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NEW INFORMATION TECHNOLOGIES USE FOR LATVIAN COMPANIES FINANCIAL HEALTH EVALUATION

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Abstract. Financial health of companies in certain region is the foundation on which the prosperity of region is based. If companies in region are healthy and successful, there are good reasons to believe that all social problems can be solved relatively easy. Regional economic development in Latvia at present time happens inhomogenously – there is a growing region near Riga where economic and social development is going very good, and there are regions where results are worse. The main purpose of this paper is to describe, apply and provide critical review the existing information technologies based possibilities for Latvian companies' financial health evaluation. We focus on the set of financial ratios necessary for economic health evaluation and homepages parsing based methods for these ratios determination for Latvian companies.

Keywords: new information technologies, fundamental analysis

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JEL Classifications: M2, M4

1. Introduction

The main purpose of this paper is to describe the information technologies based possibilities for Latvian companies' financial health evaluation. There are two steps in company financial health evaluation. The first step is the de-termination of the set of financial ratios used for evaluation and the second step is the ratios comparison with optimal values.

There are several approaches for the set of financial ratios determination. The common feature for all these approaches is that all of them are based on the same groups of financial ratios – profitability, operating efficiency, solvency and liquidity. The differences are related with the amount of considered ratios, from 7-8 in simple cases up to 20-30 in complicated ones, and with the degree of detalization of consideration. Differences in approaches for company financial health evaluation are related with the goals of evaluation also – usually in theoretical studies and in practical applications sets of financial ratios are slightly different (Belás et al. 2017; Paseková et al. 2017).

The classical theoretical approach in assessing the financial health of the firm is de-scribed in Analysis for Financial Management (Higgins, 2012). According to this approach main three financial statements of company – cash flow, balance sheet and income statement - are considered at first to receive “a set of objective numbers, that provide information about the firm’s performance, problems, and prospects” (Higgins, 2012). After that the following profitability, turnover-control, liquidity, leverage ratios are considered their sense for company financial health evaluation is analysed (Table 1):

Table 1. Profitability ratios

Profitability Ratios	
Return on equity	= Net income/Shareholders' equity
Return on assets	= Net income/Assets
Return on invested capital	= (Earnings before interest and taxes) * (1 – Tax rate)/(Interest-bearing debt + Shareholders' equity)
Profit margin	= Net income/Sales
Gross margin	= Gross profit/Sales
Price to earnings	= Price per share/Earnings per share

Profitability ratios is the first group of ratios for financial health evaluation and they form the foundation on which all the further evaluation of financial health of company is based. Strategic management theory considers (Hill, Jones, 2013) that the long term profit higher than average in industry is the decisive factor of company competitiveness.

Table 2. Turnover-Control Ratios

Turnover-Control Ratios	
Asset turnover	= Sales/Assets
Fixed-asset turnover	= Sales/Net property, plant, and equipment
Inventory turnover	= Cost of goods sold/Ending inventory
Collection period	= Accounts receivable/Credit sales per day (If credit sales unavailable, use sales)
Days' sales in cash	= Cash and securities/Sales per day
Payables period	= Accounts payable/Credit purchases per day

Turnover-control ratios (Table 2) is the second group of ratios for financial health evaluation and also should be considered in time perspective – dynamics of sales is often considered as the second important factor after profit for company health evaluation. The positive correlation between sales growth and profit growth is the indicator of the good financial health of company. Unfortunately, for Latvian companies in several cases sales growth is observed simultaneously with profit decreasing which means the existence of certain difficulties in development. Liquidity ratios (Table 3) is the third group of ratios for financial health evaluation and is very important for the evaluation of company ability to cover short-term liabilities. There is opinion that financial health by the origin is the long-term ability to pay in time short-term debts.

