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THE EFFECT OF SELECTED FINANCIAL INDICATORS ON LIQUIDITY OF COMPANIES IN SELECTED SECTORS IN THE CZECH REPUBLIC

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Abstract

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The aim of this paper is to determine the effect of selected financial indicators related to the structure of funding sources on liquidity of companies in selected sectors in the Czech Republic from 2000 to 2015. With the purpose to fulfill the aim, we examine existence and character of relationship between selected financial factors related to the structure of funding sources (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets) and liquidity of the companies in sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector. The existence of relationship between financial indicators related to the structure of funding sources and liquidity of companies is tested by correlation analysis and regression analysis. The results show that there is the negative impact of share of fixed assets to total assets on liquidity of companies in service sector in the Czech Republic. The liquidity of companies was positively influenced by the return on equity and negatively influenced by debt equity ratio in energy sector in the Czech Republic.

Keywords: correlation, debt equity ratio, fixed assets, leverage ratio, liquidity of companies, regression analysis, return on equity

INTRODUCTION

Myers (2001) argues that agency effects of various kinds may create important reasons for holding liquid assets with the further implications of different patterns of corporate liquidity depending on capital structure or other firm characteristics. He believed that holding liquid assets will be important for companies facing growth opportunities and the expected return fluctuates over time. Given that the decision on liquidity associated with the debt structure of companies, each of them needs to monitor its liquidity relations following the decision of debt. Liquidity is a key financial indicator to measure whether the company is able to meet its debt obligations based on short-term debt ratio, long-term debt ratio and total debt ratio without causing undesirable losses. Stulz (1990) argues that firms with high leverage and losing their financial flexibility, may have difficulty in finding new funds to finance their projects. Šarlija and Harc (2012) suggest that liquidity is a characteristic of the company's assets that can be quickly converted to cash. Firms hold a certain amount of liquidity in during their activities to be able to meets its obligations on time. For this reason, Saleem and Rehman (2011) argues that liquidity management is very important for each company in order to maintain the ability to pay its obligations properly and on time.

The aim of this paper is to determine the effect of selected financial indicators related to the structure of funding sources on liquidity of companies in selected sectors in the Czech Republic from 2000 to 2015. With the purpose to fulfill the aim, we examine existence and character of relationship between selected financial factors related to the structure of

funding sources (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets) and liquidity of the companies in sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector. In order to achieve the aim, the following research questions will be identified and evaluated:

- What is the impact of own funding sources on the liquidity of companies in the Czech Republic
- What is the impact of debt funding sources on the liquidity of companies in the Czech Republic

The first part of this article will include a literature review. The second part of this article will focused on methodology and data. The third part of this article will contain results and discussion. Last part of this article will conclude results.

Review of Literature

Williamson (1988), Schleifer and Vishny (1992), Anderson (2002) believe that more liquid companies are less costly to monitor and liquidate therefore higher liquidity growth leverage. On the contrary, De Jong *et al.* (2008), Lipson and Mortal (2009), Šarlija and Harc (2012) argue that more liquid companies are less indebted, because they could use the additional liquidity to internally finance their activities.

The aim of this paper is to determine the effect of selected financial indicators related to the structure of funding sources on liquidity of companies in selected sectors in the Czech Republic. For this reason, it would be appropriate to mention a study focusing on the liquidity of companies in the Czech Republic. Unfortunately, there are few studies focusing on the liquidity of companies in the Czech Republic. For this reason, the literature review will be supplemented with additional relevant studies focusing on the liquidity of companies in other countries.

Anderson (2002) dealt with selected financial indicators related to the structure of own funding sources and debt funding sources. He examined the relationships among the firm's financial structure, its choice of liquid asset holdings and growth on UK and Belgian companies. Using regression analysis he examined the factors determining liquid asset holdings and the link between liquidity of companies and capital structure using the following variables: liquidity (dependent variable, sum of cash, bank balances, and investments in current assets divided by total assets) and independent variables such as cash flow (earnings before taxes and interest divided by total assets), long term debt, medium term debt, short term debt, R&D expenditures and market value to book value. The results revealed positive associations between leverage and liquid asset holding.

One of own funding sources affecting liquidity of companies are depreciation that is related with fixed assets. For this reason, it is appropriate to examine the relationship between liquidity of companies and depreciation through fixed assets. Unfortunately, there is only minimum specific studies that focus on this relationship.

