PRZEDSIĘBIORCZOŚĆ I ZARZĄDZANIE
Wydawnictwo SAN | ISSN 1733-2486

Tom **XVII** | Zeszyt **8** | Część **I** | ss. **113–122**

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Economic and Non-economic Determinants of Insolvency Risk management in Self-government Sector[1]

Abstract: The aim of this article is to draw attention to the nature of the insolvency risk of public entities, with particular emphasis on the local government sector, and to analyze and evaluate the instruments supporting the insolvency risk management. As a result of the research carried out, the research hypothesis, which has been positively verified, assumes that the specifics of the public entities are an important stimulant in the insolvency risk management, which can be efficiently managed through effective management and good governance.
Keywords: risk, insolvency, management, self-government

Introduction

The interest in the insolvency of the sector's entities increased after the experience of the 2008 financial crisis. J.M. Trussel and P.A. Patric [2012, p. 620] point out that the problem of the financial turmoil and the associated risk of insolvency in the local government sector have emerged as a priority. This is because the local government units are responsible for the provision of basic public services, necessary to guarantee order and security of the local communities. Bearing in mind the strategic importance of the problem, many

1 Empirical studies were carried out, funded by a grant of the National Center for Science awarded on the basis of the decision number DEC-2011/03/B/HS4/05503

authors, using the canvas of the already existing achievements, attempted to identify the causes of insolvency of the public sector units. R. Lavigne [2006, pp. 1–43] draws attention to the three basic groups of generic factors conditioning the phenomenon, namely: political, socio-economic and institutional factors. In their analysis, J.M. Trussel and P.A. Patric [2013, pp. 589–616] focus on the studies of financial variables, which include: income structure, the volume of capital expenditure, and the level of debt. In turn, R. Balakrishnan and co-authors [2011, pp. 40–68] emphasize the role of macroeconomic variables such as the dynamics of the global GDP, the specifics of the country and the region and the level of interest rates.

Significant achievements in the field of insolvency determinants were also published by Pindado and Rodriquez [2005], Ntoiti [2013], Cerami [2008], or Park and Mercado [2013]. One of the most important tendencies in the publications in the field of insolvency of public entities is the one that concerns the diagnostics, and in particular the models for predicting the risk of insolvency. In this respect, the publishing activity has been presented by: Alter et al [1984], Brown [1993], Carmeli and Cohen [2001], Kloha et al [2005], Dollery et al [2006], Zafra-Gómez et al [2006, 2009a].

Taking into account the past leanings of deliberations, the study attempts to identify and analyze the economic and non-economic determinants of exposure to the risk of insolvency in the Polish local government sector, with particular emphasis being put on the instruments used in the process of minimization of such a risk. Consequently, the goal of the research was established as the determination of the insolvency risk specifics in the public entities. The research purpose was carried out for the units representing the local government level in Poland, with particular emphasis on the West Pomeranian Voivodship municipalities which reported an amplified exposure to insolvency risk. For this purpose, the research first reflected insolvency in the cognitive category of the management sciences, and consequently the possibility of overcoming insolvency on an international scale. The studies utilized: a critical analysis of the subject matter, the method of induction, deduction and reduction, and quantitative methods, in particular a survey conducted using the computer-assisted web interviewing (CAWI) technique and the logit model. The study concerned the post-crisis perspective.

The risk of insolvency as a cognitive category of the management sciences

For more than one hundred years the management sciences have been transforming, supplementing and distinguishing the research methodologies taken from positivism and enclosed in classical management theory, developed by, amongst others, F. W Taylor, H. Fayol, M. Weber or Ch. Barnard. Development of subsequent perspectives of management focusing on modernism, symbolic interpretation or postmodernism led, on the one hand, to increasing the theorizing aspect, on the other hand, to the perception of the research results in management sciences through the pragmatic prism in any business entity activity [Sulkowski, Raczkowski, 2014, pp. 13–34].

The risk of insolvency, as one of the categories of systemic risk, cannot be fully identified if the boundaries of such an identification are closed narrowly in the context of the nominal classification of debt, and skip other financial risks and the transaction parties' activities within the framework of a functioning macro-environment. Therefore, four cognitive dimensions of insolvency risk in management science should be proposed (Table 1).

