CAPITAL STRUCTURE IMPACT ON LIQUIDITY MANAGEMENT

Daiva Burksaitiene[1] and Liudmila Draugele[2]

[1]Assoc. Prof. at Faculty of Business Management, Vilnius Gediminas Technical University

[2]Master student at Faculty of Business Management, Vilnius Gediminas Technical University

Abstract

Liquidity risk is a type of a risk when a company is unable to meet all current financial liabilities in due time because lack of availability of financial resources. The capital structure is one of the most studied topics in finances because of its strong dependency with company's performance. The main problem that is assessed in this study – how any kind of impact to company's capital structure influence to the liquidity risks in this company? The research presented in this paper involves quantitative analysis of companies in Baltic countries, 400 observations. This makes possible to decide if used data is relevant and useful for the research. After those different types of leverage analysis is performed to determine capital structure impact on liquidity.

Keywords: capital structure, liquidity, leverage, equity, liabilities, correlation

INTRODUCTION

A company's capital structure consists of its equity, debt, and securities which are used to finance the business operation. The comparison ratio between the equity and the debt is mostly known as the leverage (Cortez & Susanto 2012). The problem of capital structure was researched by many scientists all over the world and a lot of theories have been developed. It all began with the Modigliani and Miller theory (1958) that proposed the irrelevance of capital structure concept. Essentially, they hypothesized that in perfect markets, it does not matter the capital, a company uses to finance its operations, comes from. They theorized that the market value of a company is determined by its earning power and by the risk of its fundamental assets, and that its value is independent of the way it chooses to finance its investments or distribute dividends. This theory does not work in real world, as there are taxes, interest for the debt capital and other costs and risks that affect profitability of companies.

Liquidity risk is a type of a risk that a company will be unable to meet all current financial liabilities in due time because of lack of availability of current financial resources. This risk is considered one of the most important in making management decisions, such as – should company take short-term or long-term bank loans to finance some new projects. And the capital structure is one of the most studied topics in finances because of its strong dependency with company's performance.

The **research object** of this article is analysis of capital structure of non-financial companies dynamics influence to liquidity indicators. Data was used of companies located in Baltic countries. **The main aim** of this study is to find out if there is a relation between capital structure and liquidity management and what type of relationship it is. Research in this study involves

descriptive statistical, correlation and regression analysis. This makes possible to determine is used data relevant and useful for the research or not.

MATERIALS AND METHODS

1. *Literature analysis*

The question "How projects should be financed?" brings a challenge to all managers and companies that want to start up and prosper. There are two basic financing choices to choose from, a company could either borrow money in the form of bonds or/and bank loans (public or private) (Welch, 2017) or they can issue stocks in the primary market to raise company's own equity, or alternatively company can adopt a combination of these two financing models. The capital structure is the sum of all stakeholders' claims on the assets of the company (Welch, 2017).

The financing decisions are restricted by many factors; among these factors is the proportion of various sources of finance. These sources could be either shareholder's funds or borrowed from third parties. Unfortunately, any financing possibilities may be getting for a price. A lot of researches were conducted of comparative measures of the cost of capital (equity and debt) with different company's debt levels and results show, that the higher the cost of equity, the greater the use of debt financing, when the cost of debt is high, usage of debt financing is considerably lower (Albanez, 2015).

As mentioned earlier, companies can choose from many types of capital structures. "Is there a way of dividing a company's capital into debt and equity so as to maximize the value of the company?" This question is of high importance to executives and to financial management, as well as "what are the most important characters that should exist in a company to obtain the best and optimal capital structure?" Since any bad decision regarding capital structure might lead to unbearable financial burdens and eventually even lead company to bankruptcy, there are numerous theories developed to analyse alternative capital structures.

Unfortunately, but finance literature has still not been able to provide clear guidance on optimal capital structure (Drobetz & Fix, 2003). Modigliani and Miller in 1958 were the first authors who developed capital structure theory. After that, many experts followed their idea of developing new theories on capital structure while trying to departure from their assumptions. Theory has made some progress in this regard; however, the empirical evidence regarding the alternative theories cannot be called conclusive (Rajan & Zingales, 1995), (Acaravci, 2006).