Table 3. Leverage and Liquidity Ratios

Leverage and Liquidity Ratios	
Assets to equity	= Assets/Shareholders' equity
Debt to assets	= Total liabilities/Assets (Interest-bearing debt is often substituted for total liabilities)

Leverage and Liquidity Ratios	
Debt to equity	= Total liabilities/Shareholders' equity
Times interest earned	= Earnings before interest and taxes/Interest expense
Times burden covered	= EBIT/(Interest exp. + Prin. pay.)*(1 - Tax rate)
Debt to assets	Total liabilities / Assets
Debt to equity	= (Total liabilities)/(Capitalization +Total liabilities)
Current ratio	= Current assets/Current liabilities
Quick ratio	= (Current assets – Inventory) / Current liabilities

The considered set of financial ratios is the typical example of so called theoretically oriented approach. As the typical sample of practically oriented approach for financial health evaluation let us consider the “[20 Balance Sheet Ratios to Measure a Company's Health](#)” suggested by www.oldschoolvalue.com (Table 4):

Table 4. 20 Balance Sheet Ratios to Measure a Company's Health, source: www.oldschoolvalue.com

Solvency	
Quick Ratio	= (Current Assets - Inventories) / Current Liabilities
Current Ratio	= Current Assets / Current Liabilities
Total Debt/Equity Ratio	= Total Liabilities / Shareholders Equity
Long Term Debt/Equity Ratio	= Long Term Debt / Shareholders Equity
Short Term Debt/Equity Ratio	= Short Term Debt / Shareholders Equity

Liquidity Ratios	
Days Sales Outstanding	= (Receivables / Revenue) x 365
Days Inventory Outstanding	= (Inventory / COGS) x 365
Days Payable Outstanding	= (Accounts Payable / COGS) x 365
Cash Conversion Cycle	= DSO + DIO - DPO
Receivables Turnover	= Revenue / (Average of Current and Prior Year Receivables)
Inventory Turnover	= COGS / (Average of Current and Prior Year Inventory)
Average Age of Inventory (Days)	= 365 / Inventory Turnover
Intangibles % of Book Value	= Intangibles / Shareholders Equity
Inventory % of Revenue	= Inventory / Revenue

Capital Structure Ratios	
LT-Debt as % of Invested Capital	= Long Term Debt / Invested Capital
ST-Debt as % of Invested Capital	= Short Term Debt / Invested Capital
LT-Debt as % of Total Debt	= Long Term Debt / Total Liabilities
ST-Debt as % of Total Debt	= Short Term Debt / Total Liabilities
Total Liabilities % of Total Assets	= Total Liabilities / Total Assets
Working Capital % of Price	= Working Capital / Market Cap

Comparing ratios of two company financial health evaluation approaches, we can see that they use very similar sets of ratios, but practically oriented system pays more attention to capital structure. Approximately the same sets of financial ratios use other practical oriented approaches for company financial health evaluation.

The second step in financial health of company evaluation after the set of financial ratios determination is the financial ratios comparison with optimal values. In several cases such comparison can be performed relatively easy – for example, for all profitability ratios the recommendation of strategic management theory is that in long term perspective profit should be higher, that average profit in industry. If the average profit in industry is known from statistical data – sometimes this is so and later we will consider such cases – it is not difficult to compare company data with statistical data and make conclusions about company competitiveness and financial health.

However, in many cases the determination of optimal values of financial ratios is not so simple and it is necessary to consider which financial information is available and which is not.

2. Information sources and data processing

Speaking about world level sources of companies financial reports it necessary to mention US SEC information system EDGAR at first. There are more than 21 million documents with financial reports of many thousands American stock companies since 1934 in free access there. The serious advantage of EDGAR system comparing with similar European information systems is the use of XBRL standard in financial documents, which makes the automatization of information processing possible. In Europe XBRL is supposed to become a standard for financial reports for stock companies since January 1, 2020. As result, researches have serious differences in possibilities to study American and European companies – for American stock companies it is possible, for example, to download from <http://www.nasdaq.com/screening/company-list.aspx> the list of NASDAQ, NYSE and AMEX traded stocks lists, to receive free of charge for all these companies from EDGAR forms 10-K and 10-Q with year and quarter financial reports, containing balance sheets, cash flows and income statements for last 10 years in XML format, using GAAP taxonomy extract from XML documents above mentioned ratios for company financial health evaluation and compare them with average for industry values. These average values can be calculated for industry since we know appropriate data for all stock companies in industry.

