Companies in crisis cannot be banks, insurance companies, asset management companies and similar financial institutions. The basic source of information for this purpose is the double-entry bookkeeping of the company maintained under Act 431/2002 Coll. on Accounting as amended. If accounting was not properly conducted, it is then based on the assumed state of the firm. The issues surrounding financial analysis via decision-making units to identify corporations in crisis are discussed in detail by Dluhošová (2012), Režňáková (2010), Majdúchová, Neumannová (2014), Sedlák (2007), Jusková (2015), Jenčová (2016), Ali Taha, Tej (2017).

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2. Cross in Decision-Making unit

According to Ozorovsky, Vojteková (2017, p.196-197), a crisis is a series of events, usually unexpected, which constitute a very real potential for adverse, to catastrophic consequences. Any crisis can be minimized by timely, vigorous and effective action. It is a period during which the state of something, a business or government for instance, is immediately threatened or undermined. For a country or if a critical industry is in such a state of crisis, then the constitutional authorities may, upon fulfillment of the conditions laid down by a Constitutional Act or a special law for its implementation, declare a state of emergency or other such extraordinary situation. Each company will sooner or later get into a crisis situation. The question is whether this will be a tiny or big crisis.
The company's survival depends on the level of preparedness, the quality of the crisis management team, the efficiency of the crisis plan implementation and its post-event monitoring.
Crisis management, crisis management and crisis management are understood as:
Activity Summary – A summary of activities related to the monitoring of risk factors to prevent crisis situations includes planning, organizing, conducting and controlling activities designed to create conditions to prevent the emergence of crisis situations, and to solve crisis situations independently after they arise.
An interdisciplinary science department is required to generate a methodology for managing phenomena. This methodology must: place an emphasis on maximizing effectiveness; have a coordinating character; and unify and direct people of different professions. Information is crucial for its activity and effectiveness.
Institution - A system of workers or bodies dealing with the analysis of the potential for crises in the given system and their causes and possible consequences, as well as the search for methods and measures to prevent them and to eliminate the resulting crisis.
Kadárová (2008, p.60) describes the crisis as an event, and states: A wicked approach to a business crisis understands the crisis as a phenomenon that has a beginning and an end. A key feature is the surprise that occurs at the beginning of the crisis, because the crisis is perceived as an unpredictable, low-probability and uncontrollable event. Crises are caused by an accident or accidents. By their nature, accidents are unexpected events, as opposed to events governed by routines, rules and experiences. Crises are commonly defined as dangerous and harmful breaks, often associated with extensive consequences that threaten the overall survival of a business or the achievement of its goals. The crisis is triggered by a specific event, identifiable by time and conditions. The trigger event of the crisis is considered the starting point of the crisis and, according to most researchers and professionals, it should be seen as the end point of the long process of destabilization inside the enterprise.
The source of the crisis may be trans-organizational in nature, including internal or external causes, and be based on social, personnel, political, cultural, technical or economic factors. The trigger event is most often predicated by the occurrence of a number of mutually interconnected phenomena occurring under the "appropriate" conditions of the business and its surroundings. The trigger event of a potential crisis tests the firm's resilience. A crisis in an enterprise is very difficult to precisely characterize. It can be defined as a sharp, immediate, ultra-cyclical deterioration of all or most of financial indicators such as the short-term interest rate, asset prices (stocks, real estate, land), company insolvency, and bankruptcy of financial institutions. Corporate debt crisis is reflected in the internal indebtedness of an economy and the incompetence of companies, which can result in the crippling of the credit market. The debt problem can lead, in addition to the debt crisis itself, to a banking or monetary crisis, (Laurova 2012).
According to Gozora (2005), any crisis is a decisive moment for an entity during which there is a turning point in its development. As a result of this, the entity will change or deteriorate from its pre-crisis state. The author defines a business crisis as the peak of activity that exacerbates overall business development. The causes of crises determined by decision-making units are of a different nature. In this context, the slow-growing crisis is one where the accompanying phenomenon is the slow decline in corporate performance. But, the sudden crisis is one where the crisis is a central event, which seriously threatens the business entity. Within an enterprise, it is most often a material, including raw materials, crisis. This leads to a crisis in production, a financial crisis, and a technological crisis, as well as an information crisis affecting knowledge based systems.
According to Sedlak (2007), a business crisis is a life-cycle phase in which its performance results in a more prolonged horizon. Symptoms of this situation are the decline or the leveling off of sales, which reduces profits, decreases return on sales and capital, causes delays in repaying liabilities, and so on. If this appears during insolvency, it results in an inability to pay debts on time and in full.