Among all these theories, the static Trade Off Theory (TOT) which was created by Modigliani and Miller (1963) was the earliest and most well-known theory that explains how capital structure is formulated. Their trade off theory suggested that "there are optimal capital structures by trading off the benefits and cost of debt and equity". The main benefit of debt is that taxes could be deductible from interest and the costs are bankruptcy cost and agency cost (Jesen & Meckling, 1976; Myers, 1977). However, studies indicated a shift from the trade-off theory to the Pecking Order Theory (POT) (Quan, 2002; Mazur, 2007). The Pecking Order Theory assumes that there is no target capital structure. The companies choose capitals according to the following order:

1. Internal finance;

2. Debt;

3. Equity.

Myers and Majluf (1984) argued the existence of information asymmetry between managers and investors. They reasoned that managers surely have more information than investors and they act in favour of shareholders. The study of capital structure has been driven by these two major theories. Many studies discussed different countries' capital structures, some by using a single-country analysis and others by panel data. For example, in the United States of America, some studies inspected manufacturing industries (Titman & Wessels, 1988), restaurants (Upneja & Dalbor, 2001), lodging and software (Tang & Jang, 2005). A few studies compare the capital structure between countries and regions. For example, Deesomsak, Paudyal and Pescetto (2004), who conducted a study in the Asia-Pacific region, concluded that environment affects a company's decisions about capital structure. Delcoure (2007) investigates emerging Central and Eastern European countries to co-company the traditional capital structure theories of TOT and POT. Cespedes, Gonzalez and Molina (2009) examine the capital structure of Latin American companies using a comprehensive sample. Their evidence supports the hypothesis that Latin American companies prefer debt to equity (Ting & Lean 2011).

By assessing the two theories, we notice that the basic drive for the theories of capital structure is to find out whether the capital structure has an effect on the company's performance or not. It is possible to assess financial analysis using ratio analysis tool. It is defined as the systematic use of ratio to interpret the financial statements so that the strengths and weaknesses of a company, its historical performance and current financial condition can be determined. The term ratio refers to the quantitative relationship between two variables. Ratio analysis is used to determine the capital structure of a company (Sahu & Charan, 2013).

Leverage can be defined as the ratio of total debt to net assets, where net assets are total assets minus accounts payable and other liabilities. Although this measure is not influenced by trade credit, it is affected by factors that may have nothing to do with financing. For example, assets held against pension liabilities may decrease this measure of leverage. Therefore, the effects of past financing decisions are probably best represented by the ratio of total debt to capital (defined as total debt plus equity) (Rajan & Zingales, 1995).

Since liquidity decisions directly connect to the debt structure of companies, every business needs to monitor its liquidity relationship with debt decision. Liquidity is a key financial indicator that measures whether the company has the ability to fulfil its debt commitments based on short term debt, long term debt, and the total debt ratios without incurring undesirable losses (Ghasemi & Razak, 2016).

Managers tend to be more risk averse than shareholders, they are aligned with debt holder interests to some extent. The use of debt incurs the risk of bankruptcy that is often described as increasing with the debt ratio. Excessively risk-averse managers would avoid lifting the debt ratio to the level that shareholders desire (Brisker & Wang, 2017).

2. Methodology

Through financial information an executive can take imperative decision as and when they are required. For studying the financial health and having accurate financial information of a business,

ratio analysis is being considered as the major tool at present. According to R.O. Igben, "Accounting or financial ratio is a proportion or fraction or percentage expressing the relationship between one item in a set financial statements and another item in the financial statements. Accounting ratios are the most powerful of all tools used in analysed and interpreting financial statements". Therefore, Lasher (1997) noted that ratio analysis involves taking stats of number (or items) out of financial statements and forming ratios with them, to enhance informed judgments and decisions (Sahu & Charan, 2013). The following could be described as the leverage ratio. These ratios show the debt obligations a company holds along with the shareholder's equity. Higher leverage ratio for a company means high debt hence a very risky investment. This ratio group is used to demonstrate the company's ability to meet its financial obligations (Sharma, 2012).

