

CHALLENGES OF CORPORATE RISK MANAGEMENT AFTER GLOBAL FINANCIAL CRISIS

Karina Benetti

Abstract

This paper discusses potential challenges of Corporate Risk Management after global financial crisis. Global financial crisis has negative effect to the financial health of world economies, which have been affected by the financial health of operating firms. By the Pittman & Ivry (2009) was the value of the world's companies which has been wiped out by this crisis in the amount of \$14.5 trillion, or 33%. The most common reason for the bankruptcies of global firms were poor quality risk management within these companies.

One of the positive effects of this crisis was the creation of the ISO standard ISO 31000:2009 Risk Management – Principles and guidelines (with supporting standard IEC 31010:2009 – Risk Management – Risk assessment techniques). Corporate risk management has emerged as one of the most important corporate activities. Influence of ISO 31000 to the company was so fundamental that it published, in effect, there was also a significant change in the revised standard ISO 9001: 2015 – which in itself involves a new risk management system. Whether these measures will help in the future to help improve the financial health of companies is an important issue that deserves our attention in further research.

Key words: bankruptcies, financial health, risk management

JEL Code: G32, G33

Introduction

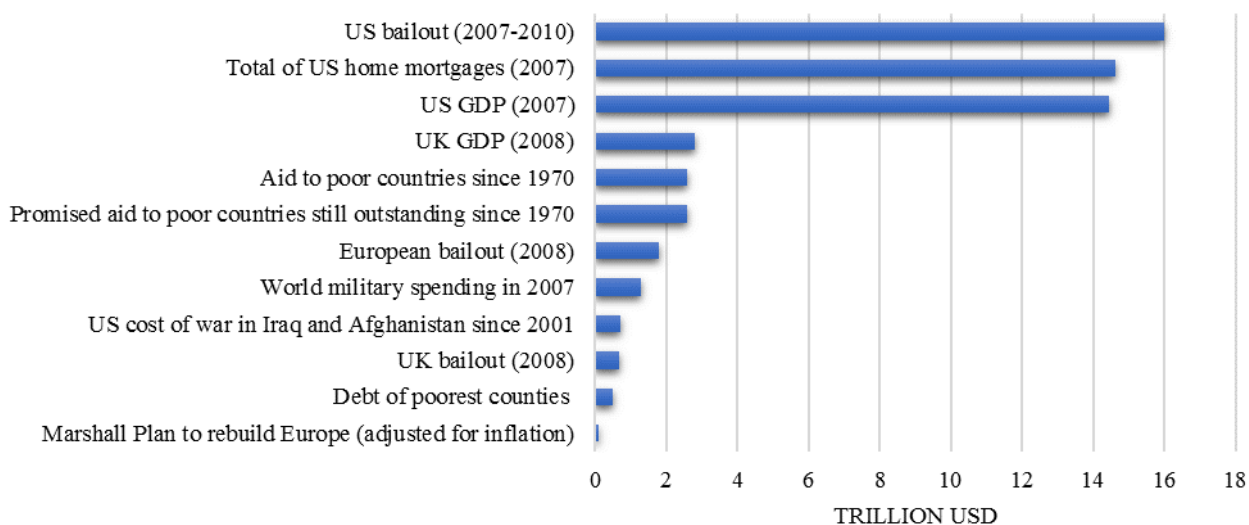
The effects of the recent financial crisis can be divided into positive and negative effects. The negative effects have already been published many scientific but also non-scientific works. One of the negative effects of the recent financial crisis, the number of bankruptcies, not only personal, but also corporate. In the Czech Republic published analysis results of personal bankruptcies in recent years Bokšová et al (2014), Hospodka et al (2015) and Maixner et al (2014). According to a study Pittman & Ivry (2009) the total value of bankrupt companies at the end of 2008, in amount of 14.5 trillion USD. The predominant reason for these

bankruptcies Barbulescu et al (2015) was the absence of risk management in interim management or its poor quality. Application of quality risk management into internal enterprise policy can mean early detection of financial problems of these companies. In this view are very important bankruptcy models (Čámská, 2012) and basic characteristics of enterprises which are in insolvency (Čámská, 2013). Absence of quality risk management was one of the main reasons to the creation of ISO 31000 for risk management in business practice, which can be considered a positive effect of the recent financial crisis. With regard to the reasons for the changes in risk management in corporate practice, this paper will focus precisely analysing the number of corporate insolvency proposals in the Czech Republic after the crisis period. The research question is whether the issue of ISO 31000 and ISO 31010 had an impact on reducing the number of corporate bankruptcies in the Czech Republic. To answer this question, it is necessary to analyse the development of proposals of corporate insolvencies in the Czech Republic for the period January 2008 to December 2015.

