

**DISCOUNTED CASH FLOW VALUATION OF THONBURI
HEALTHCARE GROUP PUBLIC COMPANY LIMITED**



**A THEMATIC PAPER SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
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entitled
**DISCOUNTED CASH FLOW VALUATION OF THONBURI
HEALTHCARE GROUP PUBLIC COMPANY LIMITED**

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DISCOUNTED CASH FLOW VALUATION OF THONBURI HEALTHCARE GROUP PUBLIC COMPANY LIMITED

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M.M. (CORPORATE FINANCE)

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ABSTRACT

The thematic paper has an objective to determine stock price of Thonburi Healthcare Group Public Company Limited (THG) based on discounted cash flow valuation method (FCFF). Covid-19 breakout profoundly impacts world's economy including healthcare business, which is considered defensive. THG's primary target customers are cash-based patients and foreign customers. Both groups are directly affected by economic recession. This fundamentally impacts future revenue forecast and free cash flow to firm. In 2020, THG's revenue growth recorded a greater decrease than Thailand's GDP. Plus, Thonburi group suffers from cost control problem prior the COVID-19 pandemics. Therefore, the valuation is derived from a conservative assumption.

THG's target price based on discounted cash flow methods is of 15.92 baht. Almost half it is less than market price of 30 baht. After the input value and assumptions are compared with different financial analysis platform such as Refinitiv Eikon, SET and S&P500 capital IQ. As well as being tested sensitivity analysis. The study indicates that investors should SELL because the market price is overvalued.

KEY WORDS: THG/ Intrinsic value/ Hospital/ Discounted Cash Flow/ Valuation

52 pages

CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
LIST OF TABLES	vi
LIST OF FIGURES	vii
CHAPTER I COMPANY OVERVIEW	1
1.1 Company Background	1
1.2 Service and brand	2
1.3 Management, Administration and Governance	2
1.4 Strategies	3
1.5 Revenue	4
CHAPTER II MACRO & MICROECONOMIC ANALYSIS	6
2.1 The world and country's GDP	6
2.2 Inflation	8
2.3 Aging Society	8
2.4 Medicine Price Control	9
2.5 Current health expenditure (% of GDP)	10
2.6 Industry analysis	10
2.7 Benchmark Identification	17
CHAPTER III FINANCIAL STATEMENT ANALYSIS	20
3.1 Profitability	20
3.2 Margin Analysis	22
3.3 Asset Turnover	23
3.4 Short Term Liquidity	24
3.5 Long Term Solvency	26
3.6 Interest Coverage Ratio	27
CHAPTER IV DISCOUNTED CASH FLOW VALUATION	28
4.1 Pro Forma Statement Analysis	28

CONTENTS (cont.)

	Page
4.1.1 Revenue Structure and Analysis	28
4.1.2 Earning Capacity	29
4.1.3 Revenue Forecast	30
4.1.4 Cost	31
4.1.5 Capital Expenditure	32
4.1.6 Depreciation	32
4.1.7 Working Capital	33
4.2 Discounted Cash Flow Valuation	33
4.2.1 Weight Average Cost of Capital (WACC)	34
4.2.2 Terminal Growth	35
4.2.3 Valuation	36
4.2.4 Sensitivity Analysis	37
CHAPTER V INVESTMENT RISKS AND DOWNSIDE POSSIBILITIES	38
CHAPTER VI CONCLUSION AND RECOMMENDATION	40
REFERENCES	41
APPENDICES	42
Appendix A: Five Force Analysis	43
Appendix B: Trend Analysis	45
BIOGRAPHY	47

LIST OF TABLES

Table	Page
1.1 THG Revenue Structure	2
2.1 Number of patients in 2016 by type of patient and region	13
2.2 Number of patient days of all inpatients, number of beds and occupancy rate in 2016 by region	15
3.1 ROE and ROA	22
4.1 Revenue Structure	30
4.2 Earning Capacity	32
4.3 Revenue Forecast	32
4.4 Revenue Forecast	33
4.5 Cost Structure	33
4.6 Cost Forecast	34
4.7 Capital Expenditure	34
4.8 Depreciation	35
4.9 Working capital	35
4.10 Weight Average Cost of Capital	36
4.11 Inflation and GDP	37
4.12 Weight Average Cost of Capital	38
4.13 WACC and terminal growth rate sensitivity analysis	39
4.14 Revenue, COGS and SG&A sensitivity analysis	40
5.1 Risk Matrix	41