The debt to equity ratio measures a company's financial stability and leverage. If a company has a high debt to equity ratio, it indicates that the company has a high debt level per each euro of shareholders' equity. Therefore, a low debt to equity ratio is always favoured. (Herciu et. al, 2011)

3. Data

For this article were collected 400 observations in total, through analysis of companies that are listed on Nasdaq Baltic Stock Market.

Baltic Stock Market began its history in 1920 when a foreign currency and securities exchange launched in Tallinn. Until 1928, a listing committee of bank representatives quoted security prices once a year, on the last day of the year. Starting in March 1934, prices were quoted once a month, on the last day of the month. The exchange closed in March 1941 after Soviet occupation of Estonia.

After restored independence in 1991, Estonia undertook to create a securities market from the ground up. Key tasks were to start the privatization process and develop an entirely new base of legislation. In 1994, the Investment Funds Act was adopted and the Estonian Central Securities Depository was established.

In April 2001, Finland's HEX Group acquired strategic ownership of the Tallinn Stock Exchange Group and in February 2002 Estonian securities began to trade in the HEX trading system. The exchange got a new owner in September 2003 – OMHEX, which was created by the merger of Swedish bourse operator OM and Finnish HEX and a year later changed its name to OMX. The Tallinn Stock Exchange then adopted the SAXESS Nordic-Baltic trading platform used also by exchanges in Sweden, Denmark, Iceland, Finland and Latvia. Lithuania adopted the same trading system in 2005 after becoming part of OMX through privatization.

In February 2008, NASDAQ Stock Market, Inc. merged with the Baltic and Nordic exchange group OMX AB to create the NASDAQ OMX Group, Inc. That same year the Baltic exchanges opened the Baltic Funds List for quoting and trading of investment fund units.

At the moment of writing this article, there are 71 companies listed on the Nasdaq Baltic Stock Market:
   - 31 companies on the Baltic Main list;
   - 36 companies on the Baltic Secondary list;
   - 4 companies on the Alternative (First North) list.

For the data analysis in this study 10 non-financial companies were selected. The sample for data analysis consists of 5 companies that are listed on Baltic Main list, 5 companies that are listed on Baltic secondary list, among them 6 companies are Lithuanian capital and other 4 are Latvian and Estonian.

Size is considered a critical determinant of the capital structure choice, since relatively large companies tend to be more diversified and less prone to bankruptcy. Also, companies within the same sector reveal more similar capital structures and conditions, compared to those in different sectors. In addition, they often adjust their debt level towards the sector mean (Noulas, 2014). So, the companies for the study were selected through analysing these signs for similarity.

4. Leverage indicators

In order to analyse and compare capital structure of selected companies, 3 essential ratios in this study were used:

Equity ratio: $\frac{Total\ equity}{Total\ Assets} * 100\%$ (1)

Long-term debt ratio:

$$\frac{Long-term\ debt}{Total\ Assets} * 100\%$$ (2)

Short-term debt ratio:

$$\frac{Short-term\ debt}{Total\ Assets} * 100\%$$ (3)

Another useful ratio to determine company's financial stability is debt capital ratio. The debt capital ratio reflects the share of borrowed capital in the sources of financing the activities of the enterprise. This coefficient in its value is the inverse of the coefficient of ownership. It is considered that the value of this coefficient should be maintained at a level below 50%.

Debt capital ratio:

$$\frac{Total\ Liabil}{Total\ Ass} * 100\%$$ (4)

High value of correlation ratio between equity capital ratio and debt capital ratio is considered undesirable. This coefficient characterizes the company's dependence on external loans. The higher the value of the indicator, the more long-term liabilities for a given enterprise, the riskier is its position. Large external debt, including interest payments, means a potential danger of a cash deficit, which in turn can lead to bankruptcy of the company.

Leverage: $\frac{Total\ Liabil}{Total\ Equi}$ (5)

As a measure of profitability Return on Equity (ROE) and Return on Assets (ROA) were used.