1 The Analysis of Corporate Insolvency Proposals in the Czech Republic

The main motive of creating ISO 31000 – Risk management in corporate practice, was the number of bankrupt companies worldwide. According to the published results, the value was in 2008 of 14.5 trillion USD (for comparison, see Fig. 1).

Fig. 1: Losses and Bailouts after New Global Financial Crisis



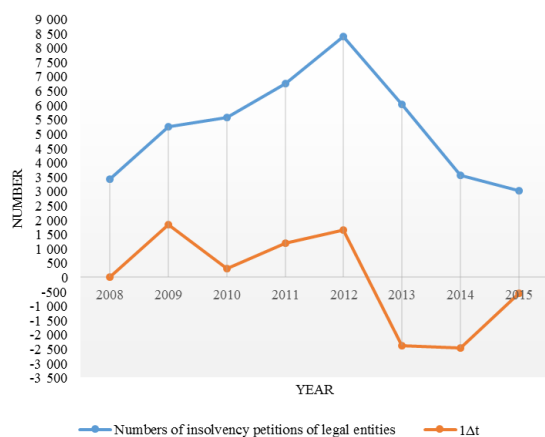
Source: author from (Shah, 2009), (statista.com, 2016)

As the picture above shows that the amount of bankrupt companies worldwide is 145 times greater than the budget of the Marshall Plan to rebuild Europe after World War II. The volume of bankrupt companies worldwide (data until the end of 2008) was even higher than the US GDP. Cannot be determined what was the total amount of bankrupt companies in the Czech Republic due to the impact of the recent financial crisis, but it is possible to analyse trends in the number of corporate insolvencies proposals for the period of years between 2008 and 2015. First will be performed a fundamental analysis of the number of corporate insolvencies proposals – data on an annual basis, then the data on a monthly basis. After that will be performed the analysis of time series with subsequent prediction for data based on a yearly basis and for data based on monthly basis.

1.1 The Basic Data Analysis

Now attention will be devoted to the analysis of corporate insolvency proposals and bankruptcies in the Czech Republic from 2008 to the present. Further analysis of trends in the number of corporate bankruptcies in the crisis years have dealt Kislingerová et al (2014). Data will be analysed since 2008, because in this year came into force Insolvency Act (no. 182/2006 Coll., On bankruptcy and its solution) is a significant milestone in the business but also in personal bankruptcies (Smrčka, 2012 and 2013). For the analysis was used secondary data which are taken from company Creditreform, s.r.o. (creditreform.cz, 2016). The time series covers the period from 1st January 2008 to 31 December 2015. The results of basic statistical analysis of yearly data see in Fig. 2 which include dynamism of values (Hindels et al, 2000) – first difference (${}_1\Delta_t$).

Fig. 2: Development of Corporate Insolvency Proposals (data in years)