For this reason, study of Mehar (2005) was selected to the literature review. Mehar (2005) examined whether equity financing plays a central role in determination of the liquidity position of a companies in Pakistan. The relation between the equities and working capital has been observed. He analyzed relation between liquid assets (dependent variable) and independent variables such as fixed assets at historical cost, net profit after tax and retained earnings. There was found that liquidity is positively correlated with fixed assets. An increase in the fixed assets will lead to the increase in depreciation expenditure, so, availability of the funds will be increased without a decline in the cash balance. He found that depreciation fund has been classified as a source of liquidity. The long-term debt may deteriorate the liquidity position of a firm. The results shows that profit and liquidity have significant positive relation where relation between liquidity and retained earnings was found as negative.

Shah (2012) also dealt with the relationship between selected financial indicators related to the structure of own funding sources and liquidity of companies. He examined relationship between profitability and liquidity trade off through the application of working capital analysis in India. This study undertakes the identification of the key variables that influence the working capital management and its impact on profitability and liquidity of pharmaceuticals manufacturers. He examined the relationship between liquidity (dependent variable, including current ratio) and independent variables (components of working capital) such as gross operating cycle period and quick ratio. It has been found that there is a positive relationship between liquidity and variables such as quick ratio and gross operating cycle period. He examined the relationship between liquidity (current ratio) and profitability (earnings before depreciation, interest, and tax as a percentage of assets). It has been found that there is a negative relationship between liquidity and profitability.

Selected financial indicators related to the structure of debt funding sources and liquidity of companies were dealt with by Šarlija and Harc (2012). They investigated the relationship between liquidity and the capital structure of Croatian companies. Pearson correlation coefficient was applied to the test on the relationship between liquidity ratios and debt ratios, the share of retained earnings to capital and liquidity ratios and the relationship between the structure of current assets and leverage. The results showed the existence of a statistically significant negative correlations between liquidity ratios and leverage ratios. The results showed that there are statistically

significant correlations between leverage ratios and the structure of current assets. The relationship between liquidity ratios and the short-term leverage is stronger and negative than positive relationship between liquidity ratios and the long-term leverage. The more liquid assets firms have, the less they are leveraged. Long-term leveraged firms are more liquid. Increasing inventory levels leads to an increase in leverage. Furthermore, increasing the cash in current assets leads to a reduction in the short-term and the long-term leverage.

Trippner (2013) analyzed the relationship between liquidity (cash ratio, current ratio and quick ratio) and selected financial indicators related to the structure of own funding sources such as profitability (return on assets – ROA, return on equity – ROE) in the Polish companies from 2002 to 2012. Using correlation analysis it has been found that there is a positive and negative relation between liquidity and ROA and ROE.

Miloś (2015) analyzed the determinants of capital structure of the Romanian companies using panel data. He focused on selected financial indicators related to the structure of own funding sources and debt funding sources. He used variables including ratio between total debt and total liabilities, profitability (return on assets), liquidity (ratio between current assets and current liabilities), tangibility (ratio of tangible assets divided by the total assets) and size (natural logarithm of total sales). The results show that there is a negative connection between liquidity and leverage. The results suggest that less liquid companies obtain the necessary capital by borrowing. Companies often prefer and use a short-term loans when there is a lack of liquidity.

Růčková (2015) examined the relationship between liquidity, profitability and use of debt funding sources of companies in manufacturing industry in V4 countries. She examined the relationship between using debt sources (debt/equity ratio) and liquidity. The study results showed a positive relationship between liquidity and using debt sources in the Czech Republic. It can be stated that the increasing liquidity of companies is also increasing the using debt sources.

Based on the studies mentioned above, the following financial indicators will be selected that relate to the structure of funding sources: debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. The debt ratio can be considered as a debt funding sources. The return on equity, the share of fixed assets to total assets, share of earnings before interest and taxes to total assets can be considered as an own funding sources. We will therefore examine the impact of these indicators on the liquidity of companies in sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector.