Return on Equity: $\frac{Net\ Inc}{Total\ Eq}$ (6)

Return on Assets: $\frac{Net\ Inc}{Total\ A}$ (7)

Return on Equity is the amount of net income returned as a percentage of shareholder's equity. Return on equity measures a company's profitability by revealing how much profit a

company generates with the money shareholders have invested (Berzkalne & Zelgalve, 2014). It is a good indication of whether the company is even capable of generating a return that is worth whatever risk the investment may entail (Berman *et. al*, 2013).

Return on assets (ROA) is a financial ratio that shows the percentage of profit a company earns in relation to its overall resources. And is one of the most important ratios for potential investors, as it gives a good idea of how efficiently are assets used to generate profit (Berman *et. al*, 2013).

There are two most commonly used ratios to evaluate liquidity of a company.

Current ratio is used to evaluate if company is able to pay its short-term and long-term liabilities.

Current ratio: $\dfrac{Current\ Assets}{Current\ Liabilities}$ (8)

The current ratio is mainly used to give an idea of the company's ability to pay back its liabilities (debt and accounts payable) with its assets (cash, marketable securities, inventory, and accounts receivable). As such, current ratio can be used to take a rough measurement of a company's financial health. The higher the current ratio, the more capable the company is of paying its obligations, as it has a larger proportion of asset value relative to the value of its liabilities.

A ratio below 1 indicates that a company's liabilities are greater than its assets and suggests that the company in question would be unable to pay off its obligations if they came due at that point. While a current ratio below 1 show that the company is not in good financial health, it does not necessarily mean that it will go bankrupt. There are many ways for a company to access financing, and this is particularly so if a company has realistic expectations of future earnings against which it might borrow. For example, if a company has a reasonable amount of short-term debt but is expecting substantial returns from a project or other investment not too long after its debts are due, it will likely be able to stave off its debt. All the same, a current ratio below 1 is usually not a good sign.

Another ratio is quick ratio, also known as acid ratio.

Quick ratio: (9)

$$\dfrac{Accounts\ Receivables + Cash\ and\ cash\ equivalents}{Total\ Liabilities}$$

The quick ratio is more conservative than the current ratio because it excludes inventories from current assets. The ratio derives its name presumably from the fact that assets such as cash and marketable securities are quick sources of cash. Inventories generally take time to be converted into cash, and if they have to be sold quickly, the company may have to accept a lower price than book value of these inventories. As a result, they are justifiably excluded from assets that are ready sources of immediate cash.

Last liquidity measurement used in this study is liquidity ratio that is based on the funding structure of working capital required. To calculate this ratio first of all working capital requirement (WCR) should be calculated: (10)

$WCR = (Accounts\ Receivable + Inventories + Prepaid\ Expenses) - (Accounts\ payable + Accrued\ Expenses)$

Next long-term financing should be calculated as follows:

$NLF = Long\ term\ debt + Equity - Net\ fixed\ Assets$

(11)

The ratio of net long-term financing to working capital required:

Liquidity ratio: $\frac{NLF}{WCR}$ (12)

5. Statistical data analysis

All calculated capital structure and liquidity ratios values can be found in *Table 1*, this is the data that will be analysed further.

Table 1. Data for analysis (source: given by the authors)

Company, Year	Country	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Grindeks AS 2016	LV	5.7	8.3	0.68	0.32	0.46	2.66	1.58	0.95
Grindeks AS 2015	LV	0.7	1	0.70	0.30	0.44	2.26	1.26	0.79
Grindeks AS 2014	LV	-1.6	-2.2	0.68	0.32	0.48	2.03	1.16	0.85
Grindeks AS 2013	LV	9.3	11.9	0.79	0.21	0.26	3.62	2.34	1.32
Grindeks AS 2012	LV	10.1	13.7	0.76	0.24	0.31	3.47	2.32	1.18
Gubernija AB 2016	LT	-5.4	-29.5	0.17	0.83	5.05	0.62	0.33	-4.27
Gubernija AB 2015	LT	-2.4	-11.7	0.20	0.80	3.90	0.63	0.31	-4.50
Gubernija AB 2014	LT	-3.3	-14.9	0.21	0.79	3.72	0.74	0.39	-1.74
Gubernija AB 2013	LT	-2.9	-12.9	0.22	0.78	3.45	0.71	0.37	-1.78

