Helena KOŚCIELNIAK, Agnieszka PUTO
Częstochowa University of Technology
Faculty of Management

CRISIS MANAGEMENT: EFFECT OF FINANCIAL LIQUIDITY ON RETURN ON EQUITY IN ENTERPRISES OF THE SECTOR OF BUILDING MATERIALS

Summary. The aim of this paper is to evaluate the relationship between financial liquidity and return on equity. The empirical studies attempted to determine which of the factors contributed to the greatest extent to changes in return on equity and how important was the role played in this respect by changes in financial liquidity in joint stock companies in the sector of building materials under conditions of crisis.

Keywords: crisis management, financial liquidity, return on equity

ZARZĄDZANIE W KRYZYSIE: WPŁYW PŁYNNOŚCI FINANSOWEJ NA ZWROT KAPITAŁU W PRZEDSIĘBIORSTWACH SEKTORA MATERIAŁÓW BUDOWLANYCH

Streszczenie. Celem pracy jest oszacowanie związku pomiędzy płynnością finansową a zwrotem z kapitału. Badania empiryczne były próbą określenia, który z czynników w największym stopniu przyczynił się do zmian w zwrocie z kapitału i jak istotna była rola odgrywana w tym względzie przez zmiany w płynności finansowej w spółkach giełdowych w sektorze materiałów budowlanych w warunkach kryzysu.

Słowa kluczowe: zarządzanie w kryzysie, płynność finansowa, zwrot z kapitału

1. Introduction

Crisis has a strategic dimension and is a result of disturbances that are present in an enterprise, or is the result of one or several factors that determine the existence and development of such disturbances. In either case, the enterprise is affected from both external and internal variables[1]. Identification of the sources of crisis in the enterprise is considerably complex and results both from the definition of the enterprise and its goals. J. Duraj emphasizes that the concept of enterprise should be considered in the three dimensions: action-oriented, physical and subject-oriented. In the action-oriented dimension it is postulated that the enterprise is run by an entrepreneur; the physical dimension concerns a particular amount and structure of assets and liabilities in the enterprise. The subject-oriented dimension relates a person (the entrepreneur) and its activity[2]. Identification of the enterprise's goals is of essential importance for management in the enterprise. According to J. Duraj, setting the enterprise's goals will in turn set conditions for defining key functions in the enterprise and the activities necessary for the achievement of its goals, which will also allow for the determination of their hierarchy, their time of execution, and their size and magnitude. This will also lead to the proper identification of issues and decision making throughout all the important internal divisions in the enterprise for the effective attainment of the goals throughout the entire enterprise[3].

Activities of enterprises change with the influence of numerous internal and external factors. It is very important to examine and analyse the numerous signals for enterprise management in crisis conditions[4].

2. Crisis management

Crisis (from the Greek *kr sis*) is understood to mean a decisive time, a turning point or a breakthrough period[5]. The concept of crisis has been present in human life and the life of society. The crisis a place for action and making decisions under time pressure. In general terms, crisis has been regarded as a turning point in the course of events which is followed by a change. Crisis means a difficult situation in the functioning of an organization when its very existence is threatened. As emphasized by J. Oniszczuk, crisis is a state in which there is no

[1] Zelek A.: Zarządzanie kryzysem w przedsiębiorstwie. Perspektywa strategiczna. Orgmasz, Warszawa 2003, p. 129.
[2] Duraj J.: Podstawy ekonomiki przedsiębiorstwa. PWE, Warszawa 2004, p. 15.
[3] Ibidem, p. 52.
[4] Heizer J., Render B.: Operations management. Printice Hall, p.131.
[5] Słownik wyrazów obcych. PWN, Warszawa 2002, p. 617.

possibility of returning to the previous state and creates a situation where a choice between conscious striving for a rational change or exposure to a disaster becomes necessary[6].

In the literature, crisis in enterprises has been presented in a variety of ways. According to B. Wawrzyniak, crisis in an enterprise is understood to mean a state where different difficulties suddenly pile up; in this case, the performance of basic functions in the enterprise might be exposed to risk. Moreover, the capabilities of the enterprise to solve this problem might also be limited[7].