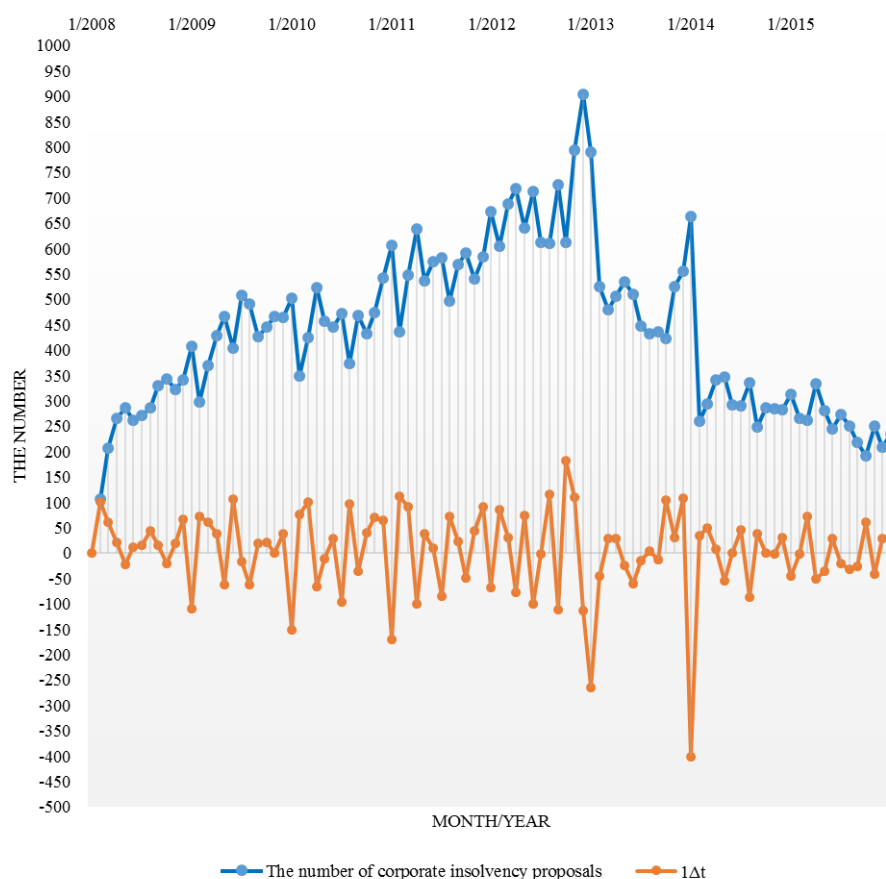


Source: author from (creditreform.cz, 2016)

The picture above shows declining trend in the number of insolvency petitions filed companies are for a period of 2012. These results cannot be assumed that the release of ISO 31000 and ISO 31010 had an impact on reducing the number of corporate bankruptcies in the Czech Republic since these standards were released in 2009. If we assume that the implementation of these ISOs to internal company policies (including also a change of strategy) would take about a year (it would also depend on company size), then the downward trend in the number of insolvency proposals had lag is calculated from publication of this norms, two years.

The number of insolvency proposals developed in individual months by time period 2008–2015 is illustrated in Fig. 3.

Fig. 3: Development of Corporate Insolvency Proposals (data in months)



Source: author from (creditreform.cz, 2016)

According to the results of the baseline data analysis it is clear that the largest decline in the values of the analysed data for the period was recorded in January 2014 when the value of insolvency petitions filed in this month was about 403 proposals lower than in December

2013. Conversely, the biggest increase in the number of insolvency petitions were recorded in August 2012 – increase in the number of insolvency petitions filed was 115 higher than the previous month.

For a more detailed analysis including data based on monthly basis again failed to demonstrate a direct effect of ISO 31000 and ISO 31010 on a declining trend in the number of bankruptcies in the Czech Republic. For further development of this indicator will be an analysis of time series prediction followed (see Part 1.2).

1.2 The Times Series Data Analysis

The selection of a suitable model of trend for time series analysis, it is first necessary to perform basic statistical analysis (see Part 1.1).

For time series analysis will be used software STATGRAPHICS Centurion XVI. Before it possible to perform time series analysis, will be created seasonal decomposition (Hindels et al, 2000) of the data and then will be selected appropriate model to compensate for time series and prediction. The results of seasonal decomposition see in Tab. 1.

Tab. 1: Seasonal Decomposition

Season	1	2	3	4	5	6	7	8	9	10	11	12
Index	13,356	28,245	45,304	61,234	76,569	92,68	106,766	122,4	137,805	154,03	171,326	190,28

Source: author

This table shows the seasonal indices for each season, scaled so that an average season equals 100. The indices range from a low of 13,3557 in season 1 to a high of 190,278 in season 12. This indicates that there is a seasonal swing from 13,3557% of average to 190,278% of average throughout the course of one complete cycle.

For the prediction of the examined indicators will be selected model for balancing time series using automatic selection according to the selected data. The selection will be made for monthly data (for which it was performed seasonal decomposition), and then also for annual data (of course, without seasonal decomposition). It should be recalled that the main results of forecast of the number of corporate insolvency proposals between 2013 and 2017 published Kislingerová (2013). Now we can compare its results with reality. Fortunately, the forecast number of corporate insolvencies proposals did not materialize.

There will be chosen forecast for the next six seasons (ie for the first half of 2016). The results of suitable model for settlement time series will be evaluated by individual

indices: RMSE (root Mean Squared Error); RUNS (test for excessive runs up and down); RUNM (test for excessive runs above and below median); AUTO (Box-Pierce test for excessive autocorrelation); MEAN (test for difference in mean 1st half to 2nd half); VAR (test for difference in variance 1st half to 2nd half).