Company, Year	Country	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Gubernija AB 2012	LT	-3.2	-13.8	0.22	0.78	3.49	0.30	0.12	-7.55
Latvijas balsams AS 2016	LV	6.1	8.4	0.74	0.26	0.34	2.37	0.12	5.12
Latvijas balsams AS 2015	LV	5.9	8.7	0.71	0.29	0.42	2.38	0.03	4.90
Latvijas balsams AS 2014	LV	6.3	10	0.64	0.36	0.56	1.90	0.05	3.41
Latvijas balsams AS 2013	LV	4.9	8.2	0.61	0.39	0.64	1.62	0.02	3.87
Latvijas balsams AS 2012	LV	4.9	8.6	0.58	0.42	0.72	1.78	0.02	3.18
Olainfarm AS 2016	LV	8.8	12.5	0.67	0.33	0.50	2.72	1.56	1.70
Olainfarm AS 2015	LV	13.6	18.9	0.75	0.25	0.34	3.43	1.90	1.59
Olainfarm AS 2014	LV	12.1	18.1	0.68	0.32	0.46	2.50	1.44	1.41
Olainfarm AS 2013	LV	15.2	22.4	0.69	0.31	0.46	2.43	1.39	1.45
Olainfarm AS 2012	LV	21.6	30.6	0.75	0.25	0.34	2.59	1.80	1.07
Rokiškio sūris AB 2016	LT	7	8.8	0.86	0.14	0.17	5.00	2.58	1.11
Rokiškio sūris AB 2015	LT	2.6	3.6	0.75	0.25	0.34	2.86	1.02	0.90
Rokiškio sūris AB 2014	LT	-0.3	-0.4	0.70	0.30	0.43	2.44	0.97	1.04
Rokiškio sūris AB 2013	LT	6.8	9.9	0.67	0.33	0.49	2.09	1.00	1.07
Rokiškio sūris AB 2012	LT	6.5	9.7	0.70	0.30	0.43	1.97	0.94	1.10
Pieno žvaigždės AB 2016	LT	2.3	5.6	0.41	0.59	1.44	1.31	0.68	0.49
Pieno žvaigždės AB 2015	LT	3.2	7.4	0.41	0.59	1.44	1.49	0.71	0.58

Company, Year	Country	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Pieno žvaigždės AB 2014	LT	5.1	12.8	0.44	0.56	1.26	1.13	0.56	0.11
Pieno žvaigždės AB 2013	LT	2.8	7.1	0.36	0.64	1.77	1.40	0.49	0.50
Pieno žvaigždės AB 2012	LT	8.7	19.6	0.44	0.56	1.27	1.13	0.68	0.16
Linas AB 2016	LT	6.8	9.2	0.69	0.31	0.45	2.87	0.97	1.12
Linas AB 2015	LT	6.8	8.6	0.80	0.20	0.25	3.86	1.35	1.31
Linas AB 2014	LT	-11.5	-15.2	0.77	0.23	0.29	3.45	1.38	1.61
Linas AB 2013	LT	-7.1	-9.6	0.75	0.25	0.33	2.46	1.00	1.95
Linas AB 2012	LT	7.9	10.8	0.73	0.27	0.37	2.02	0.94	2.71
PRFoods AS 2016	EE	2.2	3	0.68	0.32	0.47	2.38	0.94	4.04
PRFoods AS 2015	EE	3.4	4.1	0.79	0.21	0.27	3.70	1.32	3.06
PRFoods AS 2014	EE	-5.4	-7.9	0.83	0.17	0.20	5.63	3.14	1.97
PRFoods AS 2013	EE	1.5	2.6	0.58	0.42	0.71	1.63	0.60	3.89
PRFoods AS 2012	EE	0.1	0.2	0.58	0.42	0.73	1.91	0.71	3.88
Snaigė AB 2016	LT	3.1	8.4	0.47	0.53	1.14	1.45	0.83	3.08
Snaigė AB 2015	LT	1.4	5	0.26	0.74	2.80	0.70	0.49	0.51
Snaigė AB 2014	LT	-2.5	-8.3	0.28	0.72	2.55	1.20	0.68	2.27
Snaigė AB 2013	LT	-8.4	-24.9	0.32	0.68	2.14	1.10	0.66	1.26
Snaigė AB 2012	LT	1	2.8	0.36	0.64	1.78	1.17	0.66	1.48

