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FINANCIAL LIQUIDITY AS A FACTOR DETERMINING THE ECONOMIC CONDITION OF COMPANIES ON THE CAPITAL MARKET IN RELATION TO BANKRUPTCY LAW IN POLAND

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Abstract

The aim of this article is to present financial liquidity as a factor affecting the economic condition of the companies on the capital market in relation to the amended Bankruptcy Law in Poland. A study was carried out to determine the impact of liquidity on the increase in earnings per share and return on assets, indicators can be used to assess the economic condition of a company. As a result, logit and quadratic functions were examined and the parameters of the models provided a verification of the hypothesis. As a result, it was found that the good economic situation of a company related to the increase in earnings per share and profitability is affected by the increasing cash efficiency of assets and the decreasing value of the current ratio. It can therefore be concluded that according to theory, conducting a more aggressive policy in the area of liquidity results in an increase in the value of an economic entity and, therefore, its good economic condition, but the effect of overly aggressive policies may influence solvency, which is defined by Bankruptcy Law.

JEL classification: G1, G28, G33
Keywords: financial liquidity,bankruptcy, the economic condition of companies

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Introduction

The issue of the economic condition of a company and the factors affecting it is found in the area of legal aspects determining the legitimacy of business entities. Bankruptcy is a natural phenomenon that allows the development of profitable enterprises and the disappearance of those that are not efficient enough in a market economy to meet the rules of competition and generated profits. However, it seems that the issue of bankruptcy and insolvency in the context of the economic condition of a company is not sufficiently described and may mislead decision-makers. Tokarski (2012) believes that the deficiencies in the theory and practice of bankruptcy concern the entire global economy. Businesses cooperating with each other sign contracts with which they fulfill a better or worse economic effect, which may result in deterioration of the economic condition, which may have a different legal interpretation depending on the country in which the business entities operate.

Taking into account the economic and legal sphere, one should distinguish the notion of bankruptcy from the notion of insolvency: bankruptcy is an economic term, and insolvency is a legal term (Herman, 2010). Therefore, using these terms interchangeably is not fully justified, especially when it refers to non-culpable proceedings, and identifying bankruptcy with insolvency is possible only when an entity is at fault and subject to punishment (Mączyńska, 2009). From an economic point of view a bankrupt entity is a company that is unable to pay its debts and the value of its assets is not enough to cover all liabilities. Also, a bankrupt business is a company which, despite the fact that these conditions exist, still conducts its activity (Tokarski, 2010b).

Models of bankruptcy prediction, widely discussed in the literature, are based on information as to whether the company went bankrupt and therefore ceased its activity or not. Assessment of the economic condition of the enterprise on the capital market is associated with the development, and hence, increase of the entity, which should translate into an increase in its value that satisfies investors in the long run. In the opposite case, they will be willing to withdraw their capital and move it to where the operating business will offer them growing profit. Therefore, it can be expected that a company that does not generate growing profit per share will soon lose interest from investors as a result of inefficient economic activity related to following a too conservative policy, which may lead to lost value. Thus it can be concluded that the economic approach to the evaluation of a company's activity is related to the maximization of value, resulting in an aggressive financial liquidity policy, while the legal approach limits the above actions, showing that the consequence of this aggressive policy may be a situation in which the entity becomes insolvent, and if it affects negatively its economic condition, the consequence will be bankruptcy and hence, insolvency if the action was deliberate.

The presented article will verify the hypothesis that financial liquidity determines the economic condition of a company reflected in the increase in earnings per share and in the profitability of assets. The article consists of a review of literature, description of data and research methods, results and summary.