LIST OF FIGURES

Figure	Page
2.1 Correlation between healthcare sales and Thai GDP growth (1997-2019)	6
2.2 Correlation between healthcare sales and Thai GDP growth (2012-2020)	7
2.3 Correlation between healthcare revenue growth and Thailand inflation (2005-2020)	8
2.4 Growth rate of population between 15-56 yrs and more than 60 yrs	8
2.5 Medicine Cost in Private Hospital	9
2.6 Current Health Expenditure (% GDP)	10
2.7 Top ten biggest market capitalization hospitals in Thailand	11
2.8 Types of private hospitals by services	12
2.9 Types of private hospitals by registered bed	13
2.10 Types of patients	14
2.11 Revenue structure of private hospitals	16
3.1 ROE	22
3.2 Margin	23
3.3 Asset Turnover	24
3.4 Current Ratio and Quick Ratio	26
3.5 Cash Conversion Cycle	27
3.6 Solvency Ratio	28
3.7 Interest Coverage Ratio	29
4.1 Inflation and GDP	37

CHAPTER I

COMPANY OVERVIEW

Thonburi Healthcare Group is a holding company, ranked in Top 10 private hospitals in Thailand. The Stock is currently of interest with P/E of 300. However, net income and other financial data shows that management may be having a hard time struggling in COVID-19. This study aims to conduct research about its intrinsic value and fair price.

1.1 Company Background

Thonburi Healthcare Group Public Company Limited is a private hospital which was founded by a group of doctors in 1976 with a paid-up capital of 849.08 million Baht. The company runs through three operating segments: Medical Services Business, Healthcare Solution Provider and Other Business.

The Medical Service business is divided into four sub-categories. The first sub-category is domestic medical service which consists of eight hospitals. Four are based in Bangkok and vicinity, and others are in provincial cities such as Songkhla, Ubonratchathani, Chanthaburi and Nakhon Si Thammarat.

The second sub-category refers to overseas branches which currently have one branch, located in Myanmar. There used to be another branch in China. It will be sold in 2020. Next, THG has contracts with Phuket Provincial Administrative Organization Hospital and Pattaya City Hospital for management services. Lastly, the company offers specialized medical service centers such as hearth centers for special treatment.

As Healthcare Solution Provider, THG offers a senior care and senior living operated by Jin Wellbeing County, and home healthcare run by Thonburi Health Village, and a medical supplies distributor managed by Dental Siam.

Last segment is medical software development where the firm develops software for hospital management used in private and public hospitals.

1.2 Service and brand

There are a bunch of brands under Thonburi Group, providing different products and services. Each brand has different targeted customers and offers different levels of medical sophistication. However, the focus of attention is Tertiary Care Services and the primary targeted consumer is middle and middle-upper income class. Most of them are located in big cities especially Bangkok and vicinity.

Table 1.1 THG Revenue Structure

Revenue Structure: Thonburi Hospital Group	Location	% of Shareholding
Hospital Operation		
Thonburi Healthcare Group PCL		
<i>Overseas</i>		
Ar Yu International Hospital	Myanmar	40%
<i>Domestics</i>		
Thonburi Hospital	Bangkok	
Thonburi 2 Hospital	Bangkok	
Thonburi Healthcare Group PCL - Pattaya City Hospital	Chonburi	
Thonburi Healthcare Group PCL -Phuket Provincial Hospital	Phuket	
Rajyindee Hospital PCL.	Songkhla	56.91%
Thanarad Thung Song Co., Ltd.	Nakon Si Thammarat	56.43%
Thonburi Hospital Heart Centers Co.,Ltd. (Srivej, Ubonrak)	Bangkok	99.99%
Thonburi Bamrungmuang Hospital Co., Ltd.	Bangkok	99.99%
Healthcare Solution Provider		
Dental Siam Co., Ltd.	Bangkok	99.43%
Thonburi Wellbeing Co., Ltd.	Bangkok	99.99%
Other Business		
Modular Software Expertise Co., Ltd.	Bangkok	70%
Rajthanee Realty Co., Ltd.	Bangkok	100%
Thonburi Realty Development Co., Ltd.	Bangkok	99.86%

Source: Thonburi Healthcare Group (2021)

1.3 Management, administration and Governance

Companies under Thonburi Group operate under one board of directors and committees. They follow the same standard of internal control, goal and objectives. Knowledge, experience and technology among affiliates are integrated and shared in order to gain competitive advantages in a fierce competition.