Crisis has a strategic dimension and is a result of disturbances that are present in an enterprise, or is the result of one or several factors that determine the existence and development of such disturbances. In either case, the enterprise is affected from both external and internal variables. Identification of the sources of crisis in the enterprise is considerably complex and results both from the definition of the enterprise and its goals. J. Duraj emphasizes that the concept of enterprise should be considered in the three dimensions: action-oriented, physical and subject-oriented. In the action-oriented dimension it is postulated that the enterprise is run by an entrepreneur; the physical dimension concerns a particular amount and structure of assets and liabilities in the enterprise. The subject-oriented dimension relates a person (the entrepreneur) and its activity[8]. Identification of the enterprise's goals is of essential importance for management in the enterprise. According to J. Duraj, setting the enterprise's goals will in turn set conditions for defining key functions in the enterprise and the activities necessary for the achievement of its goals, which will also allow for the determination of their hierarchy, their time of execution, and their size and magnitude. This will also lead to the proper identification of issues and decision making throughout all the important internal divisions in the enterprise for the effective attainment of the goals throughout the entire enterprise[9].

Achievement of the goals in the enterprise largely depends on a variety of variables. Hence, the functioning of a crisis in the enterprise has a complex character. In the literature, the causes of the crisis are divided into the two groups: external and internal.

The group of external causes of a crisis includes in particular: a country's and region's growth rate, fiscal, monetary and exchange policies towards enterprises, size and structure of demand for products offered by the enterprise, condition of cooperating enterprises, status of the sector the enterprise operates in, influence from suppliers (substitutes' tenderers), interest rate variations, availability of financial resources, rate of technological and technical change and innovativeness in the sector.

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[6] Oniszczuk J.: Źródła, zjawiska i sens kryzysów. Odniesienia do kryzysu 2007+., [in:] Oniszczuk J. (ed.): Normalność i kryzys. Jedność i różnorodność. Szkoła Główna Handlowa, Warszawa 2010, p. 511; Daft Richard L.: Management. South-Western, 2011, p. 541.

[7] Wawrzyniak B.: Zarządzanie w kryzysie. Koncepcje. Badania. Propozycje. PWE, Warszawa 1985, p. 35.

[8] Duraj J.: Podstawy ekonomiki przedsiębiorstwa. PWE, Warszawa 2004, p. 15.

[9] Ibidem, p. 52.

The most frequent internal causes of a crisis in enterprises are the lack of clearly defined goals, lack of employees' identification with the enterprise, insufficient competencies, improperly made decisions, wrong internal organization, high level of costs, insufficient marketing activities, lack of financial strategy and controlling, lack of financial liquidity, high level of unit costs, lack of control over the expenses, inventory and liabilities, lack of new products, lack of openness to change, badly structured system of logistics in the enterprise, low productivity, organizational inertia and disorder.

A synthetic approach to the causes of crises was presented by E. Urbanowska-Sojkin, who indicated the most common manifestations of crisis[10]:

- insolvency and excessive debt and, consequently, difficulties in financing of current and developmental activities,
- decreased turnover and unfavourable changes in the size, rate and structure of sales as a result of e.g. product ageing, lack of new competitive products offered by the enterprise and inadequate product differentiation,
- imbalanced proportions between the market growth and sales growth, which is expressed by a reduction in relative market share,
- deteriorated corporate identity,
- decreased value of the enterprise caused by a lack of strategic resources and priorities for development,
- alienation of employees and insufficient competencies among the managers,

A proper approach to management and a good strategy help in the perception of early symptoms of a crisis. A quantification of the causes of the occurrence of crises has been carried out both on macroeconomic and microeconomic scales. Present macroeconomic causes of crises in Polish enterprises include:

- bankruptcy or substantial difficulties in a larger enterprise which create a domino effect whereby problems arise in smaller companies that the enterprise cooperates with,
- a bad economic situation in the country.

The following problems are included in the group of causes of crises in Polish enterprises considered within a microeconomic approach:

- poor management, wrong decisions made by managers,
- lack of knowledge, experience and managerial skills,
- neglected prediction of events and monitoring of business in the context of the events that occur in crises,

[10] Urbanowska-Sojkin E.: Zarządzanie przedsiębiorstwem. Od kryzysu do sukcesu. Akademia Ekonomiczna, Poznań 2003, p. 18.

- unfamiliarity with fixed costs, particularly among medium and small enterprises and sales of goods at the prices lower than the costs of production,
- lack of cheap credits and loans,
- overinvestment[11].