Ali Taha, Tej, (2017), Tej et al. (2013, p.66) describe the crisis of general pontification. This crisis affects the phenomena of social life across its huge breadth. It is named from the position of the object-object relationship, which

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may be a developmental process in science, in nature, in all spheres of social life, but also the life of every person. In this sense, crises are a natural phenomena of the developmental processes of our lives. In addition, the authors emphasize the lesser crisis, where the crisis is a decisive moment or a period of time after which a major change in the development of the system can follow. This is a complex, difficult to overcome and dangerous state, where the course of events, after disturbing the state of operation of social, natural or technical systems, has negative effects. These negative effects may endanger the existence and further functioning of this system.
"A business crisis is a life cycle stage in an enterprise that is experiencing unfavorable development of its performance potential, a drastic reduction in sales volume, a decline in net trading value, a significant deterioration in its market position, and a reduction in liquidity. This immediately endangers its further existence, if the crisis continues to develop with an unchanging trend.

From the above characteristations, it can be seen that business crises can be investigated in two levels, namely:
• a crisis as a state of an enterprise that at a given moment is unable to perform some of its basic functions (repayment of obligations, realization of sales of products on the market, etc.)
• a crisis in an inadequate development of an enterprise due to changes in its external environment and its internal structure in such a timeframe that its further existence is gradually threatened", Majdúchová, Neumannová (2014, pp. 83-84).

3. Using financial analysis to identify the crisis

Indicators of financial and economic analysis reflect the health of the business and serve to quickly identify business crises. The analysis of an enterprise's financial situation by the decision-making unit process is similar to other types of economic analyzes by: analyzing the company's qualitative results (volume of production, sales, factor analysis of volume indicators); analysis of the economic indicators and cash flow; analyzing the level of the transformation process, including its efficiency and effectiveness; product analysis; analysis of assortment structure; analysis of partial results; and cost analysis. These expanded analyzes allow an in-depth insight into the business, and enable a specific analysis of the causes of business crises, (Jenčová 2016).

The crisis as a certain state of the decision-making unit method is manifested by a failure at two levels of financial metrics. On the first level, it is a manifestation of failure in terms of low liquidity, as shown by the inability of the decision-making unit method to cover short-term liabilities. On the second level, it is manifested by low efficiency, as a result of the decline in profitability and productivity.

The liquidity crisis is manifested by the inability of a firm to pay its obligations on time. This form of crisis can have several causes. These include: a high proportion of bad debt; inadequate cash creation; and the bonding of resources in excessively high levels of less liquid forms, such as current assets, stocks and so on. Liquidity declines also in the case of pre-investment or in the implementation of risky investment projects. According to Majdúchová, Neumannova (2014, pp. 84-85), the liquidity crisis may also be due to excessive debt, often associated with high financial costs. Business entities get into this type of crisis as a result of a decline in their profitability with regards to production funds. This may be due to a drop in the basic production workforce, where there is a decline in the operating output, even before interest and taxation are figured into the equation, resulting in less profits. The crisis at this level also affects the profitability of production when a firm is not aware of the effects of the time lag between revenue and income (costs and expenses) on the overall liquidity of the company. The profitability crisis is caused by the insufficient revenue of the enterprise's business activities. It may arise as a continuation of a failure to sell the product already produced as a result of sales problems, a fall in prices, or a rise in costs. Perennial sales problems are reflected in a decrease in the sale of products, which is a cause of the reduction in the profit margin. Returns on sales is the amount of the generated profit on one unit of turnover, due to the existence of fixed costs. The crisis thus created may be temporary, provided that its causes are also of a temporary nature and the business entity has a good position in the market. Mostly, however, this crisis is a symptom of greater business difficulties. Both basic crisis situations may intersect and combine differently. From their combination, we can create a portfolio where we can identify the three basic types of crisis situations, the transient crisis, the chronic crisis and the threat status.

