Financial Analysis of Hospital Services Sector of Turkey in a Sustainability Approach Using Reports of the Central Bank of the Republic of Turkey

Semra AKSOYLU [ID] [a] Doğancan ÇAVMAK [ID] [b]

[a] Kayseri University, Applied Sciences Faculty, Department of Accounting and Financial Management, Kayseri, Türkiye.
aksoylu@kayseri.edu.tr
[b] Kayseri University, Health Management Doctoral Program, Kayseri, Türkiye. dogancavmak@gmail.com

| ARTICLE INFO	ABSTRACT
Keywords: Hospital services Financial analysis Financial management Health management Received 14 April 2022 Revised 24 September 2022 Accepted 5 January 2023 **Article Classification:** Research Article	**Purpose –** The purpose of the study is to discuss the financial condition of the hospital services in Turkey in a sustainability approach. The study aims to reveal the financial structure of the sector to determine improvement areas. **Design/methodology/approach –** To conduct the analysis, the study used the reports of the Central Bank of the Republic of Turkey. The data were obtained from 2010 to 2020. Vertical, horizontal, and key ratios analyses were conducted. The financial sustainability of the sector was discussed by using the financial ratios. To begin with, the financial and asset structure of the sector were examined. Followingly, liquidity, the efficiency of assets, and profitability indicators were calculated and evaluated in terms of financial condition and sustainability. **Findings –** The results of compared data showed that the sector has been dominantly and increasingly financed with debt through the last decade. The cash conversion cycle has been a significant challenge for the analysis period. The sector suffered from losses for many years. The findings give strong signals that the sector may face financial sustainability problems in the future. **Discussion –** The findings of the study revealed the financial structure of the hospital services sector can be used as a significant tool to make improvements. These findings indicated that the businesses in the analyzed sector should be more focused on production costs and cash conversion cycle, and improve the collection period and inventory turnover level. It is proposed to conduct contemporary cost management tools to be able to be aware of unit costs and have the proper information to improve financial condition.

1. INTRODUCTION

The Healthcare industry is one of the several industries that is allowed to grow beyond other industries which produce efficiently despite obvious inefficiencies in the production of healthcare services (Nowicki, 2018: 16). The reason for this situation is the importance of healthcare services in the quality of life and the power of the economy. Healthcare services are indispensable to the countries to maintain and improve the welfare of the public. However, sustaining the quality of healthcare services is an important challenge for governments and healthcare providers. Complexity, high number of human resources, and materials in production require a high amount of resource allocation to the healthcare industry (Walshe and Smith, 2011: 457). In many countries, health expenditure accounted for more than 10% of GDP in the world. Health expenditure has been rising constantly as new investments are being made in the sector (Ağır and Tıraş, 2018: 648). Demand for hospital services has been increasing for the last decade in Turkey as can be seen in Graph 1 (Ministry of Health, 2020: 149).
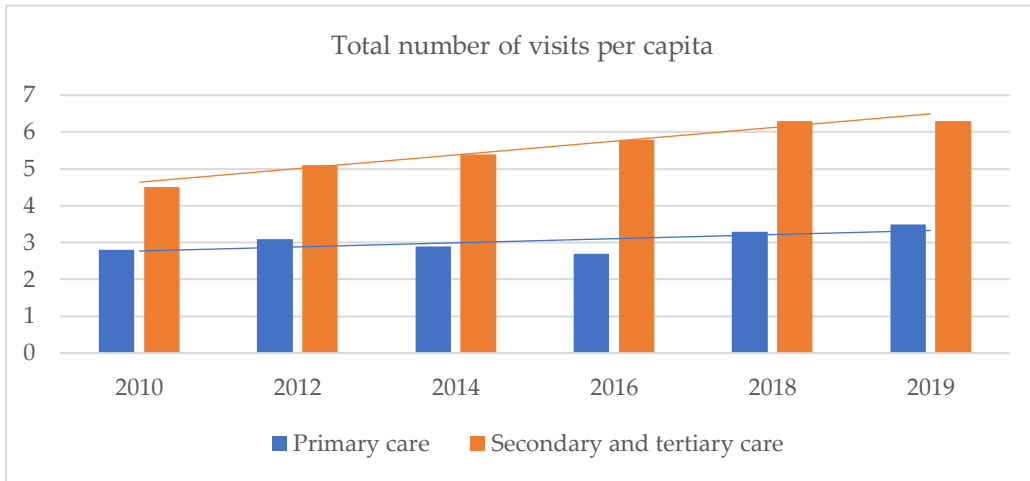
Graph 1. Number of Visits to Physicians Per Capita in Turkey

Regardless of being for profit or not profit, all healthcare businesses should be able to grow equity and keep profitable to maintain the up-to-date facilities and obtain equipment to produce needed healthcare services. This is one of the significant determinants of the success of health systems and hospitals. (Singh and Wheeler, 2012: 326). However, financial challenges have been reported in many reports on health systems from countries all over the world. American College of Healthcare Executives listed financial challenges as one of the prominent concerns in the healthcare system (Gapenski and Pink, 2007: 8). A study which was conducted in Africa stated that budget deficits and resource allocation are important barriers in the healthcare system (Oleribe et al., 2019: 400) Many countries may face difficult decisions on the allocation of resources due to financial problems and changing demographic features of the population such as an increase in the share of the elderly population, burden of chronic diseases and other socio-cultural determinants (Bhattacharya et al., 2021: 450). Therefore, decision-makers and managers should be aware of resource availability and consumption in healthcare and consider the changing healthcare environment. Performance measurement with not only a health outcomes perspective but also from a financial perspective is crucial to be able to evaluate the sustainability of healthcare services. Financial management in healthcare comes to the front through all these challenges in health systems. The purpose of the current study is to discuss the financial performance and sustainability of the hospital services in Turkey with a financial analysis approach.