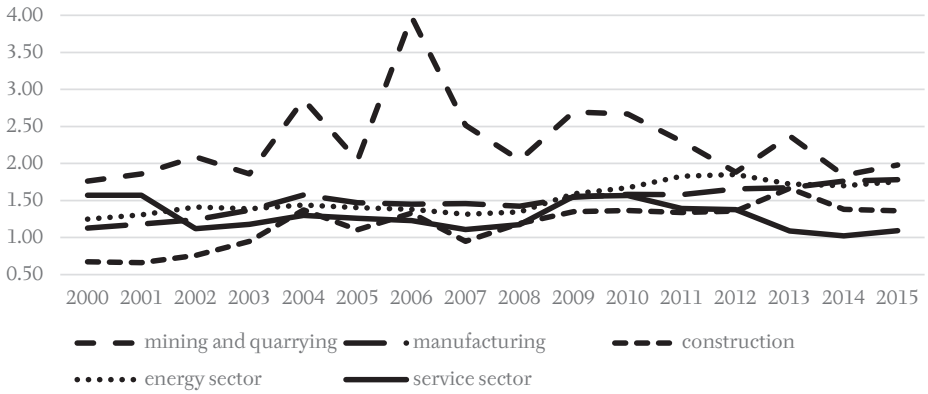
MATERIALS AND METHODS

Given that the article focuses on liquidity of companies in Czech Republic, it is appropriate to mention that various sectors of the economy are involved to varying degrees in the consumption and production of the national economy. The sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector represent the largest proportion of the performance of Czech economy. For this reason, the article focuses on determine the relationship between the selected financial indicators and liquidity of companies in mining and quarrying, manufacturing, construction, service sector and energy sector.

All financial data are taken from Ministry of Industry and Trade in Czech Republic. The dataset cover the period 2000–2015. All data and time series are on annual frequency. The data are the basis for the application of correlation analysis and regression analysis. The data are the basis for the application of correlation analysis and regression analysis. The sample examined includes 20 companies in mining and quarrying companies, 828 companies in manufacturing, 101 companies in construction, 938 companies in service sector and 119 companies in energy sector.

The mining and quarrying sector involves mining and processing of black and brown coal, oil and natural gas extraction, extraction and treatment of ores, etc. The manufacturing sector involves manufacture of food products, manufacture of beverages, manufacture of wearing apparel, manufacture of paper and paper products, manufacture of basic pharmaceutical products and pharmaceutical preparations, manufacture of electrical equipment, etc. The construction sector involves building construction, civil engineering and special civil engineering work. The energy sector involves electricity, gas, steam and air conditioning supply and distribution. The service sector involves wholesale and retail trade; repair and maintenance of motor vehicles, transportation and storage, accommodation, catering and hospitality, information and communication activities, cash and insurance, property activities, professional, scientific and technical activities, administrative and support activities, etc.

Fig. 1 depicts development of corporate liquidity (L3; current ratio) in selected sectors such as mining and quarrying, construction, manufacturing, service sector and energy sector in the Czech Republic from 2000 to 2015. The x axis represents years and y axis represents the liquidity value of the analyzed sectors. The Fig. 1 shows that the corporate liquidity reached almost a rising trend during the analysis period in manufacturing, construction, service sector and energy sector. The highest value of corporate liquidity was about 2 in energy sector in 2012. The lowest value of liquidity was around 0.7 in construction from 2000 to 2001. In mining and quarrying, there was recorded alternating

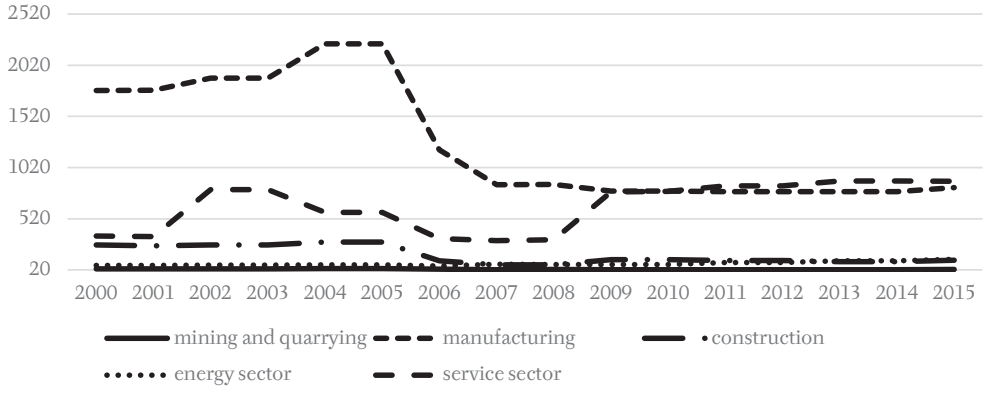


1: *Development of Liquidity of Companies in Selected Sectors in the Czech Republic (liquidity index)*
Source: Authors' calculations