Review of the literature

Financial liquidity is one of the factors determining the condition of a company on the market, which is reflected in economic and legal terms. In order for the company to function properly on the market it is necessary for the legal and economic assessment to be convergent. Monitoring financial liquidity is one of the most important tasks that a company is facing in order to continue its operations and maintain good economic condition. Gniadkowska - Szymańska and Bolek (2018) referred to the problem of legal requirements regarding the quality of operation of companies, which were included in the Bankruptcy Law, with particular emphasis on its amended version, referring to the economic condition of companies. On January 1, 2018 two years have passed since the new Restructuring Law and the thoroughly amended Bankruptcy Law. These two laws regulate the situation of companies which are struggling with the problem of insolvency - both in the early phase of this phenomenon (the threat of losing financial liquidity) and in its very advanced stage (the so-called actual bankruptcy). The Bankruptcy Law has clarified many obscure provisions of the previous law. It states that the debtor is insolvent if they have lost the ability to execute their due liabilities. However, being able to meet obligations does not mean that such cash or cash equivalents are maintained at all, or in bank accounts that would cover all liabilities (Dudycz, 1999, pp. 39-40). This problem is represented by the value of the current

liquidity ratio and its derivatives, although the ability to generate cash that can be used to cover liabilities is related to the cycle of cash conversion and cash flow of assets, which results in the average level of cash or its equivalents in the form of short-term investments. Angulo - Sanchez, for example, stated that proper management of the financial process influences the formation of such a level of liquidity, thanks to which it is possible to meet obligations to suppliers and subcontractors, employees and creditors (Angulo - Sanchez, 2016, pp. 53 - 56).

The new definition of insolvency emphasizes the examination of the debtor's economic condition (Stepień & Strąk, 2004). The economic criterion of bankruptcy concerns various conditions that hinder or prevent the timely fulfillment of financial obligations (Grice & Dugan, 2001; Kahay, 1997; Platt & Platt, 2002). According to art. 12 para. 1 bankruptcy law assumes that the debtor has lost the ability to meet his or her due cash liabilities if the delay in their performance exceeds three months. In this case, the court may dismiss the bankruptcy petition if the delay in the performance of the obligations does not exceed three months, and the sum of the outstanding obligations does not exceed 10% of the debtor's assets, or if the liabilities do not exceed the value of the company's assets. This allows the debtor to demonstrate that the mere fact of not fulfilling due pecuniary obligations for a period of three months does not mean that he has permanently lost the ability to fulfill them. Due to the amendment of the Bankruptcy Act, the lack of payment alone is not a clear signal of the debtor's insolvency and the absolute premise for the announcement of bankruptcy. Bankruptcy, and therefore liquidation of the debtor's property, should be a last resort. Insolvency proceedings should only be implemented when it is already known that this is the only path for the creditors to recover at least part of their claims. Therefore, in such cases, the court will be required to examine the economic and financial situation of the debtor, including its financial liquidity.

The assessment of the economic condition of companies operating on the capital market is associated with their value, which may be internal, based on fundamental aspects of its functioning and the market, reflecting the assessment made by investors in the process of trading in financial instruments. The assessment of the economic condition depends on the point of view of the party conducting such analysis, which is usually representative of the interest groups of the company. In connection with the above, the economic assessment conducted by the company's management board may be quite different from the one carried out by investors, due to the fact that some information is provided by management, which is not owned by investors. It is a problem referring to the efficiency of the market and taking into account various types of information in the price of financial instruments that are traded on the capital market. It can be concluded that the increase in value for investors, who are de facto owners of a company, is the overriding objective of the company's operations and should guide the decisions made by the management.

The company's goal in the capital market is to maximize value for owners, and the formula for determining the value of shares for a developing company in a sustainable way is presented below (Damodoran, 2008).

$$P_0 = \frac{E_0(1-b)(1+g)\left(1-\frac{(1+g)^n}{(1+k_E)^n}\right)}{k_E - g} \quad (1)$$

where: P - share price,

E - profits per share,

b - profit retention ratio,

g - growth factor,

k_E - capital cost.