Company, Year	Country	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Žemaitijos pienas AB 2016	LT	17.8	24.6	0.75	0.25	0.34	2.72	1.47	1.67
Žemaitijos pienas AB 2015	LT	7.6	10.5	0.73	0.27	0.37	2.40	1.09	1.38
Žemaitijos pienas AB 2014	LT	3.9	5.4	0.75	0.25	0.34	2.91	1.14	1.38
Žemaitijos pienas AB 2013	LT	10.2	14.4	0.74	0.26	0.35	3.01	0.69	0.98
Žemaitijos pienas AB 2012	LT	10.8	17.3	0.69	0.31	0.45	2.39	0.64	0.82

Descriptive analysis is used to present the data in a comprehensive way. This way it is easier to summarise the data and decide if it is relevant. This analysis also provides the summary about the sample and the measure. Descriptive statics are used to present the quantitative description in the manageable form. They describe the large number of data in a sensible way. Mean is the average of the numbers and easily calculated. Median shows the middle value of the data or the number unravelling the higher half of a data sample, a population, or a probability distribution from the lower half. A maximum and minimum values show the range of the data and the standard deviation indicates the deviation from mean value.

Calculated values are given in Table 2, while observed data can be found in Table 1.

Table 2. Descriptive data analysis (source: given by authors)

Statistics	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Mean	4.01	4.83	0.59	0.41	1.03	2.21	0.98	1.21
Standard Error	0.93	1.71	0.03	0.03	0.16	0.16	0.10	0.31
Median	4.40	8.25	0.68	0.32	0.46	2.32	0.94	1.29
Mode	6.80	8.40	0.75	0.25	0.34	2.38	0.94	1.07

Standard Deviation	6.55	12.12	0.20	0.20	1.16	1.10	0.68	2.22
Sample Variance	42.93	146.84	0.04	0.04	1.34	1.21	0.46	4.93
Kurtosis	0.48	0.81	-0.58	-0.58	2.89	1.11	1.36	5.08
Skewness	0.11	-0.74	-0.89	0.89	1.90	0.74	1.03	-1.65
Range	33.10	60.10	0.69	0.69	4.88	5.33	3.12	12.67
Minimum	-11.50	-29.50	0.17	0.14	0.17	0.30	0.02	-7.55
Maximum	21.60	30.60	0.86	0.83	5.05	5.63	3.14	5.12
Confidence Level (95.0%)	1.86	3.44	0.06	0.06	0.33	0.31	0.19	0.63

In this table the standard deviation is smallest for the Equity ratio and Debt capital ratio; this indicates that variables are the least spread out. The large standard deviation calculation in ROE ratio shows that companies both had and very large return on equity and had rough times during the observed period.

Also ROE shows the biggest difference between mean and median, while other ratios have really small difference, this shows the strong relationship and that variables are fairly even spread-out.

The main task of this study was to decide and explain if there is a relationship between company's capital structure and liquidity. Correlation analysis main purpose is to quantify the association between variables. Using the data provided from Table 1 correlation analysis was conducted and results are provided in Table 3.

As is indicated in Table 2, standard deviations and standard errors are rather big for most of the leverage indicators. The reason of such great variance and standard error is due to some cyclicity existence in the bulk data provided.