Table 1. Cognitive dimensions of insolvency risk in management science

Dimension	Description
Ontological	Developed through the prism of R. Ingarden's theory of ontology, focusing on the assets, exposures, remedies and sharing of data and information - especially in the context of management accounting using the ratio analysis
Epistemological	Recognition and understanding of the phenomena and processes of insolvency of households, businesses, local government units and the state in the organizational terms.
Methodological	Methodological eclecticism approach concentrated on systemic school of management and the praxeological approach
Axiological	Basic collective and individual values are the basis for income and expenditure decision-making process of the organization

Source: own elaboration.

The essence of the proposed classification is a premeditated falsification of the rational expectations theory and the assumption that risk of insolvency was, is and will be created around a function of time and specified interval cycles, not always compatible with the common business cycle.

The possibility of overcoming the risk of insolvency in the national economy

The Euler Hermes report on the global insolvency shows that in 2015 there were 300 thousand insolvencies of companies, and 2016 may indicate a decline in the number of insolvencies in North America (2%) and Western Europe (5%), with an increase in the number of insolvencies in Latin America (+14%) and the Asia and Pacific region (+10%).

Simultaneously, the determinants which are to the greatest extent able to determine an unfavorable insolvency prognosis for emerging markets are, among others: the slowdown of economic growth in China, the depreciation of the currency, the possibility (and essentially a certainty) of increase in interest rates by the FED over the medium term, and the decline in commodity prices. Conducting business transactions in international trade, where demand is restricted and therefore the growth in exports is lower, becomes a problem in itself. Concurrently, deflation occurs which imposes somewhat lower commodity prices (although nominally their prices do not decrease that often) and higher private debt [Business Insolvency, 2015, pp. 4-19]. The above should also take account of low labor productivity in relation to the costs of salaries and other public law debts incurred from the State [Thimann 2015, pp. 141-164]. At the same time, different countries treat the insolvency of business entities as a method of streamlining business activities and debt collection, such as: Ireland, Japan, or Canada, or the countries introducing legal and judicial obstacles in this process, such as Burundi, Gabon and Vietnam (Table 2). As has been proven by the research of S. H. Lee [2007, pp. 257-272; 2012, pp. 49-79], a major determinant on insolvency is the bankruptcy and reorganization law - which may encourage or discourage risk-taking.

Table 2. Time of resolving the insolvency in the individual countries (in years)

Interval (in years)	Countries
0-0,9	Ireland, Japan, Canada, Hong Kong (China), Singapore, Slovenia, Belgium, Finland, Norway
= 1 year	Australia, Denmark, United Kingdom, Iceland, Malaysia, the Solomon Islands,
1.1-1.9	Austria, Jamaica, the Netherlands, North America, Germany, Algeria, New Zealand, Tunisia, Montenegro, Azerbaijan, Cyprus, Spain, Kazakhstan, Kirgizia, South Korea., Latvia, Maldives, Mozambique, the United States, Botswana, China, Columbia, Sri Lanka, Mauritius, Tajikistan, Bolivia, Barbados, Fiji, Italy, Mexico, Macedonia, Uruguay, Armenia, France, Ghana, Indonesia
= 2 years	Afghanistan, Albania, Belize, Georgia, Gambia, Hungary, Israel, Kosovo, St. Lucia, Luxembourg, Marshall Islands, Nigeria, Nepal, Palau, Portugal, Russia, Sudan, Serbia, Sweden, Swaziland, Seychelles, Uzbekistan, Samoa, South Africa,
2.02-2.9	Czech Republic, Nicaragua, Uganda, Djibouti, Lithuania, Sierra Leone, San Marino, Zambia, Bahrain, Egypt, Namibia, Panama, Puerto Rico, Rwanada, Trinidad and Tobago, Lesotho, Malawi, South Asia, Vanatu, Pakistan, Philippa, Thailand, Tongo, Argentina, Cameroon, Moldova, Qatar, Ukraine
= 3	Antigua and Barbuda, Bahamas, Belarus, Switzerland, Costa Rica, Estonia, Ethiopia, Guatemala, Guyana, Jordan, Lebanon, Liberia, Madagascar, Malta, Papua New Guinea, **Poland**, Senegal, Togo, Tanzania, Yemen
3.01-3.9	Croatia, Peru, United Arab Emirates, Chile, Bulgaria, Bosnia and Herzegovina, the Congo, Romania, Zimbabwe, Dominican Republic, Greece, Morocco, El Salvador, Mali, Guinea, Honduras, Paraguay
= 4	Benin, Burkina Faso, Bangladesh, Brazil, Dominica, Mongolia, Oman, Slovakia, Chad, Venezuela
4.1-4.8	Syria, Kuwait, India, Iran, Kenya, Turkey, Central Africa
= 5	Burundi, Gabon, Myanmar, Niger, Suriname, Vietnam