The growth rate of the company is related to the return on equity and the reinvestment rate of $g = ROE \times b$, and therefore

$$P_0 = \frac{E_0(1-b)(1+\mathrm{ROE}\times\mathrm{b})\left(1-\frac{(1+\mathrm{ROE}\times\mathrm{b})^n}{(1+k_E)^n}\right)}{k_E - \mathrm{ROE}\times\mathrm{b}} \quad (2)$$

Therefore, it should be stated that the value of the company is affected by the profitability of capital and the growth of companies. Based on the above formula (2), it can be concluded that the share price should increase along with the increase in profitability and the level of retention of profits and the decrease in the cost of capital. If there is a connection between liquidity and profitability, the value of the company is affected by financial liquidity and related net working capital affecting the business unit risk, which translates into the cost of capital.

Profits per share and their growth are a measure of the effectiveness of the company. Danbolt, Hirst and Jones (2011) presented an analysis of the relationship between the profitability of investments and future profits on shares, which reflect the increase in the value

of the company. Increasing profits per share should translate into the growing market value of the company and the rate of return on investment in its shares. Profits are a factor that best reflects the growth of companies in terms of maximizing value. They may be not only the result of growth, but also the company's growth potential due to the fact that the investment is based on investors' expectations as to what profits and rates of return will bring investment in the shares of a given company.

The commonly used theory describing the relationship between financial liquidity and profitability says that this relationship is negative, and thus the increase in liquidity causes a decline in profitability, although according to Gajdka and Walińska (1998, p. 467), this dependence may take a positive value to some point. Considering the different approaches to financial liquidity, the overall expectations related to liquidity and profitability dependence can be defined as follows: in the case of cash conversion cycle, the more cycles per year, the higher liquidity associated with higher profitability. However, due to the fact that this measure may have negative values, it can be concluded that the lower the level of this ratio, the higher the profitability while the higher level of cash flow from operating activities should translate into higher profitability, and the lower the levels of static liquidity ratios of such as the current liquidity ratio and its derivatives - the profitability should be higher. It can therefore be concluded that the dependence of liquidity - profitability, due to the heterogeneous approach to financial liquidity, is also not unambiguous.

The assessment of the financial condition of the company refers to profitability, market value, as well as to increased profits per share. Profitability determines the market value of a company and it is itself related to financial liquidity. Research related to the liquidity and profitability analysis was conducted by Jose et al. who stated that an aggressive working capital management policy leads to an increase in profitability, measuring liquidity in the cash conversion cycle, profitability with ROA and ROE profitability ratios based on gross profit (Jose, Lancaster & Stevens, 1996, pp. 33-46). A study by Gill et al. showed that there is a negative relationship between the period of receivables turnover and the effectiveness measured by the gross margin and the positive relationship between the cash conversion cycle and the gross margin (Gill, Biger & Mathur, 2010, pp. 1 - 9). Shin and Soenen (1998, pp. 37 - 45) analyzed the relationship between liquidity and profitability and found a negative relationship between the cash conversion cycle and profitability, Deloof said that managers may increase profitability by reducing the level of receivables and liabilities and thus accelerate their turnover (Deloof, 2003, pp. 573 - 588) Most studies point to the existence of a negative relationship between liquidity and profitability, except that the cash conversion cycle is used as the measure of liquidity in research.

In Poland, many analyses of liquidity and profitability have been carried out. Bieniasz and Gołaś (2011, pp. 15-29) presented the results of research on the efficiency of working capital management in small, medium and large companies of the food industry in Poland in the period 2005-2009. The efficiency of working capital management was assessed using the inventory, receivables, payables and cash conversion cycle as well as in relation to the obtained rates of return on non-financial assets. Research has shown that in industries in which the cycles of working capital were the shortest, relatively higher rates of return on assets were obtained. Kuś and Hodun (2011, pp. 71-83) conducted research related to the analysis of the dependence of the net working capital cycle with profitability on the example of industrial enterprises listed on the WSE, divided into industries and stated that such a relationship exists in the automotive, construction materials, industry light, pharmaceutical and metal industries, although the signs of these dependencies are not homogeneous. This points to the fact that not always does shortening the cash conversion cycle lead to an increase in profitability, because it may affect the attractiveness of the offer related to the trade credit. Lowering the cycle of trade in receivables below the industry average may lead to a decrease in sales and, as a consequence, profitability. Wawryszuk-Misztal (2007, pp. 278- 287) conducted research on a group of companies listed on the WSE and assessed the relationship between receivables, inventories, liabilities, operational and cash cycles with profitability ratios ROE and ROA. She stated that a longer operating cycle negatively affects profitability, a negative correlation also occurs in the case of the commitment and profitability cycle. There is a relationship between financial liquidity and profitability, which affects the value of the business unit and, consequently, its economic condition conducted by investors also in the context of capital market mechanisms.