The Board of Directors of the company complied with regulations of the Stock Exchange of Thailand (SET) and conducted business in accordance with the code of ethics and good corporate governance. The company understands that good corporate governance will preserve competitive ability and sustainable growth. THG established corporate governance policy covering five areas which consists of Right of Shareholders, Equitable Treatment of Shareholders, Roles of Stakeholders, Disclosure of Information and Transparency, and Responsibility of the Board of Directors. Firm has proved its commitment to operate its business by adhering to good corporate governance principles of Stock Exchange of Thailand and achieved five medals in CG Scoring by SET in 2020.

1.4 Strategies

THG aims to improve people's quality of life by being people's most preferred health partner. The Board of Directors have set a mission to provide customer-centric, innovation, and reasonable healthcare solutions for people of all ages, as well as increase added value to society and company's stakeholders. Strategies in focus are to enhance the company's sustainable development covering 3 areas which consist of economy, social area and environmental area. At the same time, the company takes social responsibility seriously by adhering to good governance practices for sustainable development. These strategies are adjusted to suit circumstances of COVID-19.

The management mainly focuses on building a brand through relationships with customers such as creating a good impression and satisfaction. Meanwhile, they will cooperate with partners to enhance the company's image and show the high standard level of medical services provided by Thai hospitals. The management realizes the importance of medical innovation technology and creates innovation in the integrated hospitals. Furthermore, the company oversees that the company's personnel work with

professionalism and high standard of services. Lastly, THG seeks for opportunities in investment in order to diversify risk and growth. In the meantime, the company protects society and environment through Corporate Social Responsibility program and effective waste management.

In March 2021, the company expected some economic recovery and estimated the company's revenue growth by approx. 7-10%. However, the forecast was probably inaccurate and worse than expected due to the fact that Thailand cannot control the epidemic and supply vaccines to Thai people as expected. To cope with Covid-19, THG adopted online technology to communicate and follow up foreign patients who could not make a visit. The management has seen the epidemics as a catalyst for innovation and it is the company's duty to adjust itself.

1.5 Revenue

The primary earnings are generated from domestic medical services, especially Thonburi I, Thonburi II, Rajyindee Hospital and Thonburi Bamrung Muang, which accounts for 90% of total revenue. Another ten percent comes from other businesses both domestic and overseas.

Cash or cash equivalents is only one method available for payment. This policy reflects that the company's source of income is from the middle-high income class, not middle-low income. The explanation is that insurance limits generally do not cover medical treatment expenses. To avoid an excess expense, these people visit other hospitals instead. In Thailand, many high-standard private hospitals join SSS.

Cash-based patients in middle-high class income expect not only a high standard of services, expertise, and personalization, they are also impressed with good-looking places, decorations and sophisticated restaurants. Serving customers' wants and needs results in an opportunity for additional income to meet their expectations.

Although THG offers all types of medical sophistication which are primary, secondary and tertiary care, their primary concern is on tertiary healthcare (complex cases) which have comparatively low margins. For example, THG focuses more on heart disease, cancer and fatal illness instead of Plastic Surgery. The disadvantages are

firstly, the number of serious disease patients is much lower than plastic surgery patients. Secondly, the margin from plastic surgery is higher than serious illness.



CHAPTER II

MACRO & MICROECONOMIC ANALYSIS

Since macro-economic data can be used to make sales forecast assumptions and inaccurate future cash flow leads to imprecise company's intrinsic value, macro-economic index such as GDP, CPI, or inflation rate play an important role in valuation. Selecting the index appropriately reflects the reliability of the result. Therefore, historical correlation between a company's financial data and alternative index is generally checked first.