Table 3. Correlation analysis (source: given by authors)

Indicators	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
ROA %	1							

ROE %	0.9339	1					
Equity ratio	0.4580	0.5388	1				
Debt capital ratio	-0.4580	-0.5388	-1	1			
Leverage	-0.4851	-0.6488	-0.9338	0.9338	1		
Current ratio	0.2797	0.3263	0.8637	-0.8637	-0.7329	1	
Quick ratio	0.2659	0.2656	0.6017	-0.6017	-0.4843	0.8119	1
Liquidity ratio	0.2543	0.4173	0.5843	-0.5843	-0.7178	0.4030	0.1033	1

Table 4. Correlation of leverage to liquidity ratio for separate companies (source: given by authors)

Company	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Average of correlation coefficients	Average of correlation coefficients absolute values
Grindeks AS	0.896	0.869	0.922	-0.922	-0.943	0.966	0.966	0.393	0.926
Gubernija AB	0.061	0.045	0.017	-0.017	-0.042	0.955	0.954	0.282	0.299
Latvijas balsams AS	0.456	-0.401	0.937	-0.937	-0.922	0.856	0.611	0.086	0.731
Olainfarm AS	-0.920	-0.937	-0.496	0.496	0.526	0.410	-0.174	-0.156	0.566
Rokiškio sūris AB	0.570	0.558	0.101	-0.101	-0.062	0.173	0.404	0.235	0.281
Pieno žvaigždės AB	-0.794	-0.839	-0.727	0.727	0.703	0.962	0.150	0.026	0.700
Linas AB	0.023	0.034	-0.061	0.061	0.021	-0.761	-0.439	-0.160	0.200
PRFoods AS	0.737	0.784	-0.858	0.858	0.821	-0.973	-0.960	0.058	0.856
Snaigė AB	0.265	0.217	0.747	-0.747	-0.715	0.933	0.943	0.235	0.652

Žemaitijos pienas AB	0.254	0.138	0.750	-0.750	-0.717	0.118	0.989	0.112	0.531

The analysis of the influence of different leverage indicators to the liquidity ratio in individual situations after data separation and redistribution in groups by firms has proved significantly stronger correlations (Table 4). Average correlation coefficients for most of the companies looks like not significant and vary from -0.160 to 0.393. The reason of such weak correlation is that some of the leverage indicators influence each other in opposite directions. The average of correlation coefficients absolute values demonstrate very strong correlation between analysed indicators – in 70% of analysed companies.

We can observe strong positive relationship between Equity ratio and Current ratio and it is obvious that relationship between Debt capital ratio and Current ratio is proportionally negative, as Equity and Debt capital ratios are reverse to one another. This correlation implies that the more equity is used in capital structure of the company, the lesser is the liquidity risk in this company, while the more debt capital is used – the higher is the risk.

Also strong negative relationship can be seen between Current ratio and Debt capital ratio. This shows that large external debt, including interest payments, means a potential danger of a cash deficit, which in turn can be crucial for the company.

6. Regression analysis of leverage

Strong positive relationships between Equity ratio and leverage indicators have suggested idea of employing regression analysis for the quantification of the influence of changes in leverage data to the equity ratio.

For this analysis average leverage data for analysed period vas calculated for each of analysed companies (Table 5).

Table 5. Average leverage data for analysed period (source: given by authors)

Company	ROA %	ROE %	Equity ratio	Debt capital ratio	Leverage	Current ratio	Quick ratio	Liquidity ratio
Grindeks AS	4.840	6.540	0.722	0.278	0.390	2.808	1.732	1.018
Gubernija AB	-3.440	-16.560	0.204	0.796	3.922	0.600	0.304	-3.968
Latvijas balsams AS	5.620	8.780	0.656	0.344	0.536	2.010	0.048	4.096
Olainfarm AS	14.260	20.500	0.708	0.292	0.420	2.734	1.618	1.444
Rokiškio sūris AB	4.520	6.320	0.736	0.264	0.372	2.872	1.302	1.044

Pieno žvaigždės AB	4.420	10.500	0.412	0.588	1.436	1.292	0.624	0.368
Linas AB	0.580	0.760	0.748	0.252	0.338	2.932	1.128	1.740
PRFoods AS	0.360	0.400	0.692	0.308	0.476	3.050	1.342	3.368
Snaigė AB	-1.080	-3.400	0.338	0.662	2.082	1.124	0.664	1.720
Žemaitijos pienas AB	10.060	14.440	0.732	0.268	0.370	2.686	1.006	1.246

In Table 6 regression statistics – ANOVA for the data presented in Table 5 is given. Standard error and R2 and Regression equation coefficients with reliability statistics are presented in Tables 7 an 8.