The company can choose two extreme solutions and strive to maximize operational efficiency while at

the same time being at high risk of bankruptcy or opt for low efficiency with low risk. These dependencies were described by Wędzki (2003), and in addition, these strategies can be divided in detail as proposed by Gołaś and Bieniasz (2006, pp. 125-140). If the company is only focused on maximizing efficiency, then it performs the aggressive strategy, but when the company's actions are focused primarily on maintaining liquidity, then we cope with the conservative strategy. Flexible strategies, taking into account a mixed approach to efficiency and liquidity, are called conservative-aggressive and aggressive-conservative strategies.

Freezing funds in the form of an excessive level of current assets (receivables, inventories or cash) is disadvantageous to the enterprise, as it may give rise to unjustified additional costs of capital financing part of current assets or costs of lost opportunities in a situation where assets are financed with equity. Maintaining financial liquidity is to a large extent determined by the level and structure of current assets (Sierpińska & Wędzki, 2007, p. 73).

Solvency and economic condition constitute important aspects for the legal and economic sphere of a company's operation. A good economic situation occurs when the company's value increases, which is a consequence of increased profits per share and a positive, growing profitability. According to the theory, such results can be obtained by conducting an aggressive liquidity policy, which may lead to insolvency regulated by the Bankruptcy Law. Confirmation of the direction of the impact of liquidity on the economic condition of enterprises should confirm this thesis and affect the unification of the methods of assessing the economic condition of companies on the capital market, based on the analysis of earnings per share.

Research methodology, data source and selection of the test sample

Financial liquidity is understood in the present study in a traditional way, as the ratio of current assets to short-term liabilities and is reflected in the current liquidity ratio (CR). In addition, a dynamic approach has been presented according to Richards and Lauchlin (1980) in the form of a cash conversion cycle (CCC), as well as cash efficiency of FCF / TA (Moss, Stine 1993) and the growth of cash level (Opler et al 1999).

The survey was conducted on a group of companies listed on the Warsaw Stock Exchange in the period: 30/04/2012 - 31/10/2017. The prices have been adjusted for capital changes in the type of subscription rights, dividends and splits. Therefore, in order to obtain the most accurate data, a number of databases have been used from public institutions (eg WSE) as well as private ones (eg Bloomberg, Notoria). In each case, the comments were analyzed for the methodology used to calculate selected data and their quality was thoroughly checked.

The discriminant analysis was proposed by Altman (1968) to overcome the subjective ratio-analysis assessing the company performance. The purpose of Altman's paper was to attempt an assessment of quality ratio analysis as an analytical technique in assessing bankruptcy potential of firms. In more recent times a multiple discriminant analysis (MDA) was also used by Altman et al (1994) and Altman (2000) to analyze the comparison between traditional statistical methodologies for distress classification and prediction, i.e., linear discriminant (LDA) or logit analyses.

MDA is a statistical technique used to classify an observation into one of several groups, dependent upon the observation's individual characteristics. After the groups are established, data are collected in groups and MDA attempts to derive a linear combination of these characteristics that best discriminates between established groups. There are some advantages of MDA: the technique considers an entire profile of characteristics common to the relevant firms, as well as the interaction between properties, reduces of the analyst's space dimensionality. The discriminant function transforms individual variable values to a single discriminant scoring to the fundamental work of Altman it is given by the equation:

$$Z=v1x1+v2x2+...+vnxn$$

where: v – discriminant coefficients,

x – independent variables.