Situation is more complicated in Europe. From one side, we have stock exchanges in all European countries, we have access to data from national financial market regulators, European Securities and Market Authority and European Stock Exchanges also provide information about stock companies year and quarter reports. From another side, it is impossible to repeat for European companies the above described procedure which is possible for American companies. There is no analog of EDGAR in Europe, financial reports are available from European stock exchanges free of charge in pdf format only and it is much more difficult, but sometimes even impossible to organize automatic information receiving and processing for necessary financial ratios calculation. The only known to authors regular way to receive free of charge necessary information is to use methods similar to regular expression analysis. Let us consider at first the simple example of such approach use.

The server of the Register of Latvian companies <http://dati.ur.gov.lv> contains Latvian companies initial registration data. The manual about the rules of server use in Latvian can be found at http://dati.ur.gov.lv/ur_opendata.pdf and the list of 372590 Latvian companies can be found on the server with the data about company name, address, data of registration and registration code. More detailed information about Latvian companies can be found on the server <http://company.lursoft.lv> of company Lursoft which in addition to Register data contains information about company activities according to NACE classificatory and tax payments. Data about company Lursoft itself can be found on server by two ways – or using the link <http://company.lursoft.lv/lursoft> with company name, or using the link with company code of registration <http://company.lursoft.lv/40003053936>. It is important, that if we know from the Register server only the names of 372590 Latvian companies, we cannot automatically receive data about them from Lursoft server – there is no direct relation between the link to data and the name of company. But if we know their registration codes also, the link to company data on Lursoft server can be generated automatically. By this way we can receive information necessary for example for regional studies – if from home pages parsing we know NACE code of company activity, address and taxes payed, we can analyze different sectors contributions in regional economies. By the similar way we have confirmed the existence of pronounced regional localization of ICT sector enterprises in Latvia. Out of the total 311.34 million taxes paid by ICT sector enterprises, 282.14 million, or 90.62%, are paid in Riga. The effect of localization increases with the size of the enterprise that is the tendency to localize for large enterprises is expressed more noticeable than for a small business. If the share of enterprises with tax payments less than 2,500 euros per year is 68.86% in Riga, the share of enterprise with tax payments more than one million euros in Riga increases to 92%. Such kind of results can be used for the strategy of regional economic development creation.

The similar home pages and XML documents parsing for financial data receiving can be used in other cases also and as the second example of above described approach implementation we will consider the Latvian stock companies financial health evaluation.

3. Latvian stock companies financial health evaluation

Riga Stock Exchange, now Nasdaq Riga, is owned mostly by Nasdaq OMX and together with Vilnius Stock Exchange and Tallinn Stock Exchange is a part of Nasdaq Baltic operating in Baltic countries. This is the reason why Riga Stock Exchange follows to Nasdaq OMX regulations and American company Morning Star on the base of contract with Nasdaq OMX converts Nasdaq Riga financial reports into XML format in the same way as this is done for American companies. By this way reports of such Latvian stock companies as GRD1R (Grindeks), HMX1R (HansaMatrix), LSC1R (Latvijas kuģniecība), OLF1R (Olainfarm), SAF1R (SAF Tehnika), BRV1R (Brīvais Vilnis), LOK1R (Daugavpils Lokomotīvu Remonta Rūpnīca), DPK1R (Ditton pievadķēžu rūpnīca), GRZ1R (Grobiņa), KA11R (Kurzemes atslēga 1), KCM1R (Kurzemes ciltslietu un mākslīgās apsūkšanas stacija), BAL1R (Latvijas balzams), GZE1R (Latvijas Gāze), LJM1R (Latvijas Jūras medicīnas centrs), SMA1R (PATA Saldus), RAR1R (Rīgas autoelektroaparātu rūpnīca), RER1R (Rīgas elektromašīnbūves rūpnīca), RJR1R (Rīgas juvelierizstrādājumu rūpnīca), RKB1R (Rīgas kuģu būvētava), SCM1R (Siguldas ciltslietu un mākslīgās apsūkšanas stacija), TKB1R (Tosmares kuģubūvētava), VSS1R (Valmieras stikla šķiedra), VEF1R (VEF), RRR1R (VEF Radiotehnika RRR) are available in XML format. This gives the possibility to evaluate the above described set of financial ratios necessary for company financial health evaluation. Let us consider as the example those ratios for stock company Grindex for last 5 years (Table 5).