2. LITERATURE REVIEW

Since the financial analysis has significant importance in measuring the performance of healthcare systems that reveals improvement opportunities and helps decision-makers to allocate resources more accurately, numerous academicians have been motivated to conduct financial analysis. A proper financial analysis can provide insights into the status of the industry and provide significant information that can be used for policies and strategies for the future (Fraser and Ormiston, 2010: 181). According to Whitcomb and Cleverly (1993), financial ratio analysis can be an effective way to determine the financial position and sustainability of organizations. Numerous studies conducted financial analysis of hospitals (Lee, 2015; Curtis and Roupas, 2009). Lee et al., (2019) used liquidity, turnover ratios, and growth rate to evaluate the performance of public and private hospitals in South Korea. The empirical findings of this study confirmed that examining financial indicators can help to improve managerial processes in hospitals (Lee et al., 2019: 11). Singh and Wheeler, (2012) examined the link between revenue cycle, profitability, and the ability to grow equity for not-for-profit hospitals and used financial indicators such as operating profit margin, total profit margin, days in account receivable, revenue growth, and free cash flow. In a study was conducted to compare the financial performance of public hospitals in Poland, financial structure indicators of gross profit margin, debt ratio etc. were used in regression models (Dubas-Jakóbczyk et al., 2020). In a Data Envelopment Analysis was conducted to measure operational and financial efficiency of Egyptian hospitals, return on assets, and return on equity ratios were used as financial efficiency indicators (Habib and Shahwan, 2020 :2527). A few studies considered the financial sustainability of hospital services. Dubas-Jakóbczyk and Koziel, (2020) have justified

that the financial performance and sustainability of hospitals can be measured using the indicators of liquidity, assets, and debt ratios. Khullar et al. (2020) addressed the liquidity, days cash on hand, days in accounts receivable and so on to evaluate financial health of US hospital during Covid-19 conditions.

Financial analysis of healthcare businesses in Turkey has a growing interest in the literature as well. Numerous studies have examined the financial performance of hospitals in Turkey. Some of them focused on public hospitals (Çil Koçyiğit and Kocakoç, 2019; Çam, 2016; Ercan, 2013), some on university hospitals (Özbirecikli and Çil Koçyiğit, 2018; Bülüç et al, 2017a) while a piece of studies analyzed private hospitals (Bülüç et al., 2017b; Çil Koçyiğit, 2012). In a study was conducted on private hospitals, it was stated that the sector has suffered losses in net sales, and had difficulties in meeting its short-term debt obligations (Erduru, 2018). A current study which was conducted in a public hospital reported that hospitals have liquidity problems, long collection periods, and low inventory turnover rates (Karaca and Boztosun, 2022: 85). Many other studies on hospital services in Turkey have reported liquidity problems, dominantly debt financing, and low profitability (Karadeniz, 2016:110; Aydemir, 2018: 145; Işıkçelik et al., 2022). Yiğit and Yiğit (2016) conducted a study on university hospitals in Turkey to evaluate financial sustainability and found that financial indicators of the hospitals were not appropriate financial standards.

3. METHODS

3.1. Purpose

As literature highlights, financial ratios have been used in a diverse of concepts. Based on the given considerations; this study is focused on especially the last decade of the hospital services sector in Turkey to evaluate its financial condition and discuss the financial sustainability of the sector. The study sought to answer the following questions:

1. What is the financial structure of the hospital services sector in Turkey?
2. How have the financial indicators of the hospital services sector changed in the last decade?
3. Which proposals can be developed to improve the financial sustainability of the sector?

3.2. Research Model

To answer the research questions, a ratio analysis-based approach was used. To discuss financial sustainability, the four indicators model which was proposed by Gleißner et al. (2022) was adopted to hospital services in Turkey. In their study, Gleißner et al. (2022) define a sustainable company based on previous studies as; "with positive real growth, low probability of insolvency, a relatively low earnings risk and sufficiently attractive investment for its owners." According to this definition, they proposed four indicators for companies; (1) the real growth rate of the company, (2) a company's ability to survive without making demands on its owners, (3) total earning risks exposure to owners and, (4) economic interests of the owners in a lasting continuation of the company. This model can be used to evaluate the financial sustainability of hospital services and be adopted for purpose of the current study, even if they are developed to measure one firm's sustainability performance. Therefore, the perspective of this approach is used to discuss the financial sustainability of the hospital services in Turkey. For this purpose, indicators obtained from ratio analysis were integrated into the proposed model by Gleißner et al. (2022). Basic measurements that were adopted for each group are described in Table 1.

Table 1. Indicators for Financial Sustainability

Indicator Groups	Indicators
Real growth rate	Net earnings/sales growth > inflation rate
Company's ability to survive	Return on capital, interest coverage ratio, equity ratio
Total earning risks exposure	Cash flows, cash conversion cycle
Economic interests of the owners	Return on assets, return on equity

To sum up, the study conducted a financial ratio analysis and discussed the values in a sustainability approach using the provided indicators by Gleißner et al. (2022).

3.2. Data

The data were obtained from a secondary source. In order to conduct a financial analysis, consolidated financial statements of the hospital services sector were obtained from the accounts of the Central Bank of the Republic of Turkey. This database is open to any access from any researcher. The Central Bank of Turkey provides financial information about many industrial and service sectors in Turkey. The hospital services sub-sector is a part of "human health services with Q-86 code" and has the code of "Q-861". Hospitals send their financial statements voluntarily to be published anonymously in the sector's financial statements reports. Consolidated statements enable researchers to conduct further financial analyses on healthcare services in Turkey.). Because the study used secondary data and did not collect data from any participants, no ethical approval was obtained.