Source: Own elaboration based on the World Bank data on insolvency.

The national economy of each country is constructed in terms of system-related sectors, and each sector has a certain number of companies producing goods and/or services. These companies strive to build economic surplus, but it can also transpire (and does so) in the shadow economy. This process involves unfair competition [Raczkowski 2013, pp. 347-363]. Such a situation burdens the entire economic system of the country, yet generally in an unbalanced manner. As if the area of the local government units (LGU) experiences, for various reasons, a reduction of the volume of trade turnovers and the physical migration of the tax base, and the local government is not significant in size, it will naturally reduce the income of the LGU, particularly from property taxes and interest redistributed from the budget of the country in relation to the municipality – i.e. income tax on individuals (37.53%) and income tax on legal persons (6.71%) (Journal of Laws 2016, item 198). Although in many countries of the world (with the United States at the forefront) in the case of excessive debt of the LGU, the self-government community is protected first and foremost and, therefore, the decisions and legislation are aimed at satisfying the collective interests of the residents, in Poland – the Treasury ultimately protects the financial claims of the creditors and at the same time is under pressure and the necessity to safeguard the continued functioning of the insolvent LGU.

The methodology and the results of quantitative research

Verification of the research hypothesis and the realization of the main study objective was completed on the foundation of the quantitative research conducted. A survey was performed in 2015, and the econometric modeling covered the period of 2007-2014. The studied phenomenon has been described by the logit version mixed model, whose interpretation was supplemented by extrapolation on the basis of a survey. Complete questionnaires were submitted by 50 of the 114 municipalities. The study used a Likert grading scale, and the questionnaire consisted of 10 closed questions. 74% of the municipalities surveyed were exposed to the risk of insolvency in the past and had experience in financial restructuring.

In the opinion of the surveyed municipalities, two factors conditioned by the specific nature of the mission and activities of public entities particularly determine the increased exposure to the risk of insolvency. These are the lack of capital adequacy between the capital intensity of the tasks carried out by the local municipal government and profit independence of these units. This phenomenon is further exacerbated by the growing number of tasks in the competence of local government, added without providing additional sources of funding for these tasks. The second factor is the nature of public tasks, the majority of which does not ensure self-financing and is not characterized by financial, but rather by economic efficiency. These two conditions result in the fact that the liquidity risk, which determines the exposure to risk of insolvency, is a key risk threatening the local government units (56% of responses). The second most significant risk is the risk of excessive debt, which is a derivative of irregularities in the management of debt (36% of responses) and, more broadly, in the management of local finances. The key, from the perspective of the phenomenon's diagnostics, was to prepare an analysis and evaluation of the economic and non-economic determinants of insolvency. The economic and financial determinants of increased insolvency risk of municipalities included, amongst others: problematic in implementation and unrealistic assumptions adopted in the construction of a long-term financial forecast; too great a cost of debt financing and the disparity of maturity dates of liabilities against the crediting of receivables; unfavorable expenditure structure perceived by the share of expenditure legally determined in total expenditure; the structure of the general subsidy "hostile" to the municipalities which effectively manage finances. The risk associated with the likelihood of unplanned expenses that destabilize the budget in the absence of sufficient reserves was also appraised to be significant. In the group of other economic factors, the ones worth noting are the important role of cyclical conditions which affect the size of the budget revenues from taxes, the implementation of municipal investments co-financed by the European Union, to which it is necessary to provide own contribution and a significant degree of depreciation of the communal wealth, which creates spending in the long term perspective. In the group of non-economic factors, the ones identified as important are: the authorities' term-based tenure often resulting in a lack of continuity of ongoing public policies and strategies, localization factor, the size of the municipality and the age structure of the population.