Table 5. GRINDEX

	2012	2013	2014	2015	2016
Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Cost of Revenue	38.24%	39.99%	45.73%	55.75%	45.35%
Gross Margin	61.76%	60.01%	54.27%	44.25%	54.65%
Operating Margin	14.86%	13.75%	-2.15%	1.75%	11.52%
EBT Margin	14.61%	13.75%	-2.15%	1.75%	11.52%
Net Margin	11.65%	11.40%	-2.87%	1.25%	9.03%
Return on Assetsf	10.06	9.29	-1.63	0.65	5.73
Return on Equity	13.7	11.94	-2.23	0.95	8.32
Operating Cash Flow Growth YOY	157.98	26.39	-66.41	-43.78	-4.58
Cap Ex as a % of Sales	-3.41%	-4.84%	-4.13%	-4.37%	-5.10%
Free Cash Flow/Sales	8.21%	9.75%	2.43%	-0.42%	-2.15%
Free Cash Flow/Net Income	0.71	0.86	-0.85	-0.34	-0.24
Total current assets	52.60%	49.05%	49.49%	50.25%	55.37%
Total current liabilities	15.16%	13.53%	24.37%	22.26%	20.81%
Total Liabilities	23.86%	20.64%	32.32%	30.53%	31.77%
Total stockholders' equity	76.14%	79.36%	67.68%	69.47%	68.23%
Liquidity/Financial Health – Current Ratio	3.47	3.62	2.03	2.26	2.66
Liquidity/Financial Health – Quick Ratio	2.86	2.84	1.41	1.49	1.75
Liquidity/Financial Health – Financial Leverage	1.31	1.26	1.48	1.44	1.47
Cash Conversion Cycle	187.15	184.08	247.43	280.27	305.24

Grindex is one of the pharmaceutical leaders in Baltic countries and one of the best Latvian companies. Grindex Gross Margin, often considered as the foundation of financial health of company, on which other financial health indicators are based, is the third largest among Latvian Stock companies. Operating Margin, EBT Margin and Net Margin are high enough, Liquidity ratios are good enough also. Cash Flow indicators are problematic, but it is necessary to take into account events around the one of Grindex products melndronium which was forbidden for use in sport. In general the financial health of Grindex can be evaluated as very good.

Situation with others Latvian companies in several cases is not so optimistic. Let us consider the shorted list of financial ratios for 24 Latvian stock companies (Table 6).

Table 6. Shorted list of financial ratios for 24 Latvian stock companies

Name of stock company	Indicator	2012	2013	2014	2015	2016
GRD1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Grindeks	Cost of Revenue	38.24%	39.99%	45.73%	55.75%	45.35%
	Gross Margin	61.76%	60.01%	54.27%	44.25%	54.65%
	Operating Margin	14.86%	13.75%	-2.15%	1.75%	11.52%
	EBT Margin	14.61%	13.75%	-2.15%	1.75%	11.52%
	Net Margin	11.65%	11.40%	-2.87%	1.25%	9.03%
HMX1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
HansaMatrix	Cost of Revenue	72.96%	76.39%	78.39%	80.06%	86.61%
	Gross Margin	27.04%	23.61%	21.61%	19.94%	13.39%
	Operating Margin	11.00%	8.58%	-17.38%	11.13%	4.62%
	EBT Margin	11.00%	8.58%	-17.38%	9.33%	3.38%
	Net Margin	10.17%	7.55%	-19.05%	8.11%	3.25%
LSC1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Latvijas kuģniecība	Cost of Revenue	79.46%	69.54%	69.27%	64.18%	85.10%
	Gross Margin	20.54%	30.46%	30.73%	35.82%	14.90%
	Operating Margin	-13.61%	-2.47%	-24.81%	1.03%	-14.99%
	EBT Margin	-29.81%	-17.28%	-33.77%	-7.40%	-26.55%
	Net Margin	-29.90%	-17.38%	-34.00%	-7.50%	-24.99%
OLF1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Olainfarm	Cost of Revenue	21.63%	21.73%	31.69%	33.18%	36.91%
	Gross Margin	78.37%	78.27%	68.31%	66.82%	63.09%
	Operating Margin	22.26%	19.09%	14.78%	18.12%	13.21%
	EBT Margin	22.26%	19.09%	14.78%	18.12%	13.48%
	Net Margin	18.43%	16.33%	13.07%	15.69%	10.46%