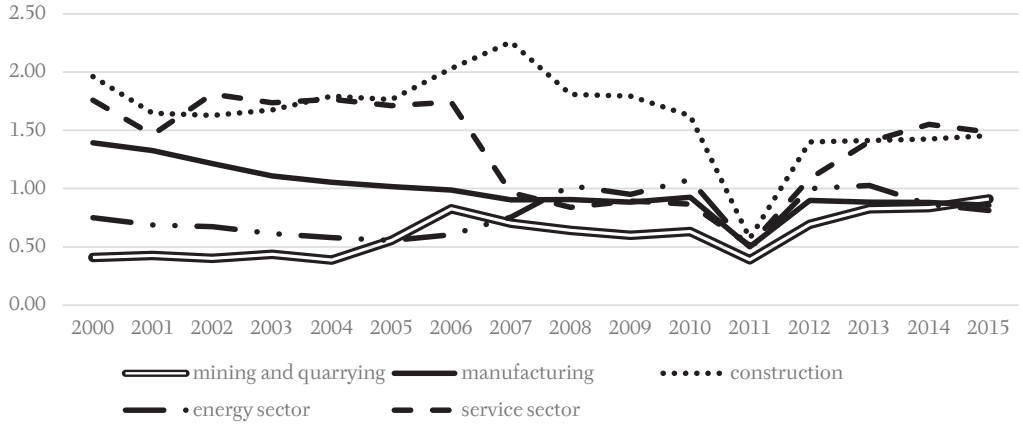
trend. The highest value of liquidity was about 3.8 in 2006. The lowest value was about 1.4 from 2013 to 2015. The liquidity value should be from 1.5 to 2.5. The Fig. 1 shows that liquidity of companies fulfill the recommended values from 2003 to 2015 in manufacturing, construction, service sector and energy sector. In mining and quarrying, liquidity of companies fulfill the recommended values during the whole analysis period excluding the period from 2005 to 2007.

Fig. 2 depicts development of companies in sectors such as mining and quarrying, manufacturing, construction, energy sector and service sector in the Czech Republic from 2000 to 2015. The x axis represents years and y axis represents number of companies in the analyzed sectors. From this figure is obvious that the largest number of companies was recorded in manufacturing. The second largest number of companies was recorded in service sector. On the other hand, the smallest number of companies was in energy sector, mining and quarrying and construction. We can see that companies showed an alternating trend in manufacturing and service sector. Number of companies has fallen in half during crisis period. On the contrary, companies showed a growing trend during crisis period in service sector. On the other hand, companies showed a steady trend in energy sector and mining and quarrying.

Fig. 3 represents development of debt equity ratio in selected sectors in the Czech Republic from 2000 to 2015. The x axis shows years. The y axis shows the value of the debt equity ratio measured as the proportion of the debt to equity. The value of debt equity ratio 1 indicates that debt sources and own sources (equity) are involved in the financing of companies in the same amount. The value of the debt equity ratio less than 1 indicates a greater use of own funding sources (equity). The value of the debt ratio greater than 1 indicates greater use of debt funding sources. We can see that the least indebted sector is sector mining and quarrying. It can be said that this sector uses more own funding sources (equity) than debt funding sources for the needs of its business activities. Similarly, there is an energy sector, where by 2007 the financing of activities through own funding sources prevailed. Since 2008, the use of debt funding sources has increased. It can be said that the energy sector uses more own funding sources than debt funding sources, but with a minimal difference. In 2006, the manufacturing sector recorded greater use of debt funding sources. The debt equity had a downward trend by 2006. Since 2007, own funding



2: *Development of Companies in Selected Sectors in the Czech Republic*
Source: Authors' calculations



3: *Development of Debt Equity Ratios in Selected Sectors in the Czech Republic (debt equity index)*
Source: Authors' calculations

sources have been slightly more prevalent than debt funding sources. The service sector used significantly more debt funding sources by 2007. From 2008 to 2012, the service sector used several own funding sources. From 2012, the service sector uses substantially more debt funding sources.

The aim of this paper is to determine the effect of selected financial indicators related to the structure of funding sources on liquidity of companies in selected sectors in the Czech Republic from 2000 to 2015. Own funding sources include, for example, equity capital, capital funds, reserve fund, depreciation, current period profit and retained earnings. Debt funding sources include, in particular, reserves, bank loans, corporate bonds, payables to suppliers. With the purpose to fulfill the aim, we examine existence and character of relationship between selected financial factors related to the structure of funding sources (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets) and liquidity of the companies in sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector.

We can define relationship between liquidity of companies and selected financial indicators related to the structure of funding sources based on the above studies and formulated goals. This relationship will be identified for various sector (mining and quarrying, manufacturing, construction, service sector and energy sector). We will examine how selected financial indicators related to the structure of funding sources affect liquidity of companies.

Correlation analysis, regression analysis and OLS method is used to determine the relationship between liquidity of companies and selected financial indicators related to the structure of funding sources. First, we can determine the relationship between liquidity of companies and selected financial indicators related to the structure of funding sources using correlation analysis. The correlation can be expressed using the following equation (1):

$$K_{XY} = \frac{cov(X,Y)}{\sigma_X \sigma_Y} \tag{1}$$

Where X is the mean value matrix of liquidity of companies and Y is the mean value matrix of debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. This indicator should be in the interval from –1 to 1. Values closer to the value of 1 would suggest that with increased liquidity of companies is growing debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. Values closer to the value of –1 would suggest that with decreased liquidity of companies is growing debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. Values which are zero signal independent of one another.