3.3. Data Analysis

The analysis was carried out using the reports 2010-2020. The balance sheets and income statements of the sector for 11 years were obtained, arranged, and analyzed using horizontal, and vertical analysis and key financial ratios. To begin with, the general structure of the sector was analyzed. The number of companies, asset sizes, and revenues over the years were reported. Afterward, the assets and liability structure of the balance sheets and its financial structure were examined using vertical and horizontal analysis and reported. Percentage of current and fixed assets, liabilities, and equity were presented by years to show the size of the change and the trend. To conclude the analysis, the liquidity, activity, efficiency, and profitability ratios of the sector are calculated and analyzed over the years. Following ratios were used for ratio analysis (Table 2.) The results of the analysis were discussed based on the approach which is presented in Table 1 to evaluate the financial sustainability of the sector.

Table 2. Financial Ratios and Formulas

| Categories	Financial Ratios	Formula
Liquidity Ratios	Current Ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$
	Days in inventory	$\frac{\text{Inventory}}{\text{Sales}/365}$
	Days in accounts receivable (average collection period)	$\frac{\text{Net accounts receivable}}{\text{Sales}/365}$
	Accounts payable period	$\frac{\text{Accounts payable}}{\text{Costs of sales}/365}$
Capital Structure Ratios	Net assets financing	$\frac{\text{Equity}}{\text{Total assets}}$
	Long term debt to capitalization	$\frac{\text{Long term debt}}{\text{Long term debt}+\text{euqity}}$
	Fixed assets to Constant capital	$\frac{\text{Fixed assets}}{\text{Long term debt}+\text{euqity}}$
	Interest coverage ratio (times interest earned)	$\frac{\text{Operating profit}}{\text{Interest expense}}$
Asset Efficiency Ratios	Total asset turnover	$\frac{\text{Net sales}}{\text{Total assets}}$
	Current asset turnover	$\frac{\text{Net sales}}{\text{Current assets}}$
	Fixed asset turnover	$\frac{\text{Net sales}}{\text{Fixed assets}}$

Profitability Ratios	Operating margin	$\dfrac{\text{Operating profit}}{\text{Net sales}}$
	Net profit margin	$\dfrac{\text{Net profit}}{\text{Net sales}}$
	Return on assets	$\dfrac{\text{Net earning}}{\text{Total asset}}$
	Return on equity	$\dfrac{\text{Net earning}}{\text{Equity}}$

Reference: (Fraser and Ormiston, 2010 :186-198 ; Nowicki, 2018:61-65)

4. FINDINGS

4.1. The Last Decade of the Sector

The number of businesses operating in the hospital sector has been raised from 669 in 2010, to 2.613 in 2020. Most of the businesses are micro and small scale (%81), while large scale companies constitute the %10.6 of total businesses.
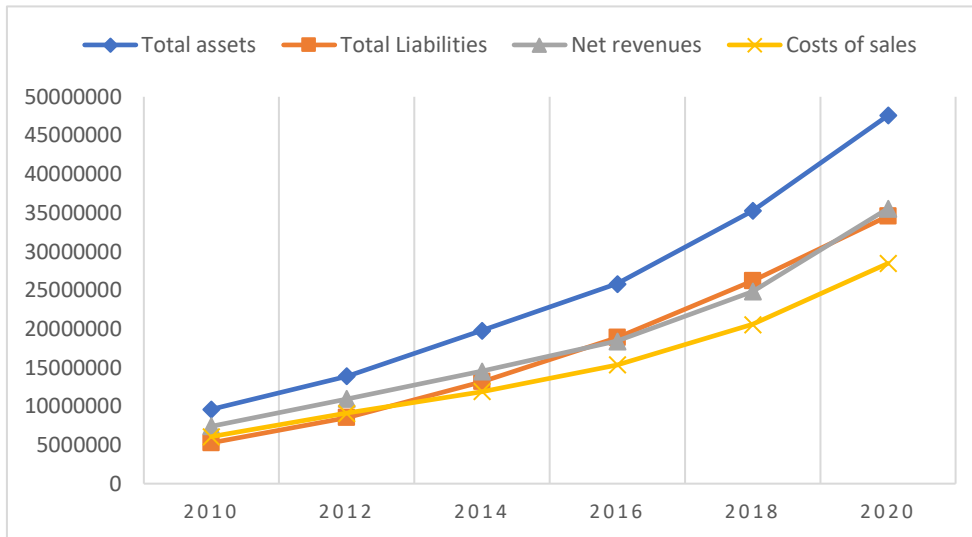
Graph 2. Development of the Sector In Terms Of Assets and Revenues, Turkish Lira (₺)

Graph 2. reveals the trends of assets, revenues, and costs. The sector has been in a constant increase. It can be concluded that debt is an important element of asset financing throughout all years. Costs of sales have increased with close to net revenues increase that keeps the sector with relatively lower profit ratios until 2018. Cost of sales has accounted for more than 80% of net revenues over the eleven years revealing the sector running their business with approximately 20% of gross margin. After 2018, net revenues have increased at a slightly higher pace than costs of sales, resulting in a small increase in gross profit ratios.

To gain a deeper insight into the sector, the structure of the balance sheet will be examined in the following section.