With regards to the duration of crises and the level of their intensity, three types of crises can be emphasized:

- crisis with short duration time, which is characterized by rapid changes, exceeding the threshold of destructive effects at the level that prevents the achievement of important goals; such crises end up with a disaster and have a negative course; early evaluation of the crisis and a proper response increases the chances of preventing a high level of destructive effects and helps inhibit the crisis,
- mean duration time, which manifests itself in fast spreading and varied intensity of destructive effects of the crisis; with a positive course of the crisis, the crisis can be stopped when a given level of intensity of destructive results declines below the threshold of threat; it should be emphasized that, if not stopped at right time, this crisis lasts longer than the rapid crisis, but, at any moment, it exceeds the threshold of its decomposition;
- long duration time, with a constantly increasing intensity of destruction; this type of crises allows for preventing its negative effects; if these symptoms are not detected early enough, its mild intensity might remain unnoticed by the decision-makers.

As emphasized by E. Urbanowska-Sojkin, crisis stimulates decision-making as its existence threatens the economic status, performance of basic functions and achievement of goals[12]. Description and analysis of a crisis situation necessitates a particular care for getting fundamental information in the field of synthetic and partial evaluation of the activities. The open character of the decision-making situation necessitates additional ratio-based information which can be obtained from a proper diagnosis of the status of the enterprise and determination of the various ways of solving a crisis.

3. Return on equity and financial liquidity: criteria for evaluation of an enterprise's activities

The criteria for the evaluation of activities in the enterprises are based on the examination of mutual relationships that occur between individual items in financial reports. Assessment

[11] Wieczerzyńska B.: Kryzys w przedsiębiorstwie. CEDEWU.PL, Warszawa 2009, p. 44.
[12] Urbanowska-Sojkin E.: op.cit., p. 37.

of the criteria for the evaluation of activities in enterprises is especially recommended because[13]:

- it allows for standardization of the analysis, which is of much importance to banks, where a customer should be offered the same terms in different banks when applying for a loan,
- it allows for definition of uniform goals in companies which manage multiple enterprises,
- it opens up opportunities for comparison with average ratios in the sector, a group of enterprises and between competitors at a particular time,
- it allows for the assessment of tendencies and progressions across consecutive years.

Evaluation criteria are used for value-based assessment of an enterprise's activity. An important problem is the standpoint from which the enterprise's activity is evaluated and what the goals of the evaluation are. Solving these questions should become a starting point in the construction of the system of an enterprise's evaluation. Analysis of the related literature allows for distinguishing between six components in the system of an enterprise's evaluation. These include: subject of evaluation, evaluating entity, goal of evaluation, object of evaluation, criterion of evaluation and the measures used in evaluation. The subject of evaluation is an enterprise. Evaluating entities include founding bodies, supervisory boards, banks, boards of directors, suppliers and antitrust bodies. The goal of the evaluation comprises of such questions as the determination of the level of achievement of a group of goals in the enterprises, creating a good climate for the intensification of activities, determination of the credit standing of the enterprise, control of the achievement of developmental goals, determination of solvency and position of the enterprise in the market. The objects of the evaluation include the overall activity of the enterprise or its selected areas, financial standing of the enterprise, group of goals in the enterprise or the place and role of the enterprise in a particular market segment. The criteria of evaluation includes such problems as effectiveness, degree of intensity of management methods, ability to repay current and long-term obligations, level of development and ability to develop, current solvency of the enterprise in the market and the enterprise's market share. Measures of evaluation are divided into the following groups: effectiveness measures, model series of economic measures, measures of liquidity, measures of development (index of development and index of ability to develop), measures of debt (indices of the structure of liabilities, index of short-term debt) and index of market share. The above criteria of evaluation perform the two basic functions: a function of a direct tool for the managing of the enterprise and an information/decision-making function. Three main goals are defined for the criteria of evaluation:

[13] Pomykalska B., Pomykalski P.: Analiza finansowa przedsiębiorstwa. PWN, Warszawa 2007, p. 66.

- obtaining information about the level of effectiveness (profitability) in management of enterprises,
- providing information about forms and directions of improving the effectiveness of management,
- creation of the conditions which allow for control over the enterprise's activities, development of the methods for facilitation of operation and determination of the economic and financial impact of future decisions.