4. Institution and cancellation of the undertaking

If the business crisis deepens in spite of the remedial measures taken, the company enters the last phase of the life cycle, in which its activities gradually fall and disappear.

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According to Majdúchová, Neumannová (2014, p.112), we can speak of bankruptcy if a firm is unable to maintain a market place, does not have a secure product sale, cannot develop or implement an innovative product program with the technologies used. This is due to its inability to repay longer commitments, high indebtedness to many creditors and low liquidity. Bankruptcy is an indication of the economic situation where a natural or legal person (borrower) has permanent payment difficulties that are subject to prolongation or insolvency. Extension is the state when the value of foreign sources exceed the current value of the firm's assets. Insolvency is the failure of an entrepreneur to meet his financial obligations for lack of prompt payment.
The company (the decision-making unit) is in a crisis when it is bankrupt or its bankruptcy is threatened. The bankruptcy of the company is regulated in § 3 of Act no. 7/2005 Coll. on Bankruptcy and Restructuring, as amended, in two forms of bankruptcy. These are insolvency and prolongation.
Insolvency characterizes the situation if the borrower has more than one creditor and is unable to pay more than one monetary obligation 30 days after maturity.
Extension characterizes the situation if the debtor is required to keep accounts under the Accounting Act and has more than one verifier and the value of their due liabilities exceeds the value of their assets (they have their own equity).
Pursuant to Section 67a of the Commercial Code, the company is in danger of bankruptcy if the ratio of equity and liabilities is less than 8 per 100 (value of equity / liability value <0.08). The amount of equity to assess whether a company is in a state of bankruptcy can also be expressed as a percentage of equity capital to finance the company's assets. Under the transitional provisions of Act 513/1991 Coll. the ratio of 8 to 100 will only apply from 2018. By this time, the rules will be more benevolent (Table 1).

Table 1. Assessment of equity and liabilities

Year		Ratio
2016	Assessment of Financial Statements as of 31.12.2015	4/100 <0.04
2017	Assessment of Financial statements as of 31.12.2016	6/100 < 0.06
2018	Assessment of financial statements as of 31.12.2017	8/100 <0.06

Source: own processing under the Commercial Code

According to the results of the Finstat survey, the assessment of the accounts in calendar year 2015 for 186,673 companies shows that up to 26% of Slovak companies have the problem of bankruptcy and these companies are in crisis, (Table 2).

Table 2. Overview of the assessment of the financial statements

Own capital / liabilities for the year 2015 Ratio 4/100	Number of companies	%
Threatening crisis - less than 0.04	49,534.00	26.5%
More than 0.04	130,301.00	69.8%
Ratio unrecognized	6,838.00	3.7%

Source: own processing based on www.finstat.sk

Cancellation of the Company and its dissolution is regulated by the Commercial Code. The company expires on the day of deletion from the business register. The termination of the company is preceded by the winding-up of the company, with or without liquidation, if it is transferred to a legal representative.
Disposal is not required if:

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- the Company has no assets,
- the bankruptcy petition for lack of assets was rejected,
- bankruptcy has been terminated on the grounds that the assets of the bankrupt are not sufficient to cover the costs and rewards of the insolvency administrator,
- no assets remain in the company after the bankruptcy proceedings.

The company's cancellation occurs upon:

- voluntary cancellation decision is made by the competent authorities of the company,
- expiration of the period for which the company was established passes,
- achieving the purpose for which it was founded,
- the court's decision to cancel the company,
- withdrawal of bankruptcy after the completion of the bankruptcy order,
- withdrawal of bankruptcy on the grounds that the assets of the bankrupt are insufficient to cover the expenses
- and rewards of the insolvency administrator,
- rejection of a bankruptcy petition for lack of property.

The merger of a company requires the approval of a merger or merger agreement. The division of the company requires approval of the company's distribution project. The distribution project must contain a precise description and determination of the parts of the business assets and liabilities of the merging company that go to the successor companies and the rules for dividing the shares of each successor company between the shareholders.
The effects of the merger or division of the company occur after its entry in the Commercial Register. An application for the registration of a merger or division of a company into a business register shall be jointly filed by all of the company's acquiring companies and successors.
The solution of bankruptcy is also within the legal order of the SR as one of the other procedural institutions listed below:

- bankruptcy,
- enforced settlement under insolvency proceedings or settlement executed outside the bankruptcy proceedings.

