

Management of Capital in Georgian State-owned Medical Organizations

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ABSTRACT

Management of medical organizations is a peculiar process because, on one hand, medical firms fulfill essential social needs by providing medical services to the population and, on the other hand, they have to be financially sound in order to keep functioning. We obtained financial statements of three major state-owned hospitals in Tbilisi and formed conclusions based on financial statement analysis. The Capital Ratio formula was developed based on Myer's and Majluf's pecking order theory and our hypothesis was confirmed. We concluded that the three hospitals are mainly using their own equity and should pursue long-term financing in order to finance their capital expenditures. Series of tests also confirmed that higher debt ratio would result in higher revenue for the three state-owned hospitals (74% regression coefficient). Furthermore, we have determined that financial statement analysis should be used to make strategic decisions. In particular, the three state-owned hospitals should pay particular attention to short-term liquidity.

Keywords: Financial Statement Analysis, Capital, Medical Organizations

INTRODUCTION

Financial statement analysis of healthcare firms is very important because of the nature of medical industry. On one hand, medical firms fulfill essential social needs by providing medical services to the population and, on the other hand, they have to be financially sound in order to keep functioning. This tendency is more pronounced in state-owned medical enterprises because they are more socially-oriented than private medical organizations.

Since gaining independence in 1991, Georgia has implemented series of reforms to privatize its medical organizations. As of 2018, vast majority of Georgia's medical organizations are privately-held. In the capital city of Tbilisi, there are only 6 state-owned clinics. However, both private and public medical firms benefit from government's universal healthcare program.

Despite the fact that the vast majority of clinics have been privatized in Georgia, the quality of healthcare services represents a challenge for the country. As of 2018, there is only one private clinic that holds the Joint Commission International (JCI) accreditation in Georgia.

Management of capital is a particularly important issue for medical organizations because private medical firms tend to be leveraged more than public medical firms are. According to Myers' and Majluf's pecking order theory, firms prefer internal sources of financing to external debt and prefer external debt to issuing new equity. The pecking order theory can also be viewed as three different developing stages for companies: at the initial stage of their development, companies are reluctant to borrow. Once companies grow, they need to attract

external debt financial in order to survive, and at the final stage of their development, they will need to issue equity, most likely in the form of initial public offering.

RESEARCH METHODOLOGY

The goal of this research is to devise a formula that will enable medical firms assess their financial position according to the pecking order theory, which will help them improve capital management strategy. We have used the following coefficients to achieve the above-mentioned goal:

$$CR = DR + CA + OM + AT + OC$$

CR – capital ratio, the end result

DR - debt ratio, computed by dividing total liabilities by total assets

CA – current assets ratio, computed by dividing current assets by total assets

OM – operating margin, computed by dividing operating profit by total revenue

AT – asset turnover ratio, computed by dividing total revenue by total assets

OC – operating cash flow margin, computed by dividing operating cash inflows by total revenue

According to Bazzoli's, Chan's, Shortell's and D'Aunno's research, investment in healthcare is considered to be a high-risk endeavor and debt ratio is one of the most important ratios to consider when analyzing a healthcare organization. Therefore, we have incorporated the above-mentioned ratio in our formula.

Assets are crucially important in the financial statement analysis of healthcare firms, which is the reason why we have incorporated both current assets and asset turnover ratios in our formula (Horblyuk, et al., 2012).

Since we have analyzed state-owned healthcare organizations, which are more socially-oriented than they are profit-oriented, we have selected operating margin as one of the components for the formula (Fottler, McIlwain, & McCracken, 2001). Furthermore, it is particularly important to consider cash flow operating margin as well because there are certain "expenses" that only show up on cash flow statement.

To analyze Georgia's state-owned healthcare organizations, we have selected three major state hospitals on the territory of Tbilisi. There are only 6 state-owned hospitals in Tbilisi. In terms of revenue, the three hospitals that were selected for our study represent more than 50% of revenues of the hospitals that are owned by the government in the capital city.

All of the organizations studied in this research are entities of private law and are owned by the government through the private equity investment company. As of the mid-2018, financial statements of these clinics are not public. Therefore, we referred to them as Healthcare Organization #1, Healthcare Organization #2 and Healthcare Organization #3. We have obtained audited financial statement of the above-mentioned organizations for the 2014-2016 period.

Healthcare Organization #1 is a specialized hospital and used to be the leading hospital in their field in the Caucasus region. Table 1 shows its basic balance sheet information.