2.1 Thailand's GDP and Healthcare Sales

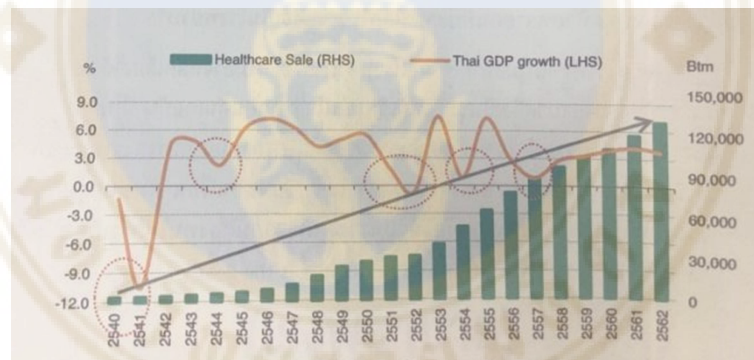


Figure 2.1 Correlation between Healthcare Sales and Thai GDP Growth (1997-2019)

Source: Eksamut (2019)



Figure 2.2 Correlation between Healthcare Sales and Thai GDP Growth (2012-2020)

Source: Kasikorn Securities (2021)

Gross Domestic Product or GDP is widely used in stock valuation. However, it is not applicable for the healthcare sector.

Eksamut (2019) conducts research and summarizes that there is no significant correlation between Thailand GDP growth and Healthcare sales for the last twenty years. Therefore, it may not be suitable to forecast growth according to GDP.

However, Healthcare growth statistically runs above GDP. KS Securities conducts research by comparing revenue growth rate of big 4 players (BDMS, BH, BCH and CHG) with GDP growth rate during 2012-2020. In saying that BDMS, BH, BCH and CHG's market share account for 80%, these four hospital chains do represent growth of industries.

In conclusion, the study does not directly apply GDP in forecasting revenue. However, the projection considers the fact that healthcare growth rate tends to be higher than GDP.

2.2 Inflation

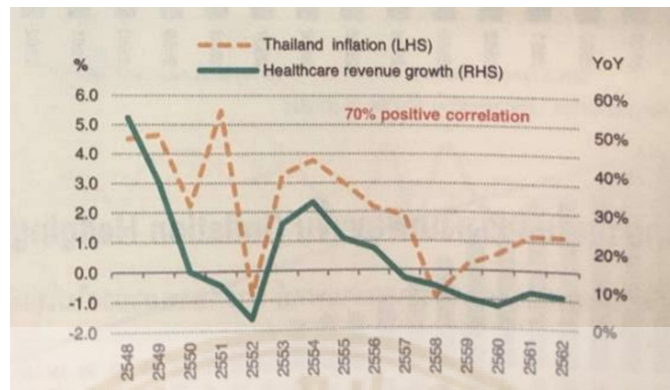


Figure 2.3 Correlation between Healthcare Revenue Growth and Thailand Inflation (2005-2020)

Source: Eksamut (2019)

In contrast to GDP, the inflation line graph illustrates significant correlation between healthcare revenue growth and inflation rate. Therefore, THG's organic growth is forecast based on Thailand's inflation projection.

2.3 Aging Society



Figure 2.4 Growth Rate of Population between 15-56 yrs. and more than 60 yrs

Source: National Statistical Office (2021)

Aging society is one of the major concerns in Thailand. According to the National Statistical Office (2021), the growth rate of elderly population accelerates while the growth rate of the overall population decreases continuously. The population

aged over 60 accounted for 18% of the population in 2020 and it is forecast to reach 28% in 2031. Other words, there are eleven million elderly or 1:3 of the whole population and it is still increasing. Therefore, the demand for medical services and gadgets for elderly is expected to increase significantly in the near future.

2.4 Medicine Price Control



Figure 2.5 Medicine Cost in Private Hospital
Source: Thai Private Hospital Association (2014)

In 2019, the new product price control list has been approved by the government which includes drug prices sold at private hospitals. The commerce ministry invited private hospitals to explain the reason for overpriced medicine to determine the fair price for every party. However, the new price surely affects the margin of private hospitals including THG.