4.2. Structural Analysis of the Sector

In this section, the distribution of assets and liabilities will be examined using the common-size balance sheet. Common size financial analysis is a form of vertical analysis. This analysis reveals the structure of the balance sheet by expressing each component as a percentage of total assets so that the analyst can make a comparison within the industry or by years (Fraser and Ormiston, 2010).   The percentage of current and fixed assets of the hospital services sector (Table 3) and the capital structure of the sector (Graph 3) are presented below.

Table 3. Proportion of Current and Fixed Assets as Percentage of Total Assets

Years	Current assets	Fixed assets
2010	38,26%	61,74%
2011	36,87%	63,13%
2012	36,23%	63,77%
2013	37,58%	62,42%
2014	38,84%	61,16%
2015	40,04%	59,96%
2016	39,12%	60,88%
2017	41,20%	58,80%
2018	43,76	56,24
2019	38,11%	61,89%
2020	44,80%	55,20%

The findings show that fixed assets have been dominant over the eleven years in the total assets of the sector comprising more than half of total assets. However, the share of fixed assets has been in a decreasing trend since 2010. The share of fixed assets has decreased from 62% in 2010 to 55% in 2020 as a share of total assets.
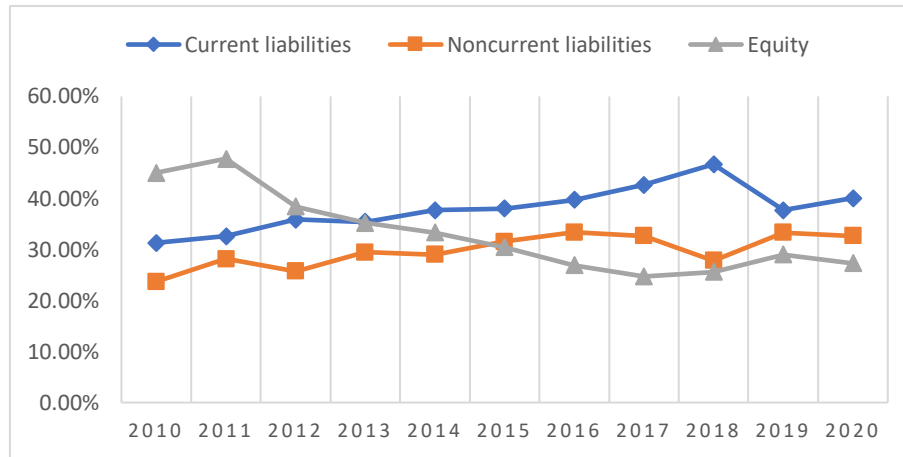
Graph 3. Capital Structure of the Sector (% of total assets)

Graph 2. indicates that on the liability side, companies are mainly financed by debt. Total liabilities of the sector have increased constantly from 2010 to 2020. The proportion of equity in capital structure of the sector has decreased from 45,01% to 27,32%. The graph also reveals that the proportion of current liabilities is higher than noncurrent liabilities. While the assest structure of the sector is dominantly composed of fixed assest, to use short time debt can be expressed as a risk.

4.3. Liquidity and Capital Structure Ratios

To analyze the ability of the sector to meet short-term obligations, liquidity ratios were used (Table 4). The ability of the sector to meet short-term obligations were determined to be lower than generally accepted value of 1.5 (Çabuk and Lazol, 2010 : 208). Current ratio is in a decrease trend over the eleven years This indicates that the ability of the sector to meet their debt requirements is decreasing over the years.

Tablo 4. Liquidity Ratios

Years	Current Ratio	Days inventory held	Days in accounts receivable	Accounts payable period
2010	1.22	19.71	56.96	69.48
2011	1.13	25.54	61.48	75.45
2012	1.01	27.57	65.36	78.90
2013	1.05	28.67	64.81	79.41
2014	1.03	30.65	63.90	78.10
2015	1.05	33.11	62.06	75.61
2016	0.98	35.39	65.90	79.16
2017	0.96	35.94	70.47	84.23
2018	0.93	40.25	73.64	88.92
2019	1.01	38.48	69.67	84.99
2020	1.11	46.65	75.92	94.82

In addition to the current ratio, days in inventory, average collection period, and average payment period were calculated to analyze the cash conversion cycle (CCC) Days in inventory is an important indicator that reveals the efficiency of the firms in managing inventories. This ratio is one of the prominent determinants that indicates the ability of firms to turn their inventories into cash. The longer the day in inventory, the longer the cash conversion cycle (Fraser and Ormiston, 2010). Days inventory held ratio has been increasing over the years in the sector which means the efficiency of managing inventories has been decreasing. The average collection period is an important indicator that shows the ability of the firms to collect from customers has been increasing over the years in the sector. However, the account payable period of the sector has been increasing. Delaying payments is one of the desired circumstances by all firms. The higher this ratio, the shorter the cash conversion cycle (Nowicki, 2018:62).

To analyze capital structure in depth, capital structure ratios were calculated (Table 5). These ratios reveal the risk of the sector and its creditworthiness by providing information about how they finance its assets. The calculated ratios of the sector show that assets are mostly financed with debts.

Table 5. Capital Structure Ratios

Years	Net assets financing (%)	Long term debt to capitalization	Fixed assets/ Constant capital	Interest coverage ratio
2010	45.01	34.48	0.89	0.9364
2011	39.28	41.75	0.93	1.0314
2012	38.41	40.12	0.99	1.4557
2013	34.61	43.65	0.96	1.3120
2014	33.29	46.55	0.98	1.2624
2015	30.31	51.40	0.96	0.9732
2016	26.89	55.36	1.01	0.8749
2017	24.69	56.95	1.02	0.9436
2018	25.59	52.07	1.05	0.7083
2019	29.15	53.05	0.99	1.0051
2020	27.32	54.44	0.92	1.2837

Net asset financing ratios have been decreasing over the years. Nearly %75 percent of all assets are financed with debt between 2016-2020. Considering the ideal ratio is <%50, this implies a high risk to the sector. The ratios of long-term debt to capitalization indicate that long terms debt usage in permanent financing has been increasing over the years. This implies a longer fixed interest charge commitment. The ratio of fixed assets divided by constant capital reveals that the sector finances its' fixed assets dominantly with constant capital which is a proper way (Akgüç, 2011: 560-561).