SAF1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
SAF Tehnika	Cost of Revenue	55.93%	76.77%	77.10%	69.96%	67.26%
	Gross Margin	44.07%	23.23%	22.90%	30.04%	32.74%
	Operating Margin	6.18%	-0.43%	-0.21%	6.11%	4.61%
	EBT Margin	8.37%	-0.05%	1.19%	11.54%	7.26%
	Net Margin	7.47%	-0.16%	0.99%	9.98%	6.75%
BRV1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Brīvais Vilnis	Cost of Revenue	86.57%	87.04%	88.26%	89.67%	93.01%
	Gross Margin	13.43%	12.96%	11.74%	10.33%	6.99%
	Operating Margin	8.15%	5.35%	2.56%	-10.07%	-12.24%
	EBT Margin	6.05%	5.35%	2.56%	-10.07%	-12.24%
	Net Margin	5.47%	4.41%	2.01%	-10.56%	-12.24%
LOK1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Daugavpils Lokomotīvu Remonta Rūpnīca	Cost of Revenue	84.72%	94.82%	93.05%	104.35%	110.54%
	Gross Margin	15.28%	5.18%	6.95%	-4.35%	-10.54%
	Operating Margin	4.53%	-0.73%	-6.19%	-13.72%	-21.21%
	EBT Margin	4.26%	-0.73%	-6.19%	-13.72%	-21.21%
	Net Margin	3.30%	-0.72%	-6.20%	-14.29%	-16.81%
DPK1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Ditton pievadkēžu rūpnīca	Cost of Revenue	80.10%	90.26%	86.80%	126.65%	98.75%
	Gross Margin	19.90%	9.74%	13.20%	-26.65%	1.25%
	Operating Margin	0.97%	0.72%	-55.75%	-66.24%	0.26%
	EBT Margin	0.04%	0.72%	-55.75%	-66.24%	0.26%
	Net Margin	0.03%	0.04%	-56.32%	-67.20%	0.26%
GRZ1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Grobiņa	Cost of Revenue	64.63%	54.42%	122.07%	102.95%	206.75%
	Gross Margin	35.37%	45.58%	-22.07%	-2.95%	-106.75%
	Operating Margin	23.86%	30.65%	-37.83%	4.32%	-129.14%
	EBT Margin	21.20%	24.47%	-54.58%	4.32%	-129.14%
	Net Margin	21.14%	21.05%	-57.56%	15.56%	-117.94%
KA11R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Kurzemes atslēga 1	Cost of Revenue	90.57%	90.46%	88.11%	92.63%	106.87%
	Gross Margin	9.43%	9.54%	11.89%	7.37%	-6.87%