Analysis performed allows to get regression equation (1).

Table 6. Regression statistics – ANOVA (source: given by authors)

ANOVA	df	SS	MS	F	Significance F
Regression	7	40.54	5.79	32.49	0.03
Residual	3	0.62	0.21		
Total	10	41.17			

Table 7. Regression statistics: standard error and R2 (source: given by authors)

Regression Statistics	
Multiple R	0.9924
R Square	0.9848
Adjusted R Square	0.6212
Standard Error	0.4561

Table 8.Regression equation coefficients and reliability statistics (source: given by authors)

Indicators	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	45.0520	6.5267	6.9027	0.0062	24.2811	65.8229
ROA % (ROA)	1.4224	0.2887	4.9274	0.0160	0.5037	2.3411
ROE % (ROE)	-0.9802	0.1940	-5.0521	0.0150	-1.5977	-0.3628
Equity ratio (ER)	-62.2016	10.2535	-6.0664	0.0090	-94.8329	-29.5704
Debt capital ratio (DCR)	0.0000	0.0000	65535.	#NUM!	0.0000	0.0000
Leverage (LV)	-12.4988	1.8076	-6.9147	#NUM!	-18.2514	-6.7463
Current ratio (CR)	3.5056	1.4656	2.3920	0.0966	-1.1585	8.1696
Quick ratio (QR)	-2.7105	0.6683	-4.0557	0.0270	-4.8373	-0.5836

Regression equation: (1)

Liquidityratio = 45.0520+1.4224ROA-0.9802ROE-62.2016ER-12.4988LV+3.5056CR-2.7105QR

Discussion and conclusions

The standard errors of the estimated coefficients indicate their probable sampling variability, and their reliability. The calculated coefficient plus or minus one standard error is approximately a 68% confidence interval for the unknown population parameter, and the estimated coefficient plus or minus two standard errors gives a 95% confidence interval.

The t-statistic here is the ratio of the estimated coefficient to its standard error, so if zero is outside the 95% confidence interval, then the t-statistic must be bigger than two in absolute value. As we may observe from the Table 8 for all coefficients t-statistic is bigger than two in absolute value.

For each t statistic in Table 8 is calculated probability value, which is the probability of obtaining a value of the t statistic at least as large in absolute value as the one really calculated, if the

insignificance hypothesis would be true. If a t statistic would be 2, the probability value in such case has to be 0.5. The smaller is this probability value, the less probable is insignificance of the calculated coefficients. Probability values less than 0.1 are regarded as strong evidence against insignificance.

So, the regression equation is rather reliable for the situation observed in the market I analysed period. Of course, if economic environment would change significantly, e. g. if the recession would develop, and interest rates for external credits would jump up sharply, the regression equation calculated here is not advisable to use for forecasting – "ceteris paribus" assumption would be violated.

While the classical theory of capital structure implies that it is irrelevant to analyse and plan the capital structure, this problem is frequently assessed by different scientists. Capital structure ratios and cost of capital are essential to managers to make decisions about source of further financing. On the other hand, liquidity risk should be managed carefully too, as obtaining too much of debt capital and with it liabilities to pay interest may lead to financial vulnerability and risk that company will be not able to pay off all the liabilities in time.

During the research for this study data of 400 observations of 10 companies that are listed in Nasdaq Baltic Stock Market were analysed. Data for the research was taken from posted annual financial statements, income statements and balance sheets. By calculating and analysing capital structure and liquidity ratios it became obvious that 3 companies out of 10 are in a very vulnerable state and should consider using less debt capital, as it may lead to serious liquidity risk.

Correlation analysis between capital structure ratios and liquidity ratios revealed a strong relationship. Research results implies that the more equity is used in capital structure of the company, the lesser is the liquidity risk in this company, while the more debt capital is used – the higher is the risk. Also strong negative relationship can be seen between Current ratio and Quick ratio. This shows that large external debt, including interest payments, means a potential danger of a cash deficit, which in turn can be crucial for the company

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