When examining debt ratios, how many times interest payments are covered by cash flow from operations must be taken into consideration (Fraser and Ormiston, 2010). This ratio is a significant indicator to evaluate the efficiency of debt financing. In a generally accepted manner, this ratio must be 3 at least (Akgüç, 2011: 602). The calculated ratios reveal that cash coverage on interest ratios is close to 1 which is not sufficient in all years.

4.4. Efficiency and Activity Ratios

To continue through analysis, ratios that show the relationship between sales and assets of the sector will be examined. Mainly three indicators were calculated to have an insight into the efficiency of assets; total assets turnover, current assets turnover, and fixed assets turnover (Table 6). These indicators are important to evaluate the performance of management in generating sales from firms' assets (Akgüç, 2011: 568).

Tablo 6. Assets Efficiency Ratios

Years	Total assets turnover	Current assets turnover	Fixed assets turnover
2010	0.771	2.016	1.249
2011	0.789	2.141	1.250
2012	0.789	2.179	1.238
2013	0.743	2.005	1.182
2014	0.733	1.888	1.199
2015	0.739	1.860	1.228
2016	0.713	1.823	1.171
2017	0.683	1.658	1.161
2018	0.704	1.610	1.253
2019	0.824	2.150	1.336
2020	0.747	1.668	1.356

The ratios reveal that the sector has not progressed significantly in total assets turnover. Values are very close to each other over the 11 years. The sector's investment in assets and generating revenues has grown at a close rate. There is a decrease in current assets turnover ratios from 2 to about 1.6. There is a slight increase in fixed assets turnover ratios.

4.5. Profitability Ratios

In the final step of financial analysis, profitability of the sector was examined (Table 7). Overall values reveal that the profitability of the sector was in a slight improvement. Operating margin scores were changed from 3% to 10% from 2010 to 2020. It shows a constant increase in operating margin. Net profit margin slightly increased from %0.7 to %2, even in some years it was negative. Net profit margin scores strongly justify that the sector is under high pressure of interest expense.

Table 7. Profitability Ratios

Years	Operating margin	Net profit margin	Return on assets	Return on equity
2010	0.038	0.0072	0.0056	0.01238
2011	0.054	-0.0757	-0.0597	-0.15203
2012	0.052	0.0158	0.0125	0.03242
2013	0.065	0.0071	0.0053	0.01521
2014	0.066	-0.0013	-0.0010	-0.00294
2015	0.067	0.0028	0.0020	0.00671
2016	0.061	-.0187	-0.0133	-0.04952
2017	0.061	0.0074	0.0050	0.02041
2018	0.069	-0.0215	0.0151	-0.05911
2019	0.075	0.0089	0.0073	0.02504
2020	0.105	0.0269	0.0201	0.07351

Return on assets and equity are significant ratios that measure the efficiency of the sector in managing total investments in assets and their ability to generate a return to shareholders (Fraser and Ormiston, 2010). Return

on assets ratios of the sector have increased slightly from 0.005 to 0.02 from 2010 to 2020. However, scores are highly unstable. It can be expressed that amount of profit earned to the level of investment in assets is not satisfactory in 2011, 2014, and 2016, and there are relatively slight improvements in the other years. The same situation implies to return on equity. Over the years the sector's net profit margin is negative, and return on equity is negative as well. In the last two years, a significant increase can be seen in the net profit and operating margin.

4.5. An Evaluation on The Financial Sustainability of The Sector

To discuss financial sustainability, firstly, the growth of the sector compared to the inflation rate is presented. Graph 4 indicates the level of increase in net sales of the sector was higher than the inflation rate most of the time. However, in the last 5 years, the net sales' growth rate began to fall behind the inflation rate. Considering the increasing trend of the inflation rate, sustainability can be a prominent challenge for the hospital services sector in Turkey.
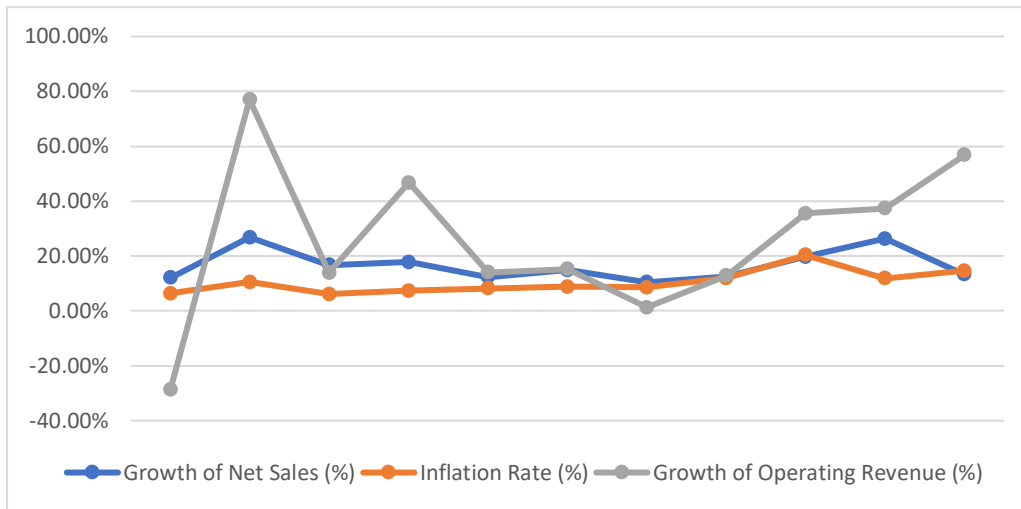
Graph 4. Growth of Revenues Compared to Inflation Rate by Years