	Operating Margin	0.32%	-1.72%	1.54%	0.44%	-15.30%
	EBT Margin	0.24%	-1.77%	1.47%	0.37%	-15.40%
	Net Margin	0.12%	-1.92%	1.00%	0.03%	-15.15%
KCM1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Kurzemes ciltslietu un mākslīgās apsūklošanas stacija	Cost of Revenue	52.87%	54.08%	54.41%	52.98%	52.17%
	Gross Margin	47.13%	45.92%	45.59%	47.02%	47.83%
	Operating Margin	6.07%	10.55%	-8.81%	13.04%	12.18%
	EBT Margin	6.07%	10.55%	-8.82%	12.96%	12.18%
	Net Margin	5.72%	10.16%	-9.31%	11.94%	12.18%
BAL1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Latvijas balzams	Cost of Revenue	81.09%	79.90%	77.34%	77.24%	77.29%
	Gross Margin	18.91%	20.10%	22.66%	22.76%	22.71%
	Operating Margin	10.58%	10.31%	12.98%	11.39%	12.53%
	EBT Margin	10.58%	10.31%	12.98%	11.39%	12.53%
	Net Margin	8.85%	8.85%	10.90%	9.58%	9.92%
GZE1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Latvijas Gāze	Cost of Revenue	92.34%	90.61%	89.91%	75.23%	78.90%
	Gross Margin	7.66%	9.39%	10.09%	24.77%	21.10%
	Operating Margin	5.72%	6.07%	6.99%	7.80%	11.03%
	EBT Margin	5.79%	6.09%	7.02%	7.82%	11.04%
	Net Margin	4.96%	5.13%	5.98%	6.86%	10.91%
LJM1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Latvijas Jūras medicīnas centrs	Cost of Revenue	95.24%	100.20%	92.77%	96.12%	94.04%
	Gross Margin	4.76%	-0.20%	7.23%	3.88%	5.96%
	Operating Margin	-1.48%	-6.49%	18.72%	-12.79%	1.82%
	EBT Margin	-1.48%	-6.49%	18.72%	-12.79%	1.83%
	Net Margin	-1.80%	-6.19%	18.72%	-6.48%	-1.63%
SMA1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
PATA Saldus	Cost of Revenue	90.83%	99.40%	96.30%	101.44%	96.15%
	Gross Margin	9.17%	0.60%	3.70%	-1.44%	3.85%
	Operating Margin	5.24%	-1.10%	1.99%	-3.21%	2.43%
	EBT Margin	4.82%	-1.10%	1.05%	-4.63%	1.40%
	Net Margin	4.00%	-1.15%	1.01%	-4.74%	2.27%

RAR1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Rīgas autoelektroaparātu rūpnīca	Cost of Revenue	129.67%	104.16%	134.24%	125.34%	653.91%
	Gross Margin	-29.67%	-4.16%	-34.24%	-25.34%	-553.91%
	Operating Margin	11.30%	77.87%	-40.30%	15.50%	-565.84%
	EBT Margin	12.07%	77.87%	-40.30%	15.50%	-565.84%
	Net Margin	1.32%	71.67%	-46.12%	8.42%	-565.84%
RER1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Rīgas elektromašīnbūves rūpnīca	Cost of Revenue	73.78%	76.22%	84.48%	95.05%	84.48%
	Gross Margin	26.22%	23.78%	15.52%	4.95%	15.52%
	Operating Margin	16.87%	11.46%	2.52%	0.76%	2.40%
	EBT Margin	16.87%	11.46%	2.52%	0.76%	2.04%
	Net Margin	16.24%	9.82%	1.95%	-1.25%	1.64%
RJR1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Rīgas juvelierizstrādājumu rūpnīca	Cost of Revenue	43.48%	63.66%	76.60%	70.65%	70.80%
	Gross Margin	56.52%	36.34%	23.40%	29.35%	29.20%
	Operating Margin	19.89%	5.69%	-25.33%	-0.93%	-2.81%
	EBT Margin	19.89%	5.69%	-25.33%	-0.93%	-2.81%
	Net Margin	18.97%	4.22%	-23.31%	-1.46%	-2.81%
RKB1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Rīgas kuģu būvētava	Cost of Revenue	101.61%	99.95%	99.64%	91.38%	95.28%
	Gross Margin	-1.61%	0.05%	0.36%	8.62%	4.72%
	Operating Margin	0.28%	-1.12%	-4.51%	4.59%	1.31%
	EBT Margin	0.20%	-1.12%	-4.51%	4.59%	1.31%
	Net Margin	0.08%	-1.28%	-6.08%	1.04%	0.82%
SCM1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Siguldas ciltslietu un mākslīgās apsēklošanas stacija	Cost of Revenue	41.97%	42.52%	39.06%	40.14%	43.35%
	Gross Margin	58.03%	57.48%	60.94%	59.86%	56.65%
	Operating Margin	11.19%	8.02%	15.94%	8.73%	9.58%
	EBT Margin	8.99%	8.02%	15.94%	8.73%	9.58%
	Net Margin	7.42%	6.45%	13.58%	6.85%	7.97%
TKB1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Tosmares kuģubūvētava	Cost of Revenue	92.58%	97.56%	101.96%	83.18%	90.16%
	Gross Margin	7.42%	2.44%	-1.96%	16.82%	9.84%