I will draw from the study Anderson (2002) to construct the regression model. The relationship between liquidity of companies and selected financial indicators will be estimated using the following equations in general form (2):

$$L_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} \ldots + \beta_n X_{nt} + \varepsilon_t \tag{2}$$

In consistent with studies Anderson (2002), Mehar (2005), Trippner (2013) and Růčková (2015), variables include debt equity ratio (DER), return on equity (ROE), share of fixed assets to total assets (FATTA) and share of earnings before interest and taxes to total assets (EBIT).

The dependent variable L_t is an indicator of current liquidity (L3) of companies in the Czech Republic at time t, X_{nt} are other factors that represent selected financial indicators and which may affect the liquidity of companies in the Czech Republic. These factors include debt equity ratio (DER), return on equity (ROE), share of fixed assets to total assets

I: *Description of used variables*

Variables	Calculation	Expected relationship
Liquidity (L3)	Current assets/ current liabilities	Dependent variable
Debt equity ratio (DER)	Debt/equity	-
Return on equity (ROE)	Net profit/ equity	+
Fixed assets (FATTA)	Fixed assets/total assets	+
Earnings before interest and taxes (EBIT)	Earnings before interest and taxes/total assets	+/-

Source: Authors' calculations

(FATTA), share of earnings before interest and taxes to total assets (EBIT). β_0 and ε_t is model constant and the residual component in the model.

Tab. I represents description of used variables. The selected financial indicators are represented through the four variables (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets). The five ratios (variables) are used to determine relationship between selected financial indicators related to the structure of funding sources and liquidity of companies. The choice of variables is based on the above studies.

The liquidity ratio is very important indicator because liquid company only is able to pay its payables. If the company has a sufficient amount of funds for payment of its current liabilities, the company will be liquid. An excessively high value of liquidity is usually accompanied by lower values of equity (return on equity) that is associated with a conservative approach. On the other hand, companies that have too low levels of liquidity typically use debt sources for financing their activities.

Debt equity ratio (leverage) measures debt sources to equity. The higher value of the debt equity ratio, the higher ratio of debt sources to equity. This fact can indicate a higher risk for creditors. The value of debt equity ratio 1 indicates that equity and debt sources are involved in the financing of companies in the same amount. Higher debt represents a higher level of risk of companies. On the other hand, higher debt may mean a larger volume of funding sources because the costs of external funding tend to be cheaper than costs of equity. Companies that have too low levels of liquidity typically use debt sources for financing their activities. For this reason, we can expect a negative relationship between liquidity of companies and debt equity ratio. This fact is consistent with study Miloś (2015) who found negative relationship between liquidity and debt equity ratio.

The return on equity (ROE) is important especially for the owners of the company or competing companies. The return on equity shows how efficiently a company uses its own equity (funds of owners of company). Return on equity can also affect the costs of external funding (debt sources). Positive relationship between liquidity of companies and return on equity is expected based on the study of Trippner (2013). More profitable companies are the ones that can use their retained earnings in order to finance their investment projects.

A higher value of fixed assets always requires a higher value of liquid assets. An increase in the fixed assets will lead to the increase in depreciation expenditure, so, availability of the funds will be increased without a decline in the cash balance. Fixed assets present a crucial role in ensuring the necessary collateral for bank borrowing and raising secured debt. A low level of fixed assets could decrease the volume of debt that the company may achieve. A high level of fixed assets may ensure cheaper debt resources and lowers the risk taken by the creditor. On the other hand, the companies rely more on short-term debt than on long-term debt in which case the collateral is not so important. The companies with high-valued fixed assets rather use their retained earnings or issue equity than finance their activity by increasing indebtedness. Another explanation could arise from the fact that usually, in emerging economies, companies rely more on short-term loans rather than long-term ones, consequently the importance of collateral is reduced. In consistent with this fact, there is expected a positive relationship between liquidity of companies and share of fixed assets to total assets.

Companies with higher earnings and less volatility in earnings are the ones that have greater indebtedness, due to the increased credibility in front of potential creditors. Moreover, they have more income to shield from taxes. On the other hand, more profitable companies are the ones that can use their retained earnings in order to finance their investment projects. An excessively high value of liquidity is usually accompanied by lower values of profitability that is associated with a conservative approach. On the other hand, Trippner (2013) found a positive and negative relation between liquidity of companies and share of earnings before interest and taxes to total assets. In consistent with these facts, it is not clear what relationship can be expected. Therefore, the resulting relationship will be determined using regression analysis.