To analyze the indicator of earning risk exposure which is strongly related to growth rate of the sector, the cash conversion cycle of the sector is presented. Graph 5. Indicates a high-risk exposure for the companies in the sector. Even if the operating margin of the companies in the sector has been increasing over the period, especially the collection period for accounts receivable is getting longer which implies a high risk on the companies. Given the fact that the sector has losses in net earnings mainly due to the high burden of interest expense, the longer cash conversion cycles the higher risk of insolvency for the sector. The power of cash is an important argument in an inflationary environment. Not having sufficient cash in hand leads companies to use debt financing which implies a risk of insolvency and interest burden.
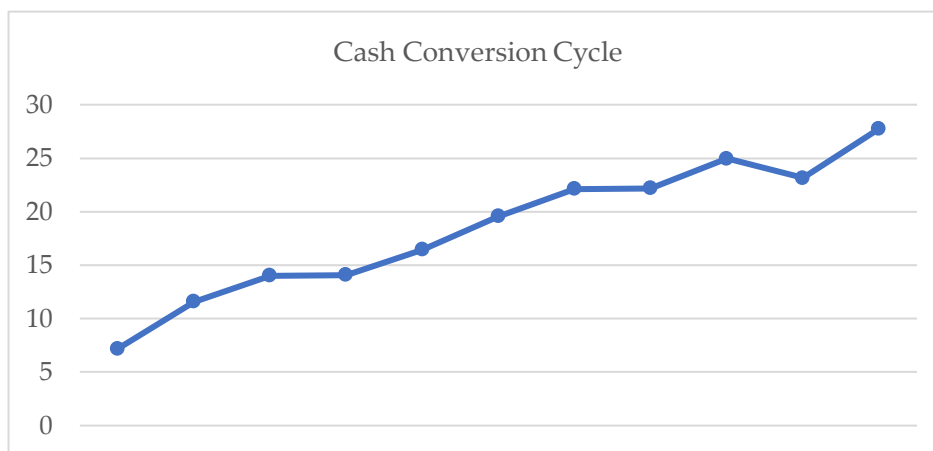
Graph 5. Cash Conversion Cycle in The Period of Analysis

Considering the indicator of "ability to survive", the sector generally suffers from the burden of debt both in local and foreign currency. Even if there is a slight improvement in interest coverage rate, this indicator is still behind the generally accepted value. In addition, it is clear that the equity ratio has been decreasing through the analysis period. This implies a significant barrier to the way ensuring financial sustainability.

In the final step, the economic interest of the owners was discussed. It can be seen that the profitability of investments has not improved through the years (Graph 6).
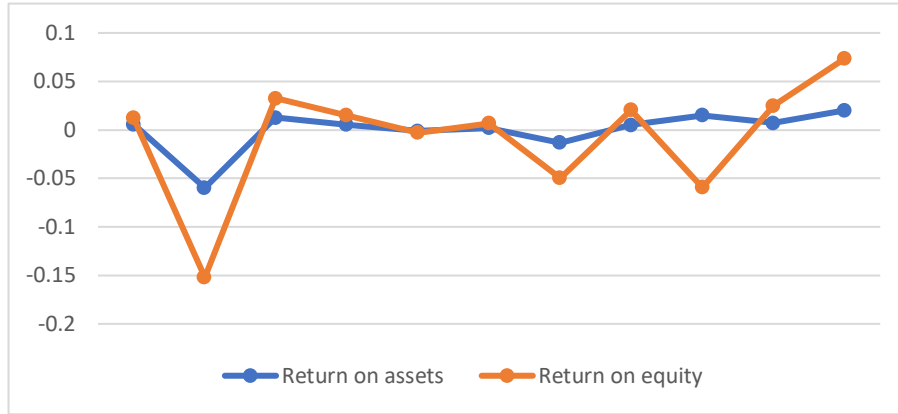
Graph 5. ROA and ROE in The Period of Analysis

Given that the definition of a sustainable company as "with positive real growth, low probability of insolvency, a relatively low earnings risk and sufficiently attractive investment for its owners" by Gleißner et al. (2022), the hospital services sector of Turkey is a bit far from being sustainable.

5. DISCUSSION AND CONCLUSIONS

The Turkish healthcare industry has grown at a significant rate. The number of businesses operating in the health system has been increasing over a decade. One of the prominent challenges in the growing health system of Turkey is how to operate firms efficiently and with profitability. Financial sustainability has been a leading concept in health management practices and literature regarding this challenge (Yiğit and Yiğit, 2016; Augurzky et al., 2012). Evaluating financial indicators is an effective way to improve the financial sustainability of healthcare businesses. Numerous studies justified that using financial ratios can reflect the characteristics of hospitals and a proper way to measure the financial performance of hospitals (Cleverly, 1990; Younis et al., 2006).

Given the challenges and important points, this study aims to examine the financial condition of hospital services in Turkey to provide information about the financial sustainability of the sector. Vertical, and horizontal analyses were used, and financial ratios were calculated using accounts of the Central Bank of Turkey. The report of the Central Bank provides a wider perspective on hospital services in Turkey. Taking the reports contains more than 2000 firms into consideration, it can be accepted as a significant argument for analysis.