	Operating Margin	1.31%	-0.40%	-6.59%	4.30%	1.35%
	EBT Margin	0.21%	-0.40%	-6.59%	4.30%	1.35%
	Net Margin	-0.54%	-1.49%	-8.21%	2.37%	0.43%
VSS1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
Valmieras stikla šķiedra	Cost of Revenue	52.76%	54.21%	52.60%	49.44%	53.93%
	Gross Margin	47.44%	45.94%	47.40%	50.56%	46.07%
	Operating Margin	8.15%	5.91%	8.00%	5.65%	5.82%
	EBT Margin	5.74%	5.91%	7.19%	4.95%	5.12%
	Net Margin	5.51%	5.77%	6.98%	4.52%	3.85%
VEF1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
VEF	Cost of Revenue	71.26%	72.38%	73.08%	70.44%	68.63%
	Gross Margin	28.74%	27.62%	26.92%	29.56%	31.37%
	Operating Margin	20.98%	6.74%	4.62%	8.01%	23.50%
	EBT Margin	6.64%	6.74%	4.62%	8.01%	23.50%
	Net Margin	2.92%	0.13%	-0.30%	3.08%	23.50%
RRR1R	Revenue	100.00%	100.00%	100.00%	100.00%	100.00%
VEF Radiotehnika RRR	Cost of Revenue	97.48%	119.97%	124.41%	125.82%	110.70%
	Gross Margin	2.52%	-19.97%	-24.41%	-25.82%	-10.70%
	Operating Margin	-3.93%	-20.18%	-73.08%	57.43%	-88.18%
	EBT Margin	-10.79%	-20.18%	-73.08%	57.43%	-88.18%
	Net Margin	-17.61%	-27.48%	-81.92%	48.45%	-90.36%

Considering these data, it is possible to make certain conclusions about financial health of Latvian stock companies.

Conclusions

1. Gross Margin increased from 2012 until 2016 for 7 Latvian stock companies of 24: KCM1R (47.13% - 47.83%), BAL1R (18.91% - 22.71%), GZE1R (7.66% - 21.10%), LJM1R (4.76% - 5.96%), RKB1R (-1.61% - 4.72%), TKB1R (7.42% - 9.84%), VEF1R (28.74% - 31.37%).
2. Gross Margin decreased from 2012 until 2016 for 17 Latvian stock companies of 24: GR1R (61.76% - 54.65%), HMX1R (27.04% - 13.39%), LSC1R (20.54% - 14.9%), OLF1R (78.37% - 63.09%), SAF1R (44.07% - 30.04%), BRV1R (13.43% - 6.99%), LOK1R (15.28% - (-10.54%)), DPK1R (19.9% - 1.25%), GRZ1R (35.37% - (-106.75%)), KA11R (9.43% - (-6.87%)), SMA1R (9.17% - 3.85%), RAR1R (-29.67% - (-553.91%)), RER1R (26.22% - 15.52%), RJR1R (56.52% - 29.20%), SCM1R (58.03% - 56.65%), VSS1R (47.44% - 46.07%), RRR1R (2.52% - (-10.70%)).
3. Gross Margin is negative for 5 Latvian stock companies of 24: LOK1R (-10.54%), GZR1R (-106.75%), KA11R (-6.87%), RAR1R (-554%), RRR1R (-10.7%).