The MDA computes the discriminant coefficients, while the independent variables are the actual values. While building the model it is necessary to select the predictive variables carefully. It is another advantage of this model that the number of ratios is limited and constrained to the amount of significant ones. Combinations of ratios can be analyzed together in order to remove misclassifications observed in traditional analysis.

The results of some studies show the advantage of models based on decision trees, constructed using the recursive division algorithm, over linear discriminant functions (Jardanowski 2007). Kitowski (2013) points out that there is an observed tendency to "fetish" discriminatory methods of assessing the financial condition of the company, consisting in attributing to them, at least the methodological controversy, the value of universality and unchanging diagnostic reliability.

However, despite these controversies, in order to assess the impact of particular factors on the increase in earnings per share, which determine the increase in the value of enterprises, a binary logit model in the form of:

$$ln\frac{p_i}{1-p_i} = \beta_0 + \beta_1 CR_i + \beta_5 CCC_i + \beta_6 gC_i + \beta_7 FCF/TA_i \quad (3)$$

For control purposes, the square model was also assessed (LAD) to check the impact of liquidity on the return on assets.

$$ROA_t{}^2 = a + a_1 CCC_t + a_2 CR_r + a_3 FCF/TA_t + a_4 gFCF_t + a_5 gC_t + e_t \quad (4)$$

The assumption was made that the good condition of the company manifests itself in the growth of EPS and the growing profitability of assets, which is associated with adequate management of the resources of the business unit and financial liquidity.

Results

First, a sample analysis was carried out and Table 1 presents descriptive statistics of variables accepted for the study.

The average value of earnings per share is 3.03; cash yield 0.0042; average level of current liquidity ratio 3.9; average return on assets 0.014; average CCC 11.2; cash 174l and in addition, the average EPS growth in the period considered is positive, but only 0.0417%.

In order to assess the impact of selected factors on growth (1) or decrease (0) of earnings per share, a discriminant analysis was carried out using a binary logit model (formula 3), and the results of parameter estimates for the function are presented in Table 2.

Table 1: Descriptive statistics, for observations from sample 4342

	Average	Median	standard deviation	Minimum	Maximum
EPS	3.03	0.520	26.5	-718.0	657.0
FCFTA	0.00428	0.00335	0.0513	-0.431	0.380
CR	3.90	1.48	24.4	0.110	521.0
EBITTA	0.00144	0.0132	0.0317	-0.654	0.514
CCC	11.2	4.04	178.0	0.0	0.0
C	174.0	18.8	633.0	-0.0830	0.0
gEPS	0.000417	0.000	0.0257	-0.613	0.847

Source: Own study

Table 2: Logit estimation, used observations n = 4148, dependent variable (Y): gEPS (discrete)

	Estimators	standard error	z	value p	
Const	−0.0218861	0.0318312	−0.6876	0.4917	
FCFTA	1.29711	0.612870	2.116	0.0343	**
CR	−0.00235607	0.00142191	−1.657	0.0975	*
CCC	−0.0002982	0.000220524	−1.353	0.1762	
gC	0.00513905	0.00546280	0.9407	0.3468	
arithmetic average of the dependent variable	0.493732		standard deviation of a dependent variable	0.500021	
McFadden R-square	0.001857		adjusted R-square	0.000118	

Source: Own study. The parameter is statistically significant for every p-value of less than 0.1, for increasing confidence intervals of 1% (***), 5% (**) and 10% (*) respectively

Number of cases of 'correct prediction' = 2209 (53.3%), f (beta'x) to independent mean variables = 0.500, Likelihood ratio test: Chi-square (4) = 10.676 [0.0305]

The results of the conducted research have shown that the increase in earnings per share, which are synonymous with the good situation of the company on the capital market, is influenced by the cash efficiency of assets increase and the drop in the level of the current ratio. Unfortunately, the proposed model also shows that liquidity in the static and dynamic sense has a small impact on the condition of enterprises, related to the increase in earnings per share.