The second current of the research involved an assessment of the insolvency risk management instruments of the municipalities. In this regard, the investigated units attributed important role to: statutory supervision over the financial management of municipalities, as exercised by Regional Accounting Chamber, article 242 of the Act of 27 August 2009 on Public Finances, determining the requirement to balance the current budget of the local government unit, the local debt management strategy, prudence and recovery procedures and effective budgetary planning. Financial controlling, citizen control, applicable standards and indicators of limiting the debt, or budgeting in the context of the unit costs management were assessed as instruments which are ineffective or inefficient from the perspective of management of insolvency risk in municipalities. A separate group subjected to assessment were the instruments which have been used at the stage of financial restructuring of the financially disturbed units or for which a real exposure to risk of insolvency is very prominent.

Evaluation of actions and instruments supporting the process of financial restructuring in communities leads to the conclusion that these units usually make cost savings through changes in the organization of the work of the office and through the sale of receivables. Recovery loans, reduction of current expenditures, renegotiation of the terms of contracts with financial institutions, or increasing tax revenues and proceeds from assets are also amongst regularly practiced activities. According to the municipalities, the underperforming tools are, amongst others: debt consolidation, use of advisory and consultancy services and outsourcing.

As a supplement to the survey, the complementary diagnostics method for the risk of insolvency was the econometric model, mixed, advanced, multi-level, logit version. The total number of observations in the study was 760. Estimated measurable financial variables, the choice of which was made against the background of the review of the subject matter literature [inter alia García-Sánchez et al 2012, pp. 739-747]. The variables used in the modeling process are summarized in Table 3.

Table 3. Designation of variables, mixed logit version model

Variables
ETI – the exposure to insolvency (dichotomous variable: 1 or 0)
SSPC – specific subsidies per capita (PLN/pers.).
OIPC – own income per capita (PLN/pers.).
SPC – subsidies per capita (PLN/pers.).
EUFPC – EU funds per capita (PLN/pers.).
AEPC – administrative expenditure per capita (PLN/pers.).
CEPC – current expenditure per capita (PLN/pers.).
PEPC – property expenditure per capita (PLN/pers.).
CEDSPC – current expenditure on debt service per capita (PLN/pers.).
EEPC – education expenditure per capita (PLN/pers.).
WOPC – total expenditure per capita (PLN/pers.).

Source: own elaboration.

The results of estimation of the model parameters are presented in Table 4.

Table 4. Results of estimation, mixed logit version model

Variable	Value	Standard error	zValue	pValue
Absolute term	-2.520474	0.8023	-3.1415	0.0017
OIPC	-0.001257	0.0001	-12.8673	0.0000
SPC	-0.000384	0.0001	-2.5858	0.0097
SSPC	-0.000348	0.0002	-1.8347	0.0665

CEPC	0.000460	0.0000	12.0562	0.0000
PEPC	0.000298	0.0001	5.4595	0.0000
EEPC	-0.000128	0.0008	-0.1710	0.8642

Source: own elaboration.

The results of econometric modeling confirmed the assumption adopted in the research hypothesis and diagnosis of the status made on the basis of the survey, which also applied the impact of the political and legal factor (inter alia the legally determined income and expenditure of local government units).

Conclusion

The specificity of the mission and responsibilities of the public entities determine their financial condition and have an impact on the exposure to insolvency risk. The organization and financing of local government unit tasks, including the mechanism of redistribution are important determinants of the risk of insolvency of local government units, especially in the conditions of recession. An important role in the risk mitigation is played by instruments allowing to control and monitor economic and non-economic factors which give rise to the risk of insolvency. The effectiveness of insolvency risk management instruments remains variable due to, amongst others, the legal construction of the instrument or its character (determined or undetermined legally).

In this context it is worth to pay attention to the crucial role of soft skills and the awareness and attitudes of the decision makers responsible for the management of local finances, which impacts the effectiveness of the insolvency risk control in local government units.

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