From a historical standpoint, it should be noted that the system of evaluation of an enterprise's activities has been incessantly evolving throughout years. This evolution represented the outcome of the development of the strategic goals in enterprises, new paradigms in management and the necessity of early warning against threats in business activity. The processes of construction of early warning models utilizes specific criteria for the evaluation of an enterprises' activity. They are used by both the enterprises (in evaluation and stimulation of their own financial standing) and by the entities in their business environment (investors, banks, suppliers, auditors).

The following five groups of ratios are used for the evaluation of individual domains of activities in the enterprise: financial liquidity, operational efficiency, structure of financing, profitability and ratios of the capital market.

The focus of detailed analysis for achievement of the goals of this study is on ratios of financial liquidity and profitability. Liquidity ratios are utilized in the analysis of an enterprise's capability to timely repay liabilities. This capability represents a precondition for sustainability of the enterprise and is essential for all of the shareholders. Liquidity ratios are based on an examination of the degree of balance between liabilities and adequate assets. The basic index of the enterprise's ability to repay all current liabilities is the current liquidity ratio. This ratio has a character of a stimulant i.e. the higher its level the better financial liquidity in the enterprise. Its optimum level ranges from 1.2 to 2.0 and, according to some authors, from 1.5 to 2.0[14]. This means that the ratios lower than the recommended standard values might point to the difficulties in timely repayment of debt; the indices within the standard range correspond to an optimum liquidity while those over the standard range represent excess financial liquidity. In-depth studies on financial liquidity necessitate detailed analysis in terms of current assets liquidity, temporal structure of financial sources, financial policies in the enterprise or evaluation of the length of the operational cycle[15]. Furthermore, static evaluation of financial liquidity based on the current liquidity ratio, quick ratio and super quick ratio is extended with the dynamic ratios of liquidity[16]. The level of financial

[14] Sierpińska M., Jachna T.: Ocena przedsiębiorstwa według standardów światowych. PWN, Warszawa 2004, p. 147; Siemińska E.: Metody pomiaru i oceny kondycji finansowej przedsiębiorstwa. Dom Organizatora TNOiK, Toruń 2002, p. 125.

[15] Sierpińska M., Wędzki D.: Zarządzanie płynnością finansową w przedsiębiorstwie. PWN, Warszawa 1997, p. 58.

[16] Sierpińska M., Jachna T.: op.cit., p. 148-149.

liquidity in the enterprise should be rational and adjusted to the conditions in the environment and tendencies in the economy. This means that this level is variable in time. Low liquidity ratios signalize that payment capability in the enterprise is threatened whereas the liquidity higher than the enterprise's needs might have a favourable effect on its profitability. Therefore, the need arises for the determination of the effect of financial liquidity on return on equity in an enterprises as a relationship between net profits and equity. In order to evaluate the relationship between return on equity and liquidity, the authors used factor analysis. The idea behind factor analysis is to decompose the index of return on equity into the seven partial indices such as:

– current liquidity ratio (current assets to short-term liabilities),
– asset structure ratio (total assets to current assets),
– equity structure ratio (liabilities to equity),
– debt structure ratio (liabilities to equity),
– asset turnover ratio (sales revenues/fixed assets),
– operating profit margin ratio (operating profit/sales revenues),
– net profit to operating profit ratio[17].

The mathematical product of the above partial ratios represents return on equity.

4. Correlation analysis of return on equity and financial liquidity in the enterprises in the sector of building materials in 2010-2011

Attaching great importance to proper values of the ratios that monitor the financial status in enterprises and their financial liquidity results from the necessity of ensuring optimum capital/equity relationships, which in practice are driven by multi-directional changes that occur in the economy in individual sectors and enterprises. Dynamics of selected indices of financial standing of joint stock companies in the sector of building materials are presented in table 1.

Table 1

Dynamics of selected indices of financial standing of joint stock companies in the sector of building materials in 2010-2011

No.	Index	Dynamics (%) 2011/2010
1	Total sales revenues	105.9
2	Equity	108.2
3	Net profit	188.5
4	Operating profit	61.1
5	Return on Equity (%)	179.2

Source: Author's own estimation based on: Sektorowe wskaźniki finansowe. „Rachunkowość", nr 3, 2013.