Both of these institutions are related to the liquidation process.

5. Model situations and criteria for testing the undertaking

The Limited Liability Company, based on the last regular separate financial statements as of 31 December 2015, has the status of assets and simplified assets as shown in the following chart:

Table 3. Balance of the company in bankruptcy as at 31 December 2015 in EUR

Asset side	EUR	Passive side	EUR
Total property	60,000.00	Total Equity and Liabilities	60,000.00
Separate movables and sets of movables	23,000.00	Total Equity	16,000.00
Payments for separate movables and a set of movable items	-5,000.00	Legal reserve fund	2,000.00
Goods in stocks and in stores	15,000.00	Economic outcomes	-15,000.00
Subscribers	8,000.00	Equity	-4,000.00
Repository	1,000.00	Suppliers	12,000.00
Bank accounts	18,000.00	Employees	14,000.00
		Bank loans	38,000.00
		Liabilities	64,000.00

Source: own processing

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Table 4. The assessment of the company in bankruptcy according to current laws no. 513/1991 Zb.z, 7/2005 Z.z.

Insolvency	Extension	Ratio equity / liability (4/100)
Has more than one creditor and is unable to pay more than one monetary obligation 30 days after maturity	The value of its due liabilities exceeds the value of the asset (has its own equity) Liabilities 64,000.00 Asset 60,000.00	Value of equity / value of liabilities (ratio 0.0625<0.04). Equity (-4,000.00) Liabilities 64,000.00

Source: Own processing based on laws no.513/1991 Zb.z, c. 7/2005Z.z.

The debtor is, according to Act no. 7/2005 Z.z. of bankruptcy and settlement as amended, is in bankruptcy if it is insolvent or prolonged. The borrower must have more than one creditor and more than one cash liability. Meeting both conditions at the same time is a prerequisite for establishing the existence of insolvency in the form of insolvency under the law.
Prolonged according to the Act. The insolvency and settlement as amended are those who have more than one creditor and the value of their due liabilities exceeds the value of their assets, the model company is under EUR 4,000.

Table 5. Balance sheet of the company in bankruptcy as of December 31, 2015 in EUR

Asset side	EUR	Passive side	EUR
Total property	60,000.00	Total Equity and Liabilities	60,000.00
Separate movables and sets of movables	23,000.00	Total Equity	16,000.00
Payments for separate movables and a set of movable items	-5,000.00	Legal reserve fund	2,000.00
Goods in stocks and in stores	15,000.00	Economic outcomes	-5,000.00
Subscribers	8,000.00	Equity	13,000.00
Repository	1,000.00	Suppliers	12,000.00
Bank accounts	18,000.00	Employees	10,000.00
		Bank loans	25,000.00
		Liabilities	47,000.00

Source: own processing

Table 6. Evaluation of a company in bankruptcy according to the laws no.513/1991 Coll., No.7/2005 Z.z.o

Insolvency	Extension	**Ratio Equity**/liability (4/100)
Has more than one creditor and is able to pay more than one monetary obligation 30 days after maturity	The value of its due liabilities does not exceed the value of the asset. Liabilities 47,000.00 Asset 60,000.00	Value of equity/value of liabilities (ratio0.2755<0.04). Equity 13,000.00 Liabilities 47,000.00

Source: own processing based on Act No:513/1991Coll., No.7/2005Z.z

A debtor, according to Act no. 7/2005 Coll. about bankruptcy and settlement, is not bankrupt because it does not meet the conditions for declaring insolvency in the form of insolvency. If it is able to meet its obligations within the due date and the value of the liabilities does not exceed the value of the asset, i.e. it does not show signs of prolongation resulting from the financial statements (Table 5). According to Act No. 519/1991 Coll., the company is at risk of

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bankruptcy if the ratio of equity and liabilities is less than 4 to 100. The test company has a ratio of equity and liability of <0.04. For 2016, according to the Commercial Code, Section 67a, the company in such a position is in a crisis and is in danger of bankruptcy.