Empirical results

This part focuses on the results of correlation analysis, regression analysis and their comments.

First, it is it is necessary to test the time series for the stationarity before estimating the model. We used Levin, Lin and Chu test to test the individual

II: *Correlation between liquidity of companies and selected financial indicators in selected sectors*

	Liquidity L3	DER	ROE	FATTA	EBIT
mining and quarrying	Liquidity L3	0.327676	–0.213947	–0.727376*	–0.309519
manufacturing	Liquidity L3	0.141195	0.271813	–0.423893***	0.216988
construction	Liquidity L3	–0.391987**	0.206347	–0.100032	0.160306
service sector	Liquidity L3	–0.133967	–0.196059	–0.304793	–0.296926
energy sector	Liquidity L3	–0.473280	0.388364	0.254006	0.320249

Source: Authors' calculations
Note: * denotes significance at 1% level, ** denotes significance at 5% level, *** denotes significance at 10% level

variables for the existence of the unit roots. The result of the test indicates that the variables are not stationary on the values. So that the null hypothesis of a unit root can be taken. For this reason, it was necessary to use the logarithm and then the first difference to make the data stacionary. In this way, we used data interpolation using the linear trend. Then, all times series are stationary and can be used in correlation analysis. For detecting multicollinearity we used correlation coefficient. The correlation matrix showed that any variables are not correlated together. It means that data is not affected by multicollinearity. Multicollinearity has not been demonstrated between variables and there is no strong dependence between the data that would affect the final regression results.

Then, we can determine the relationship between liquidity of companies and selected financial indicators using correlation analysis. The Tab. II reflect the degree of interdependence of monitored parameters in selected sectors in the Czech Republic.

Tab. II presents correlative relationship between liquidity of companies (dependent variable) and independent variables such as debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. From Tab. I is evident that correlation is different for all variables and selected sectors in the Czech Republic.

The relationship between liquidity of companies and debt equity ratio (DER), return on equity (ROE) and share of earnings before interest and taxes to total assets (EBIT) appears as uncorrelated in all selected sectors. The correlation is close to 0. In this fact, the most significant correlation was observed in the energy sector. The correlation coefficient is –0,473280 for relationship between liquidity of companies and debt equity ratio. This means that there is a negative correlation between liquidity of companies and debt equity ratio (DER). This result suggests that with a decrease in debt equity ratio increases liquidity of companies in mining and quarrying in Czech Republic. The results also suggest that the correlation coefficient is (+) 0,388364 for relationship between liquidity of companies and return on equity (ROE) and (+) 0,320249 for relationship between liquidity of companies and share of earnings before interest and taxes to total assets (EBIT). There is a positive correlation between liquidity of companies and variables such as return on equity (ROE) and share of earnings before interest and taxes to total assets (EBIT). This means that with increase in return on equity and share of earnings before interest and taxes to total assets increases liquidity of companies in energy sector in the Czech Republic.

The results suggest that the relationship between liquidity of companies and share of fixed assets to total assets (FATTA) appears as uncorrelated in manufacturing, construction, service sector and energy sector. Within mining and quarrying, the negative correlation was observed between liquidity of companies and share of fixed assets to total assets (FATTA). The correlation (–0,727376) is close to –1. It can be stated that with a decrease in share of fixed assets to total assets (FATTA) increases liquidity of companies in mining and quarrying in Czech Republic.

Despite the above, it is necessary to take into account the fact that the correlation is statistically significant only for three relation. There was recorded negative significant correlation at 1% level for relationship between liquidity of companies and share of fixed assets to total assets (FATTA) in mining and quarrying. The correlation was about –0.727376. There was recorded negative significant correlation at 10% lever for relationship between liquidity of companies and share of fixed assets to total assets (FATTA) in manufacturing. The correlation reached about –0.423893. There was recorded negative significant correlation at 5% lever for relationship between liquidity of companies and debt equity ratio (DER) in construction. The correlation was about –0.391987

Using correlation analysis we found that there is a positive, negative and no relationship between liquidity of companies in selected sector in the Czech Republic and independent variables (selected financial indicators). Regression analysis and Ordinary Least Squares (OLS) method will be used to determine, how significant will be the relationship between liquidity of companies and selected financial indicators. This relationship is expressed by the following equation (3).

$$L_t = \beta_0 + \beta_1 * DER_{1t} + \beta_2 * ROE_{2t} + \\ + \beta_3 FATTA_{3t} + \beta_4 * EBIT_{4t} + \varepsilon_t \quad (3)$$