[17] Wypych M.: Płynność finansowa jako determinanta zmian poziomu rentowności przedsiębiorstw przemysłowych w okresie spowolnienia gospodarczego. Zeszyty Naukowe, z. 142. Uniwersytet Ekonomiczny, Poznań 2010, s. 27.

The data above show that the highest increase took place in the area of net profit value (increase by over 88%) and return on equity (increase by ca. 80%). According to the estimates, ca. 60% of bankruptcies in West Europe resulted not from the lack of profitability but from the loss of financial liquidity. Hence, in order to analyse activities of enterprises in the sector of building materials, the authors evaluated the level of ratios which affect financial liquidity in the enterprises studied. (see table 2).

Table 2

Dynamics of the level of ratios that affect financial liquidity of joint stock companies in the sector of building materials in 2010-2011

No.	Specification	Dynamics (%) 2011/2010
1	Operating assets	122.3
2	Liabilities in total	95.9
3	Short-term liabilities	105.9
4	Short-term liabilities to current assets ratio	110.4
5	Debtors to current assets ratio	101.3
6	Stock to current assets ratio	104.4
7	Current ratio (%)	104.5

Source: Author's own estimation.

The data contained in Table 2 demonstrate that among the factors which affect financial liquidity in the enterprises studied, the highest dynamics was observed for current assets (an increase by over 22%) and short-term liabilities to current assets ratio (an increase by 10%). The value of short-term liabilities in the enterprises studied rose more slowly than the value of current assets. A growing contribution of current assets in the balance sheet total confirms that the property in the enterprises was managed properly. A synthesis of the evaluation of changes in the partial indices shows that the current liquidity ratio rose by over 4%. Analysis of the presented data suggests that the companies in the sector of building materials were more stringent in their approach to financial liquidity.

Table 3

Correlation coefficients between return on equity and partial ratios used for evaluation of the financial standing in enterprises in the sector of building materials in 2010-2011

No.	Partial ratios (independent variables)	Strength of the relationship between partial ratios and return on equity (regression coefficient)		Level R^2 (%)	
		Years			
		2010	2011	2010	2011
1	Current liquidity ratio	0.2395	0.1354	5.74	1.8
2	Asset structure ratio	(**0.5416**)	(**0.6778**)	29.3	45.9
3	Equity structure ratio	(**0.3921**)	(**0.0001**)	15.4	
4	Short-term debt to total provisions and liabilities	0.1578	0.4381	2.5	19.2
5	Sales turnover ratio	0.4569	0.8187	20.9	67.0
6	Operating profit to sales ratio	0.6189	0.6486	38.3	42.1
7	Net profit to operating profit ratio	(**0.5537**)	(**0.1603)**	30.7	2.6

Source: Author's own estimation.

The Pearson's correlation coefficients calculated for the relationship between return on equity and partial ratios show that a positive relationship between the variables studied (in terms of strength and direction) occurs in two cases (sales turnover ratio and operating profit to sales ratio). Considering the ratios of the structure of assets and equity and the net profit to operating profit ratio, the correlation coefficient yields a negative value, and in the case of the asset structure ratio this relationship is significant.

The highest positive value of correlation coefficients between return on equity and partial ratios in enterprises in the sector of building materials was observed in 2011 for a sales turnover ratio of (0.8187), whereas the lowest value of this coefficient (0.6778) occurred in the asset structure ratio.

The relationship between return on equity and current liquidity ratio was positive and weak: in 2010, it amounted to 0.2395, whereas in the next year, the strength of the relationship between the variables studied was reduced and reached the level of 0.1354. The obtained Pearson's correlation coefficients in the enterprises analysed in the study point to a varied (in terms of magnitude and character) strength of relationships between partial ratios and return on equity.

5. Conclusion

The study found that the financial liquidity in the enterprises analysed was on the third place among the factors that determined improvement in return on equity in 2010, while in the next year, the effect of financial liquidity was reduced: in 2011, financial liquidity took the fourth place as a determinant of return on equity. This situation means that the conditions of the economic crisis did not contribute to a deterioration in financial liquidity. The mean level of this index amounted in this period studied to 1.28 and 1.38, respectively. The enterprises from the sector of building materials reached a satisfactory level of current liability ratio and its level was maintained within a model range of values i.e. from 1.2 to 2.0. With considerable dynamics of current assets and a nearly 6% increase in sales revenues, it can be concluded that the enterprises studied made decisions that limited the risk of losing financial stability.

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