This study is expected to contribute to the financial analysis of hospital services literature by both providing a wide discussion on hospital services sector in Turkey and considering the sustainability issue. Measuring financial sustainability is controversial and a challenging effort. Financial ratio analysis is an easier and effective way to evaluate this important dimension of hospital services. A sustainability approach provides a wider perspective on the performance of service production and enables decision-makers to decide more accurately on resource allocation and service production. As can be seen the considered indicators, the financial sustainability perspective takes a wide range of indicators into consideration to shed light on the future of companies and sectors.

According to the analyses of this study, the following key challenge points were obtained about the financial condition of the hospital services sector in Turkey;

- Although the sector has been in constant growth, health businesses have been operating with high production costs. A 100 Turkish Lira sale comes with an 80 Turkish Lira service production cost. It

can be concluded that due to high cost-of-service production, the sector remains on the same profitability level. In addition, increase in revenues is not sufficient when the inflation rate is considered.

- Healthcare businesses in the sector are dominantly financed using debt. The leverage ratio is much higher than 50% throughout all years. This implies a significant risk to the sector, considering the low and sometimes negative profitability ratios.

- The proportion of short-term debt has been increased while a decrease can be seen in long-term debt in total liabilities over the years. Current liabilities are accounted for 40% of total assets and 55% of total debt. The sector mostly depends on short-term debts. The risk of the sector may reduce their creditworthiness for obtaining long-term liabilities.

- The cash conversion cycle of the sector has been a constant increase. CCC was 10 in 2010 and nearly 28 in 2020. Accounts receivable and inventory turnover have been in a decreasing trend over the analysis period. Due to an increase in days in inventory and accounts receivable, businesses face difficulties to meet their short-term obligations.

- Activity ratios of the sector reveal that the businesses in the sector have significant difficulties or problems to manage their assets effectively. There is a significant decrease in the current asset turnover ratio. Due to this indicator, the total assets turnover of the sector has been nearly the same for the eleven years.

- The results indicate that profit ratios are highly unstable considering profitability ratios. While there was an increase in operating margin, the net profit margin was negative for four years and has not improved significantly through the analysis period. With a deeper examination, it can be seen losses due to an increase in foreign exchange losses and the significant increase in interest expenses put the sector in difficulties. The businesses in the sector have a significant burden of short-term debt interest expenses.

- To conclude, results showed that the sector is highly sensitive to economic fluctuations. Due to the high level of using debt and foreign currency, negative cash flows, and uncontrolled expansion, most of the businesses in the sector have been struggling with low or negative profitability ratios. These indicators state that the sector faces difficulties in sustainability.

The following managerial implications can be developed having regard the key points obtained from analysis:

- Healthcare businesses should consider the cash conversion cycle more intensively. For this purpose, inventory management and efforts on the receivable collection are significantly important. Nearly all healthcare facilities including private ones are dependent on the cash flow they generate from Social Security Institution (SSI) in Turkey. This flow requires a determined period. Healthcare businesses should manage their relationship with other health insurance companies to be able to shorten the average collection period. Managers also should be aware of the inventory level of their businesses to improve CCC. Investment in stock should be in accordance with the demand for healthcare services and sales.

- Improving CCC and increasing profitability can help businesses to use less debt in financing and improve the share of equity and long-term debt. It was determined that cost of service production is significantly high. Cost studies can be a useful method to analyze unit costs and reduce total costs. These studies can shed light on the causes of high costs of service production and operating activities and provide opportunities for improving the processes. Hospitals also should compare their unit costs to payments made by SSI. This will help to examine unprofitable services.

- More clearly, good management of inventories, effective cost control, and considering the demand from the public are critically important to the sector's financial sustainability.

REFERENCES

Ağır, H. and Tıraş, H H. (2018). Türkiye'de sağlık harcama türlerinin değerlendirilmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi*, 15(2), 643-670.

Akgüç, Ö. (2011). *Mali Tablolar Analizi.* Avcıol Basım Yayın.

Augurzky, B., Engel, D., Schmidt, C. M. and Schwierz, C. (2012). Ownership and financial sustainability of German acute care hospitals. *Health Economics*, 21(7), 811-824.

Aydemir, İ. (2018). Hastanelerde Finansal Performansin Değerlendirilmesi: Türkiye Cumhuriyeti Merkez Bankasi Hastane Hizmetleri Sektör Bilançolarinda Bir Uygulama. *Uluslararası Sağlık Yönetimi Ve Stratejileri Araştrma Dergisi*, 4(2), 133-149.

Bhattacharya, J., Hyde, T. and Tu, P. (2021). *Sağlık Ekonomisi- Health Economics*. Translation Editor Çağdaş Erkan Akyürek. Nobel Yayınevi.

Bülüç, F., Özkan, O. and Ağırbaş, İ. (2017b). Oran Analizi Yöntemiyle Özel Hastane Finansal Performansının Değerlendirilmesi. *International Journal of Academic Value Studies,* 3 (11), 64-72.

Bülüç, F., Özkan, O., and Ağirbaş, İ. (2017a). Üniversite hastanelerinin finansal performansinin oran analizi yöntemiyle değerlendirilmesi. *Business & Management Studies: An International Journal*, 5(2), 268-281.

Çabuk, A., Lazol, İ. (2010). *Mali Tablolar Analizi,* Ekin Kitabevi.

Çam, H. (2016). Sağlık işletmelerinde finansal performansın değerlendirilmesi: karaman devlet hastanesi örneği. *The Journal of International Scientific Researches*, 1(1), 14-27.