Table 1 – Balance Sheet of Healthcare Organization #1

Amounts in Georgian Lari

N	Description	2014	2015	2016
1	Total Current Assets	957,000	969,000	1,128,000
2	Total Long-term Assets	13,041,000	14,918,000	17,171,000
3	Total Assets	13,998,000	15,887,000	18,300,000
4	Total Current Liabilities	777,000	1,147,000	1,578,000
5	Total Long-term Liabilities	0	289,000	3,313,000
6	Total Liabilities	777,300	1,436,000	4,891,000
7	Total Owner's Equity	13,221,000	14,451,000	13,409,000
8	Total Liabilities and Owner's Equity	13,998,000	15,887,000	18,300,000

According to Table 1, Healthcare Organization #1's Total Assets as of 31 December 2016 amounted to 18,3 million Georgian Lari (GEL), which represents 15% increase from the prior year and 31% increase from 2014. Total Liabilities have also increased in 2016 and amounted to 3,3 million GEL at the end of the year. However, this increase is due to unearned revenue and not from long-term loans. Total Owner's Equity decreased in 2016 by 7% from prior year, but it increased by 1% from 2014.

Table 2 - Balance Sheet of Healthcare Organization #2

Amounts in Georgian Lari

N	Description	2014	2015	2016
1	Total Current Assets	5,600,274	5,984,000	7,325,000
2	Total Long-term Assets	72,913,854	73,233,529	72,939,529
3	Total Assets	78,514,128	79,217,529	80,264,529
4	Total Current Liabilities	7,746,586	6,823,000	7,372,000
5	Total Long-term Liabilities	7,908	8,000	8,000
6	Total Liabilities	7,754,566	6,831,000	7,380,000
7	Total Owner's Equity	70,759,633	72,385,529	72,885,529
8	Total Liabilities and Owner's Equity	78,514,127	79,216,529	80,265,529

Healthcare Organization #2 is a multi-profile hospital that renders all of the major medical services. It is the largest of the three clinics and is located in the central part of Tbilisi, which makes its emergency service crucial to the capital city.

According to Table 2, Healthcare Organization #2's Total Assets as of 31 December 2016 amounted to 80,3 million Georgian Lari (GEL), which represents 1% increase from the prior year and 2% increase from 2014. Total Liabilities have also increased by 8% in 2016 and amounted to 7,4 million GEL at the end of the year, but it decreased from 2014 by 5%. Total Owner's Equity increased in 2016 by 1% from prior year, and by 3% from 2014.

Healthcare Organization #3 is a specialized hospital and is the smallest of the three hospitals. It is also located on the central street in the capital city.

Table 3 - Balance Sheet of Healthcare Organization #3**Amounts in Georgian Lari**

N	Description	2014	2015	2016
1	Total Current Assets	568,353	754,000	409,000
2	Total Long-term Assets	15,827,321	16,101,337	16,733,337
3	Total Assets	16,395,674	16,855,337	17,142,337
4	Total Current Liabilities	141,699	138,000	351,000
5	Total Long-term Liabilities	611	3,000	0
6	Total Liabilities	142,310	141000	351,000
7	Total Owner's Equity	16,253,363	16,714,337	16,790,337
8	Total Liabilities and Owner's Equity	16,395,673	16,855,337	17,141,337

According to Table 3, Healthcare Organization #3's Total Assets as of 31 December 2016 amounted to 17,1 million Georgian Lari (GEL), which represents 2% increase from the prior year and 5% increase from 2014. Total Liabilities have also increased by 2016 and amounted to 351 thousand GEL at the end of the year. The company has no long-term liability. Total Owner's Equity increased in 2016 by 0,5% from prior year, and by 3% from 2014.

In terms of profitability, all of the three hospitals broke even and do not have a positive net income figure, which implies that these medical organizations are not profit-oriented. In 2016, Revenue of the Medical Organization #1 is 5.7 million GEL, while Revenue of Medical Organization #2 and Medical Organization #3 were 15.8 million GEL and 3.1 million GEL, respectively.

Before computing the CR formula for the medical organizations, we formed an expectation that the CR coefficient less than 1 implies that the firm is on the first stage of development on the pecking order. If the CR value is between 1 and 3, the firm is on the second stage of the pecking order, and the CR coefficient higher than 3 implies the third stage on the pecking order.

Table 4 illustrates the calculations of Capital Ratio for the three Medical Organizations in question. The result confirms our hypothesis in the sense that the CR values for all three Medical Organizations are below 1, which means that these organizations are on the first stage on the pecking order. Furthermore, it is evident that the three Medical Organization do not have material long-terms liability and use own equity as the primary source of financing.

Table 4 - Calculation of Capital Ratio to Determine the Firm's Position on the Pecking Order

Coefficient	Medical Organization # 1		Medical Organization # 2		Medical Organization # 3	
	2015	2016	2015	2016	2016	2016
DR	0.0904	0.2673	0.0862	0.0919	0.0084	0.0205
CA	0.0610	0.0616	0.0755	0.0913	0.0447	0.0239
OM	- 0.1506	-0.1817	0.0604	0.0360	0.1246	-0.0270
AT	0.3652	0.3137	0.2061	0.1971	0.1597	0.1815
OC	0.0296	0.0406	0.0999	0.0204	0.1027	0.0852
CR	0.3956	0.5015	0.5282	0.4368	0.4401	0.2840

In addition to computing the CR ratio, we have used the IBM SPSS software to conduct correlation and regression analyses on different coefficients. Before conducting parametric statistical tests, we checked the normality of the data distribution.