The results of time series analysis and subsequent forecasts for monthly data are as follows. The selected model was the model ARIMA (2,1,1). Time sequence plot see in Fig. 4, forecast to next six period see in Tab. 2.

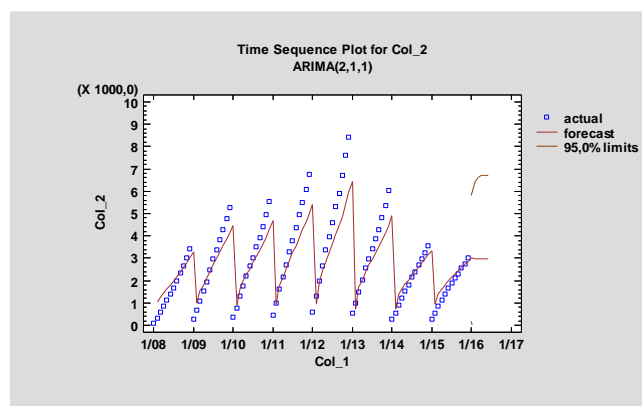
The results of time series analysis and subsequent forecasts for annual data are as follows. The selected model was the Quadratic trend; time sequence plot sees in Fig. 5, forecast to next one period see in Tab. 3.

Tab. 2: Forecast by model ARIMA (2,1,1)

		Lower 95,0%	Upper 95,0%
Period	Forecast	Limit	Limit
1/16	3009,25	206,195	5812,3
2/16	2993,28	-455,528	6442,09
3/16	2981,29	-670,184	6632,77
4/16	2973,97	-740,442	6688,38
5/16	2969,68	-763,496	6702,86
6/16	2967,2	-771,095	6705,49

Source: author

Fig. 4: Time Sequence Plot (ARIMA)



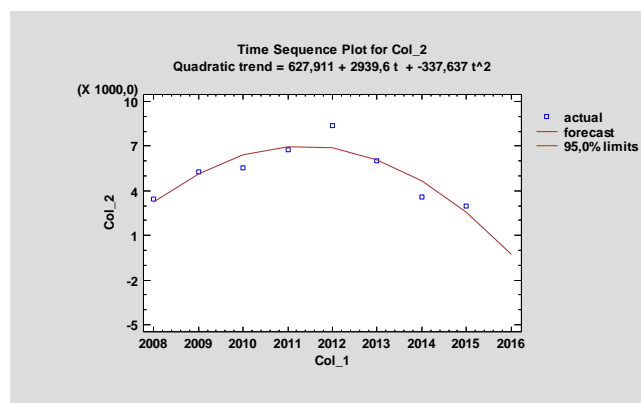
Source: author

Tab. 3: Forecast by model Quadratic Trend T.)

		Lower 95,0%	Upper 95,0%
Period	Forecast	Limit	Limit
2016	-264,268	-4469,3	3940,76

Source: author

Fig. 5: Time Sequence Plot (Quadratic)



Source: author

From the above analysis it shows that in the coming years should the value of insolvency proposals of companies fall. It must be emphasized that the model cannot cover legislative changes and also no other factors that may affect the number of corporate insolvencies. So rather than confirm or refute the hypothesis that the issue of ISO 31000 and ISO 31010 had an impact on reducing the number of corporate bankruptcies in the Czech Republic since 2012.

Conclusion

The research question whether the implementation of ISO 31000 (with implementation of ISO 31010) have influence to decreasing the number of corporate insolvencies proposals since 2012, failed to refute nor confirm. Assuming that the implementation of ISO 31000 in internal management of companies it lasted an average of one year. The question, that ISO 31000 could have an impact on decreasing the number of corporate insolvencies proposals should have two years' delay, but it depends on the interpretation.

According to the results of the above analyses of time series, it is clear that depending on the model should be the number of insolvency petitions companies in the next period of decline. Despite this downward trend we can recommend the implementation of ISO 31000 and ISO 31010 enterprises regardless of their size or area of their business. In the context with development in risk management for corporate practice was this year for risk management a very significant change and important challenge – Risk management has become as a part of ISO 9001. For further research in this area would be useful to analyse whether and implementation of risk management to ISO 9001 will have the impact on businesses to increase their financial health and thereby reduce the total number of insolvency petitions companies. Further development of risk management, can be seen, that it should be an important part of corporate social responsibility.