We used econometrics software EViews 9. First, it is it is necessary to test the time series for the stationarity before estimating the model. We used Levin, Lin and Chu test to test the individual variables for the existence of the unit roots. The result of the test indicates that the variables are not stationary on the values. So that the null hypothesis of a unit root can be taken. For this reason, it was necessary to use the logarithm and then the first difference to make the data stacionary. In this way, we used data interpolation using the linear trend. Then, all times series are stationary and can be used in regression analysis. Ordinary Least Squares (OLS) method has several prerequisites. First, for correction of heteroscedasticity is used White test. Using this test the heteroscedasticity was rejected and the error term is homoscedastic. For detecting multicollinearity we used correlation coefficient. The correlation matrix showed that any variables are not correlated together. It means that data is not affected by multicollinearity. Multicollinearity has not been demonstrated between variables and there is no strong dependence between the data that would affect the final regression results. We also found normality of the error term, thus the prerequisite that the residual must have normal probability distribution. The absence of autocorrelation of the error term is determined by the Durbin-Watson test. The Durbin-Watson statistic (DW) is used for testing autocorrelation in the residuals.

Tab. III presents the resulting relationship between liquidity of companies (dependent variables) and selected financial indicators (independent variables).

From Tab. III suggests that different variables related to the structure of funding sources affect the liquidity of companies in selected sectors in the Czech Republic from 2000 to 2015. The selected sectors include mining and quarrying, manufacturing, construction, service sector and energy sector. We examined the relationship between liquidity of companies and selected financial indicators related to the structure of funding sources in all selected sectors. The statistically significant variables were found only in two sectors (energy sector and service sector). For this reason, table no 3 represents results of these two sectors. We estimated the relationship between liquidity of companies and independent variables related to the structure of funding sources such as debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets. Some of the independent variables were not statistically significant, thus we are not able to confirm the impact of these variables on liquidity of companies in the Czech Republic. For this fact, table no 3 indicates only statistically significant variables related to the structure of funding sources that have impact on liquidity of companies in the Czech Republic.

As regards the energy sector, the empirical analysis shows that there is a negative impact of debt equity ratio (DER) on liquidity of companies. The table shows that the increase of debt equity ratio of unit decreases the liquidity of companies of 0,624761 units. This impact is confirmed in the studies of Miloś (2015) who found negative relationship between liquidity of companies and debt equity ratio. Less liquid companies obtain the necessary capital by borrowing. Companies often prefer and use a short-term loans when there is a lack of liquidity. We can argue that the more liquid the firm is, it is the less leveraged. High indebtedness can lead to a reduction in liquidity. In order to assess the relationship between liquidity and indebtedness development, it is necessary to analyze the structure of debt funding sources by maturity. If a company has a high proportion of short-term and fast-paced assets and a low value of current assets relative to the value of short-term debt sources, it may have liquidity problems. If there is a high proportion of long-term debt sources, this problem may not arise. Companies with a high level of debt are less able to dispose of sufficient liquidity in energy sector. These results are in line with Fig. 1 and Fig. 3 where the lower value of the debt equity ratio in energy sector is accompanied by higher liquidity, confirming the negative relationship

III: *Estimation results between liquidity of companies and selected financial indicators in selected sectors*

	Energy sector		Service sector	
	Coefficient	**t-statistics**	**Coefficient**	**t-statistics**
Constant	0.004798	0.104066	–0.019634	–0.425631
DER	–0.624761 **	–2.516879		
FATTA			–2.612102 **	–2.138445
ROE	3.869004 **	2.758368		
R-squared	0.634676		0.397842	
Adjusted R-squared	0.472310		0.156979	
F-statistic	3.908916		1.651734	
Prob(F-statistic)	0		0	
Durbin-Watson stat	1.893395		1.821626	

Source: Authors' calculations

Note: * denotes significance at 1% level, ** denotes significance at 5% level, *** denotes significance at 10% level

between the debt equity ratio and the liquidity of companies in the energy sector.

The results also suggest that there is a positive impact of return on equity (ROE) on liquidity of companies. The results suggest that the increase of return on equity of unit increases the liquidity of companies of 3,869004 units. This result confirm the findings of Trippner (2013) who found positive relationship between liquidity of companies and return on equity (ROE). More profitable companies are the ones that can use their retained earnings in order to finance their investment projects. We can argue that the more liquid the firm is, it is the less leveraged. Based on the hierarchical financing model, cash is the result of the company's financing and investment activities. Accordingly, profit companies are much more capable of paying dividends, paying their debt obligations and having considerable liquidity. On the contrary, less profitable firms have less liquidity and use debt to finance their projects. These conclusions are consistent with Fig. 1 and Fig. 3, where the energy sector uses more own funding sources and maintains a significant level of liquidity. This is in line with our results. In other words, if companies in the energy sector are able to generate profits and achieve higher levels of profitability, they are able to dispose of a larger volume of liquid assets.