4. Operating Margin is less than 5% for 16 Latvian stock companies of 24: HMX1R (4.62%), LSC1R (-14.99%), SAF1R (4.61%), BRV1R (-12.24%), LOK1R (-21.21%), DPK1R(1.25%), GRZ1R (-106.75%), KA11R (-6.87%), LJM1R (1.82%), SMA1R (2.43%), RAR1R (-565.84%), RER1R(2.4%), RJR1R (-2.81%), RKB1R (1.31%), TKB1R(1.35%), RRR1R (-88.18%).
5. According to the condition of their financial health, Latvian stock companies can be divided on the three approximately equal groups. For approximately third part of Latvian stock companies financial health was improved during last 5 years and can be evaluated at present time as good. For the next third part the financial health remained approximately at the same level and can be evaluated as average. For the remaining third part of Latvian stock companies the financial health became worse during last 5 years and at present time can be evaluated as problematic.
6. The situation in Latvia in general corresponds to situation in European countries, where the amounts of companies who are “going up”, “going down” and “are stable” on 5 years time interval are approximately equal. There are variations between different countries, of course, but in general, situation in Latvia is similar to situation in majority of European countries. In the USA situation is different, but this is the subject for special consideration.

References

- Belás, J.; Mišanková, M.; Schönfeld, J.; Gavurova, B. 2017. Credit risk management: financial safety and sustainability aspects, *Journal of Security and Sustainability Issues* 7(1): 79-93. [https://doi.org/10.9770/jssi.2017.7.1\(7\)](https://doi.org/10.9770/jssi.2017.7.1(7))
- Chung, S.; Rosenberg, M.; Tomeo, J.F. 2004. Hedge Fund of Fund Allocations Using a Convergent and Divergent Strategy Approach, *The Journal of Alternative Investments* 7(1): 44-53. <http://www.turtletrader.com/pdfs/convergent.pdf>
- Debreceny, R.; d'Eri, A.; Felden, C.; Farewell, S. 2010. Feeding the Information Value Chain: Deriving Analytical Ratios from XBRL filings to the SEC <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.453.2558&rep=rep1&type=pdf>
- Fernandez, P. 2002. Company Valuation Methods. The most common errors in valuations, Working paper no 449 of IESE Business Schol-University Navarra <http://www.iese.edu/research/pdfs/di-0449-e.pdf>
- Graham, B. 1934. Security Analysis. The classic 1934 edition, McGraw-Hill Book Company, Inc., New York, London, 701 p.
- Hill C.W.L.; Jones G.R. 2013. Strategic Management. An Integrated Approach, Cengage Learning, 416 p.
- Kampgen, B.; Weller, T.; O’Riain, S.; Weber, C.; Harth, A. 2014. Accepting the XBRL Challenge with Linked Data for Financial Data Integration, Institute AIFB, Karlsruhe Institute of Technology, Karlsruhe, Germany https://link.springer.com/chapter/10.1007/978-3-319-07443-6_40
- Koller, T.; Goedhart, M.; Wessels. 2010. Valuation: Measuring and Managing the Value of Companies, University Edition Fourth Edition, McKinsey&Company, 768 p.
- Lev, B.; Thiagarajan, S.R. 1993. Fundamental Information Analysis, *Journal of Accounting Research* 31:190-215 <http://doi.org/10.2307/2491270>
- Ou, J.A.; Penmann, S.H. 1989. Financial statement analysis and the prediction of stock returns, *Journal of Accounting and Economics* 11: 295-330 <https://EconPapers.repec.org/RePEc:eee:jaecon:v:11:y:1989:i:4:p:295-329>
- Owen, D.; Griffiths, R. 2006. Mapping the Markets. A guide to stockmarket analysis, The Economist, 134 p.
- Paseková, M.; Svitaková, B.; Kramá, E.; Otrusínová, M. 2017. Towards financial sustainability of companies: issues related to reporting errors, *Journal of Security and Sustainability Issues* 7(1): 141-153. [https://doi.org/10.9770/jssi.2017.7.1\(12\)](https://doi.org/10.9770/jssi.2017.7.1(12))

Websites (accessed: September 2017):

Financial Vizualizations FINVIZ www.finviz.com

Google Finance <https://www.google.com/finance/>

Yahoo Finance <http://finance.yahoo.com/>

U.S. Security and Exchange Commision homepage www.sec.gov

<https://www.oldschoolvalue.com/blog/valuation-methods/balance-sheet-ratios/>

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