2.5 Current Health Expenditure (% of GDP)

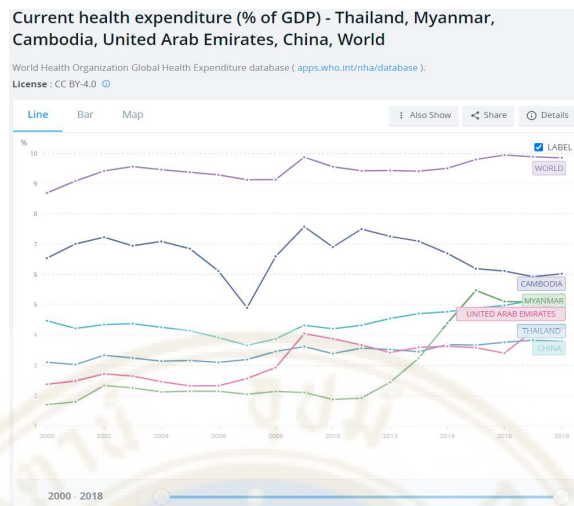


Figure 2.6 Current Health Expenditure (% of GDP)

Source: World Health Organization (2021)

According to the World Health Organization (2021), Thailand has a health expenditure (% of GDP) at 3.79% which is relatively low compared to developing countries. However, the line illustrates an increasing number. It reflects that there is a chance for additional growth because the market penetration rate is at a low level in healthcare business

2.6 Industry Analysis

There are different types of healthcare service centers in Thailand which consist of Public Hospitals, Private Hospitals, other health offices and small clinics. The public hospitals are mainly managed by the Ministry of Public Health and University Hospitals while the private hospitals are owned and managed by private or public companies. Currently, there are 382 private hospitals in Thailand as of 15 September 2020 (Department of Health Service Support, 2020) and 23 groups of private hospitals registered as public companies listed in the Stock Exchange of Thailand with the total market capital over two billion baht as of June 2021 (The Stock Exchange of Thailand, 2021). The top ten biggest market capital hospital companies in the Stock Exchange of Thailand consists of 1) BCH: Bangkok Chain Hospital Public Company Limited 924.88

MB, 2) BDMS: Bangkok Dusit Medical Services Public Company Limited 629.25 MB, 3) CHG: Chularat Hospital Public Company Limited 287.83 MB, 4) BH: Bumrungrad Hospital Public Company Limited 133.30 MB, 5) VIBHA: Vibhavadi Medical Center Public Company Limited 53.86 MB, 6) SKR: Sikarin Public Company Limited 34.43 MB, 7) THG: Thonburi Healthcare Group Public Company Limited 32.76 MB, 8) EKH: Ekachai Medical Care Public Company Limited 24.80 MB, 9) PRINC: Principal Capital Public Company Limited 11.14 MB, and 10) RAM: Ramkhamhaeng Hospital Public Company Limited 8.89 MB

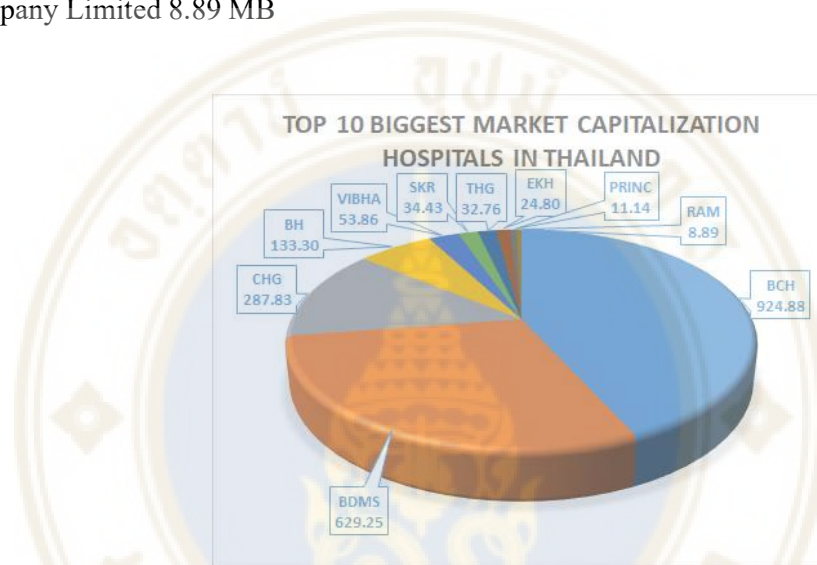


Figure 2.7 Top Ten Biggest Market Capitalization Hospitals in Thailand
Source: The Stock Exchange of Thailand (2021)