As regards the service sector, the results indicate that there is a negative impact of share of fixed assets to total assets (FATTA) on liquidity of companies. The share increase of fixed assets to total assets of unit decreases the liquidity of companies of 2,612102 units. This result is not confirmed by any of the above study. The resulting relationship can be explained in the following argument. Assets of the company can be divided into fixed assets and current assets. The liquidity of companies consists of current assets. Liquidity growth should be accompanied by an increase in current assets. From this argument it shows that the growth in current assets is accompanied by a decrease in fixed assets. From this fact can be inferred negative relationship between liquidity of company and fixed assets. In practice, this means that if companies in the service sector have a higher fixed asset volume, which also involves a higher level of depreciation, they have a lower liquidity level. If companies in the service sector have lower fixed assets, which also involves a lower depreciation level, they have a higher liquidity level.

All identified resulting relationships correspond with the conclusions of correlation analysis through which we determined what relationship exists between liquidity of companies and independent variables related to the structure of funding sources. The results showed the negative impact of debt financing sources on the liquidity of companies in the energy sector, where the debt equity ratio was used as a debt financing source. The results showed a positive impact of the own funding sources on the liquidity of companies in the energy sector, where the return on equity was used as the own financing source. The results showed the negative impact of own funding sources on the liquidity of companies in the service sector, where the share of fixed assets in assets was used as the own financing source presenting depreciation of the company.

On the other hand, it is also necessary to take into account the significance of the model, which is primarily low in the service sector. R-squared value is about 40% and Adjusted R-squared is about 15%. In the energy sector, there is R-squared value about 63% and Adjusted R-squared about 47%. The table no 3 reveals that the explanatory power of the model is low. Based on the results it is evident that the liquidity of companies is also affected by other factors (variables) that have not been tested. Based on this fact, we can provide another area for any further exploration in the future.

CONCLUSION

The aim of this paper is to determine the effect of selected financial indicators related to the structure of funding sources on liquidity of companies in selected sectors in the Czech Republic from 2000 to 2015. With the purpose to fulfill the aim, we examine existence and character of relationship between selected financial factors related to the structure of funding sources (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets) and liquidity of companies in sectors such as mining and quarrying, manufacturing, construction, service sector and energy sector.

We estimated the impact of selected financial indicators related to the structure of funding sources (debt equity ratio, return on equity, share of fixed assets to total assets, share of earnings before interest and taxes to total assets) on liquidity of companies in mining and quarrying, manufacturing, construction, service sector and energy sector in the Czech Republic.

All identified resulting relationships correspond with the conclusions of correlation analysis through which we determined what relationship exists between liquidity of companies and independent variables.

We found that the liquidity of companies was positively influenced by the return on equity (ROE) in energy sector in the Czech Republic. This means that with increase in return on equity increases liquidity of companies in energy sector in the Czech Republic. Profit companies are much more capable of paying dividends, paying their debt obligations and having considerable liquidity.

On the other hand, debt equity ratio has a negative impact on liquidity of companies in energy sector. It can stated that with decrease in debt equity ratio increases liquidity of companies in energy sector in the Czech Republic. We can argue that companies with a high level of debt are less able to dispose of sufficient liquidity in energy sector. If companies in the energy sector are able to generate profits and achieve higher levels of profitability, they are able to dispose of a larger volume of liquid assets.
Completely different situation was recorded in the service sector. There was observed the resulting relationship between liquidity of companies and share of fixed assets to total assets. The results show that there is the negative impact of share of fixed assets to total assets on liquidity of companies which means that with decrease in share of fixed assets to total assets increases liquidity of companies in service sector in the Czech Republic. In practice, this means that if companies in the service sector have a higher fixed asset volume, which also involves a higher level of depreciation, they have a lower liquidity level. The results showed the negative impact of debt financing sources on the liquidity of companies in the energy sector, where the debt equity ratio was used as a debt financing source. The results showed a positive impact of the own funding sources on the liquidity of companies in the energy sector, where the return on equity was used as the own financing source. The results showed the negative impact of own funding sources on the liquidity of companies in the service sector, where the share of fixed assets in assets was used as the own financing source presenting depreciation of the company.
Impact of other variables on liquidity of companies in other selected sectors was not statistical significant, thus we are not able to confirm the impact of other variables on liquidity of companies in other selected sectors in the Czech Republic such as mining and quarrying, manufacturing and construction.

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