References

- Barbulescu, M., Hagi, A., & Vasilica, R. (2015). THE INSOLVENT COMPANY: BANKRUPTCY DIFFICULTIES. *EURO AND THE EUROPEAN BANKING SYSTEM: EVOLUTIONS AND CHALLENGES*, 591-601. doi:000362516600059
- Bokšová, J., Randaková, M., Hospodka, J., & Maixner, J. (2014). Personal bankruptcies of individuals in the Czech Republic in relation to different groups of creditors. *MANAGING AND MODELLING OF FINANCIAL RISKS: 7TH INTERNATIONAL SCIENTIFIC CONFERENCE, PTS I-III*, 80-86. doi:000350605800010

Čámská, D. (2012). NATIONAL VIEW OF BANKRUPTCY MODELS. *6TH INTERNATIONAL DAYS OF STATISTICS AND ECONOMICS*, 268-278. doi:000320722500026

Čámská, D. (2013). BASIC CHARACTERISTICS OF ENTERPRISES IN INSOLVENCY. *MEZINARODNI VEDECKA KONFERENCE: HRADECKE EKONOMICKE DNY 2013 - EKONOMICKY ROZVOJ A MANAGEMENT REGIONU, DIL I*, 83-88. doi:000349058000013

Creditreform.cz (2016). Vývoj insolvenčí v České republice.

Hindls, R., Hronová, S., & Novák, I. (2000). *Metody statistické analýzy pro ekonomy*. Praha: Management Press.

Hospodka, J., Buben, O., Randáková, M., & Bokšová, J. (n.d.). Personal Bankruptcy in the Capital City Region and South Bohemian Region in the Czech Republic. *16TH ANNUAL CONFERENCE ON FINANCE AND ACCOUNTING, ACFA PRAGUE 2015*, 25, 41-52. doi:000361625200006

ISO 31000:2009 Risk Management – Principles and guidelines (with supporting standard IEC 31010:2009 – Risk Management – Risk assessment techniques)

Kislingerová, E. (2013). Estimated development of the number of filings for insolvency and declared bankruptcies in the Czech Republic between 2013 and 2017. *FINANCIAL MANAGEMENT OF FIRMS AND FINANCIAL INSTITUTIONS: 9TH INTERNATIONAL SCIENTIFIC CONFERENCE PROCEEDINGS, PTS I-III*, 356-366. doi:000339362200040

Kislingerová, E., & Schoenfeld, J. (2014). The development of insolvency in the entrepreneurial sphere in the Czech Republic during the crisis years. *MANAGING AND MODELLING OF FINANCIAL RISKS: 7TH INTERNATIONAL SCIENTIFIC CONFERENCE, PTS I-III*, 367-378. doi:000350605800045

Maixner, J., Hospodka, J., Randáková, M., & Bokšová, J. (2014). PERSONAL BANKRUPTCY IN THE SOUTH BOHEMIAN REGION IN THE CZECH REPUBLIC. *INTERNATIONAL CONFERENCE ON ACCOUNTING, AUDITING, AND TAXATION (ICAAT 2014)*, 105-111. doi:000355311300012

Pittman, M. & Ivry, B. (2009). U.S. Taxpayers Risk \$9.7 Trillion on Bailout Programs.

Shah, A. (2013). Global Financial Crisis.

Smrčka, L. (2012). CHANCES OF THE BUSINESS RECOVERY PRINCIPLE IN MODERN INSOLVENCY LAW. *PROCEEDINGS OF THE 7TH INTERNATIONAL CONFERENCE ACCOUNTING AND MANAGEMENT INFORMATION SYSTEMS (AMIS 2012)*, 289-300. doi:000320770700022

Smrčka, L. (2013). Remarks on the Discussion on Insolvency Law. *2013 INTERNATIONAL CONFERENCE ON MANAGEMENT INNOVATION AND BUSINESS INNOVATION (ICMIBI 2013), PT I, 15*, 364-371. doi:000339159900066

Statista.com (2016). Gross domestic product (GDP), US, UK.

Contact

Karina Benetti

ŠKODA AUTO College o.p.s.

Na Karmeli 1457,

293 01 Mladá Boleslav

Czech Republic

benetti@is.savs.cz | karin.benetti@gmail.com