Çil Koçyiğit, S., and Kocakoç, N. (2019). Ankara İli Kamu Hastanelerinin 2008-2017 Dönemi Finansal Performans Analizi. *İşletme Araştırmaları Dergisi*, 11(2), 1280-1293.

Çil Koçyiğit, Seyhan (2012), *hastane işletmelerinde finansal performans ölçümü ve türkiye özel hastaneler uygulaması*, Gazi Kitabevi, Ankara.

Cleverley, W. O. (1990). Improving financial performance: a study of 50 hospitals. *Hospital & Health Services Administration*, 35(2), 173-188.

Curtis, P. G., and Roupas, T. (2009). Health care finance, the performance of public hospitals and financial statement analysis. *European Research Studies*, 12(4), 200-212

Dubas-Jakóbczyk, K., and Kozieł, A. (2020). Towards Financial Sustainability of the Hospital Sector in Poland—A Post Hoc Evaluation of Policy Approaches. *Sustainability*, *12*(12), 4801.

Dubas-Jakóbczyk, K., Kocot, E., and Kozieł, A. (2020). Financial performance of public hospitals: a cross-sectional study among Polish providers. *International Journal of Environmental Research and Public Health*, *17*(7)

Ercan, C. (2013). Kamu Sağlık İşletmelerinde Finansal Performans Değerlemesi: Kamu Hastaneleri Birlikleri Üzerine Bir Uygulama. *Asia Minor Studies*, 2, 54-71.

Erduru, İ. (2018) Özel Sağlık Kuruluşlarının Finansal Performansının Oran Analizi Yöntemi ile İncelenmesi. Editör Şahin U, Köseoğlu, N., Teori ve Uygulamada Sağlık Ekonomisi ve Politikaları Güncel Sorun ve Araştırmalar, Rating Academy, 327-329

Fraser, L.M. and Ormiston, A. (2010). *Understanding Financial Statements*. Pearson

Gapenski, L. C., & Pink, G. H. (2007). *Understanding healthcare financial management.* Chicago: Health Administration Press.

Gleißner, W., Günther, T., and Walkshäusl, C. (2022). Financial sustainability: measurement and empirical evidence. *Journal of Business Economics*, 92, 467-516.

Habib, A. M., and Shahwan, T. M. (2020). Measuring the operational and financial efficiency using a Malmquist data envelopment analysis: a case of Egyptian hospitals. *Benchmarking: An International Journal*, 27(9):2521-2536.

Işikçelik, F., Turgut, M., & Ağirbaş, İ. (2022) Hastanelerde finansal performansın farklı analiz yöntemleri ile değerlendirilmesi. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 13(34), 505-519.

Karaca, M., Boztosun, D. (2022) Sağlık Kurumlarında Finansal Analiz: Kayseri İlinde Bir Kamu Hastanesi Örneği. *Sakarya İktisat Dergisi*, 11(1), 77-103.

Karadeniz, E. (2016). Hastane hizmetleri alt sektörünün finansal performansının incelenmesi: Türkiye Cumhuriyeti Merkez Bankası sektör bilançolarında bir uygulama. *Hacettepe Sağlık İdaresi Dergisi*, 19(2): 101-114

Khullar, D., Bond, A. M., & Schpero, W. L. (2020). COVID-19 and the financial health of US hospitals. *Jama, 323*(21), 2127-2128.

Lee, D., Yu, S., and Yoon, S. N. (2019). Analysis of hospital management based on the characteristics of hospitals: focusing on financial indicators. *Global Business & Finance Review (GBFR)*, *24*(3), 1-13.

Lee, M. (2015). Financial analysis of national university hospitals in Korea. *Osong Public Health and Research Perspectives*, *6*(5), 310-317.

Ministry of Health (2019). *Health Statistics Year Book*. General Directorate of Health Information Systems.

Nowicki, M. (2018). *Introduction to Financial Management of Healthcare Organizations*. AUPHA.

Oleribe, O. O., Momoh, J., Uzochukwu, B. S., Mbofana, F., Adebiyi, A., Barbera, T., and Taylor-Robinson, S. D. (2019). Identifying key challenges facing healthcare systems in Africa and potential solutions. *International Journal of General Medicine*, 12, 395-403.

Özbirecikli M., Çil Koçyiğit, S. and Kocakoç, N. (2018). *Finansal ve operasyonel performans göstergeleri arasındaki ilişki üzerine bir araştırma: bir eğitim ve araştırma hastanesi örneği*, Izceas 2018 New Trends In Economics and Admınıstratıve Sciences, İzmir Uluslararası İktisadi İdari Bilimler Kongresi, Çeşme, İzmir.

Singh, S. R., and Wheeler, J. (2012). Hospital financial management: what is the link between revenue cycle management, profitability, and not-for-profit hospitals' ability to grow equity?. *Journal of Healthcare Management*, *57*(5), 325-341.

Walshe, K., and Smith, J. (2011). *Healthcare management*. McGraw-Hill Education (UK).

Whitcomb, M. E., and Cleverly, W. O. (1993). Financial performance of academic medical center hospitals. *Academic Medicine: Journal of the Association of American Medical Colleges*, *68*(10), 729-731.

Yiğit, V., and Yiğit, A. (2016). Üniversite Hastanelerinin Finansal Sürdürülebilirliği-Financial Sustainability of University Hospitals. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 8(16), 253-273.

Younis, M. Z. Younies, H. Z., and Okojie, F. (2006). Hospital financial performance in the United States of America: a follow-up study. *EMHJ-Eastern Mediterranean Health Journal*, 12 (5), 670-678.