Conclusions

The legal construction of bankruptcy defines bankruptcy as an objective condition of the debtor, which is independent of acts of courts or third parties. The Borrower is required to account according to the Act on Accounting and to monitor the financial situation as well as the state of their assets and liabilities so as to identify in time the potential threat of bankruptcy and take steps to avert the imminent situation. In the present paper, in a tabular form, we present some model situations for clarifying concepts and calculations in monitoring financial indicators in an effort to avert possible imminent crisis in society.

The crisis is an essential part of the existence of each decision-making unit, and crisis managers should be ready for it. As part of the process, the crisis quantifies its life cycle as a closed cycle. Crisis management must be prepared for special tasks in the various stages of the corporate crisis life cycle. Crisis resolution is a part of crisis management that analyzes all crisis aspects.

References

Ali Taha, Viktória a Juraj Tej, 2017. Základy manažmentu rizík. Prešov. BookMan, s.r.o. ISBN 978-80-8165-239-4.

Dluhošová, Dana, 2008. *Finanční řízení a rozhodování podniku*. Praha: Ekopress. ISBN 978-80-86929-44-6.

Gozora, Vladimír. 2005. *Podnikový manažment*. Nitra: SPU. ISBN 80-8069-462-1.

Jenčová, Sylvia, 2009. *Podnikové financie.* Prešov: PU FM. ISBN 978-80-555-0311-0.

Jenčová, Sylvia, 2016. *Finančno-ekonomická analýza*. Prešov: BookMan, s. r. o. ISBN 978-80-8165-162-5.

Jusková, Mária a Sylvia Jenčová, 2016. Company in crisis (under the commercial code). In: *Príprava študijných podkladov na e-learningovej báze a ich implementácia vo výučbe disciplín z oblasti kvantitatívnych metód, manažérskej informatiky a financi*. Prešov: BookMan, s. r. o. s. 55-58. ISBN 978-80-8165-182-3

Jusková, Mária, 2015a. Testovanie účtovných jednotiek podľa veľkostných skupín v praxi podnikateľov. In: *Vedecká mozaika 2015. Zborník.* Prešov: BookMan, s. r. o. s.78-85. ISBN 978-80-8165-128-1.

Jusková, Mária, 2015b. *Základy podvojného účtovníctva*. Prešov: BookMan, s. r. o. s.116. ISBN 978-80-8165-104-5.

Kadárová, Jaroslava, 2008. Udalostný prístup k podnikovej kríze. In: *Manažment vteórii a praxi*. Vol. 3-4/2008, p. 59-65. ISSN 1336-713. ftp://193.87.31.84/0092703/8.kadarova.pdf

Kiseľaková, Dana a Ľudmila Bednárová, 2015. Financie a mena pre manažérov. Prešov: Bookman. ISBN 978-80-58165-116-8.

Laurová, Magdaléna, 2012. *Impacts of global crisis on development of Slovak economy*. pp.76-79. http://www.slpk.sk/eldo/2012/zborniky/025-12/9.pdf

Majdúchová, Helena a Anna Neumannová, 2015. *Podnikové hospodárstvo pre manažérov.* Bratislava: Sprint. 2. ISBN 978-80-89710-04-1.

Majdúchová, Helena a Anna Neumannová, 2014. *Podnik a podnikanie.* Bratislava: Sprint. ISBN 978-80-89710-04-1.

Režňáková, Mária, 2012. *Efektivní financování rozvoje podnikání*. Praha: GRADA Publishing. a. s. ISBN 978-80-0247-1835-4.

Sedlák, Mikuláš, 2007. *Podnikové hospodárstvo.* Bratislava: Iura Edition. ISBN 978-80-8078-093-7.

Scholleová, Hana, 2008. *Ekonomické a finanční řízení pro neekonomy.* ISBN 978-80-247-2424-9.

Tej, Juraj, František Bartko a Viktória Ali Taha, 2013. *Manažment rizík a zmien.* Prešov: BookMan. ISBN 978-80-89568-73-4.

Zákon č. 431/2002 Z.z. o účtovníctve v znení neskorších predpisov.

Zákon č. 513/1991 Zb.z. Obchodný zákonník v znení neskorších predpisov.

Zákon č. 7/2005 Z.z.o konkurze a vyrovnaní v znení neskorších predpisov.

Ozorovský, Vojtech a Ivana Vojteková, 2017. *Zdravotnícky manažment a financovanie.* Bratislava: Wolters Kluwer. ISBN 978-80-8168-522-4.

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