Table 5 – Results of the Tests of Normality
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Debt_ratio	.343	6	.026	.815	6	.080
CA_ratio	.189	6	.200*	.981	6	.956
OM_ratio	.187	6	.200*	.929	6	.575
AT_ratio	.314	6	.065	.852	6	.164
OC_ratio	.228	6	.200*	.855	6	.172
Capital_ratio	.193	6	.200*	.935	6	.623

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5 illustrates that five out of six variables are normally distributed because their p-value is higher than 0.05. We have ascertained that variance of the above-mentioned variables are homogenous.

Table 6 shows the results of correlation analyses for the variables. There is a statistically significant correlation between Operational Margin and Asset Ratio in the amount of negative 89% (p = 0.17). This implies that there is a tradeoff between operational profitability and increasing revenue from hospital assets.

Table 6 – Results of Correlation Analyses
Correlations

		Debt_ratio	CA_ratio	OM_ratio	AT_ratio	OC_ratio	Capital_ratio
Debt_ratio	Pearson Correlation	1	.373	-.714	.625	-.525	.540
	Sig. (2-tailed)		.466	.111	.184	.285	.269
	N	6	6	6	6	6	6
CA_ratio	Pearson Correlation	.373	1	.045	.177	-.514	.683
	Sig. (2-tailed)	.466		.932	.738	.297	.134
	N	6	6	6	6	6	6
OM_ratio	Pearson Correlation	-.714	.045	1	-.893*	.629	.071
	Sig. (2-tailed)	.111	.932		.017	.181	.894
	N	6	6	6	6	6	6
AT_ratio	Pearson Correlation	.625	.177	-.893*	1	-.638	.143
	Sig. (2-tailed)	.184	.738	.017		.173	.788
	N	6	6	6	6	6	6
OC_ratio	Pearson Correlation	-.525	-.514	.629	-.638	1	.003
	Sig. (2-tailed)	.285	.297	.181	.173		.996
	N	6	6	6	6	6	6
Capital_ratio	Pearson Correlation	.540	.683	.071	.143	.003	1
	Sig. (2-tailed)	.269	.134	.894	.788	.996	
	N	6	6	6	6	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

There is also a correlation between the debt ratio and asset ratio in the amount of 63%, which implies that for the three hospitals in question, higher debt levels than they currently possess could result in higher revenue by assets. To further confirm this hypothesis, we have conducted regression analysis, where the debt ratio was an independent variable and the asset ratio was a dependent variable. The above-mentioned resulted in the regression coefficient of 74%.

CONCLUSIONS

We have used Myers' and Majluf's pecking order theory to devise a Capital Ratio formula that can predict the position of a firm on the pecking order, where stage 1 is defined as a situation when a firm uses own equity for financing, stage 2 is defined where firm uses own equity and external long-term debt and stage 3 – when firm has issued its shares publicly in addition to possessing own equity and external long-term debt.

The hypothesis was formed that if the CR ratio was less than 1, it implied that the firm was at the Stage 1 level of development, CR ratio between 1 and 3 implied the firm was at Stage 2 level of development and the CR ratio more than 3 – Stage 3 level of development.

The CR ratio calculations showed that all the three medical organizations were at Stage 1 level of development during 2015-2016 period. The CR ratio for Medical Organization #1 in 2015 and 2016 were 0.4 and 0.5, respectively. The CR ratio for Medical Organization #2 in 2015 and 2016 were 0.53 and 0.44 and the CR ratio for Medical Organization #3 in 2015 and 2016 were 0.44 and 0.28, respectively.

The correlation analyses conducted by the IBM SPSS software illustrated a statistically significant result in the amount of negative 89% between operational margin and revenue by assets, which implies that there is a tradeoff between operational profitability and increasing revenue by medical assets.

Furthermore, the regression analysis where debt ratio was an independent variable and the asset ratio was a dependent variable resulted in the coefficient of 74%, which means that long-term debt financing is a 74% precondition for increasing revenue for medical organizations in question.

We have formed the following recommendations for hospitals' management:

1. They can improve capital structure by pursuing long-term debt financing with the best possible terms to financial their capital expenditures and move to the Stage 2 on the pecking order.
2. Management team of the hospitals should use financial statement analysis to make strategic decisions. Furthermore, they have to take short-term liquidity into account because, according to our study, current ratio is a 33% precondition to improve capital adequacy.
3. Long-term financing that will be pursued by the hospitals should first be used to purchase modern equipment in order to maximize revenue.

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