The increase in earnings per share corresponds to profitability and as a result of attempts to estimate the parameters of many models, the authors have not obtained more satisfactory results that would be in line with the theory of economics at the same time. Therefore, it was decided to take into account the return on assets as an indicator referring to the resources used in the company.

Considering that the dependence of the company's economic situation and financial liquidity may not be linear, as indicated by the results of linear model tests, the non-linear (quadratic) model was estimated and the results are presented in Table 3. Due to the fact that the remainder in the model does not had a normal distribution, estimation based on the method of the smallest absolute LAD values was used.

The results of the model estimation show that the return on assets is determined, just like the increase in earnings per share, by the cash efficiency of assets in a positive way and the current ratio in a negative way.

Conclusions

As a result of the research presented in this paper it was found that the good economic situation of the company related to the increase in earnings per share and the increase in profitability are affected by the increasing cash efficiency of assets and the decreasing value of the current ratio. It can therefore be concluded that the pursuit of a more aggressive policy in the area of liquidity leads to an increase in the value of a company and, therefore, an improvement in its economic situation. The lower the ratio representing the ratio of current assets to short-term liabilities and the cash efficiency of assets, the higher the profitability and the greater increase in earnings per share. At the same time, the risk associated with solvency increases, which translates into the risk of the company's operations. This is reflected in the remuneration of investors with higher profits for willingness to invest in a risky venture. Maintaining a low level of current assets may stem from the company's ability to pursue an aggressive policy towards its clients, maintaining low inventories as a result of having good relationships with subcontractors, who are also able to offer contractors longer payment terms. These features are characteristic of corporations that can afford to pursue an aggressive liquidity policy due to their bargaining power and the ability to quickly raise capital on the market. A good economic situation may translate into legal problems when an entity conducting an overly aggressive liquidity policy obtains an effect in the form of growing profits, with simultaneous solvency problems being the consequence of too risky decisions in this area.

When verifying the thesis, it should be confirmed that there is an influence of financial liquidity in the form of the ability to settle liabilities; therefore, the

Table 3: LAD estimation, used observations n = 4148, dependent variable (Y): ROA²

	Estimators	standard error	t-Studenta	value p	
Const	0.000243718	7.95804e-06	30.63	<0.0001	***
CR	−6.39405e-07	1.73032e-07	−3.695	0.0002	***
FCFTA	0.00141620	0.000170120	8.325	<0.0001	***
CCC	−7.42050e-08	6.16572e-08	−1.204	0.2288	
gC	−5.48213e-07	1.82805e-06	−0.2999	0.7643	
median of dependent variable	0.000237		**standard deviation of a dependent variable**	0.009377	

Source: Own study. The parameter is statistically significant for every p-value of less than 0.1, for increasing confidence intervals of 1% (***). 5% (**) and 10% (*) respectively

solvency of cash assets on the economic condition of the company should be identified. In addition, it should be noted that the proposed logit model also shows that liquidity in the static and dynamic sense has a small impact on the condition of companies, associated with an increase in earnings per share. Therefore, we should consider whether pointing out the Bankruptcy Law only for solvency is a valid premise and whether one should not look for other aspects of the company's activity, which might have a greater impact on its economic condition determining bankruptcy and, consequently, insolvency.

It should be noted, however, that the results of model estimation indicate the convergence of the provisions of the Law representing the legal aspect of the company's operation on the market with the economic plane, which is based on the premises of rational decision-making. In the economic sense, the company should strive to maximize its values with an aggressive approach to liquidity, and in the legal sense this aggressive approach has been limited, introducing the principle of equilibrium.

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