There are three types of healthcare services in the hospitals which rank from general service to more specialized service depends on the capacity of hospitals based on National Health Services (NHS) in the United Kingdom (Multiple Sclerosis Trust, 2018) as follow:

1. Primary Care Services: refers to the services that provide the first point of contact that a patient sees when they have a common health problem, screening, giving immunization and providing advice to prevent future illness. Besides, the primary care practitioner can refer the patients to specialists if needed.

2. Secondary Care Services: this service is more specialized and will be provided if the primary care cannot resolve health problems. These services will need

specialist health practitioners and tools to serve the patients. The Secondary Care Services may include specialized clinics such as ophthalmology, radiology, orthopedic surgery, and rehabilitation services.

3. Tertiary Care Services: this service is the most advanced service in the healthcare system. It will be provided at large hospitals or specialized hospitals. The doctors who provide this service have expertise, are well-trained and can access specialized equipment to serve the patients who have serious health problems such as cancer management, neurosurgery and cardiac surgery.

The private hospitals are divided into two types which are

1. General hospitals (90.8%), the hospitals that provide treatment for various types of diseases under the same place.

2. Specialized hospitals (9.2%), the hospitals that specialize in the treatment of specific groups of diseases e.g. skin, ear, nose, foot etc.

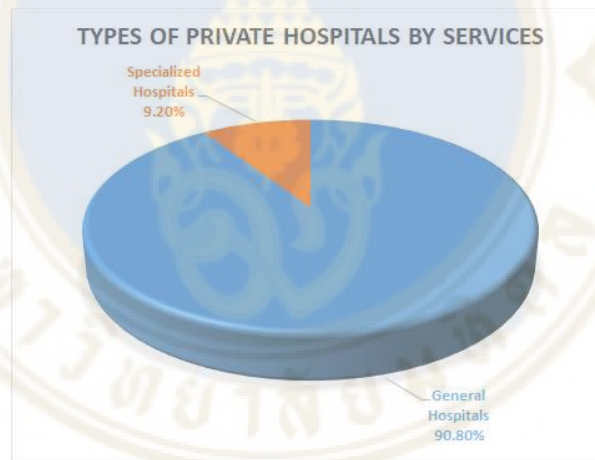


Figure 2.8 Types of private hospitals by services

Source: National Statistical Office (2017)

Moreover, the private hospitals can also be classified by size based on the number of beds into three categories:

1. Small hospital (<31 beds) 23.9%
2. Medium-size Hospital (31-100 beds) 42.1%
3. Large Hospital (>100 beds) 34%

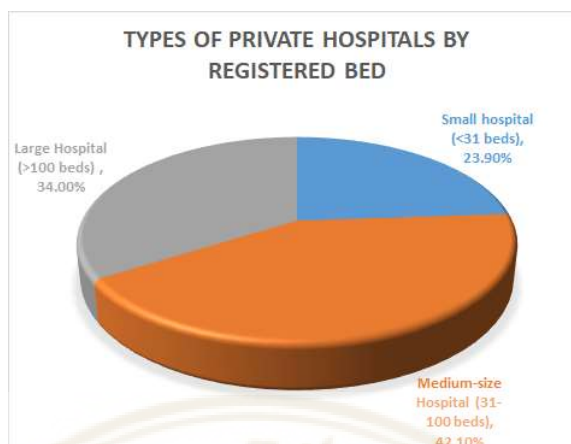


Figure 2.9 Types of private hospitals by registered bed

Source: National Statistical Office (2017)

According to the 2017 Private Hospitals Survey from the National Statistical Office, they indicated that the number of patients can be divided to 4.5% of inpatient and 95.5% of outpatient as detail below:

Table 2.1 Number of patients in 2016 by type of patient and region

Region	Total Patients		Inpatient		Outpatient	
	Total	%	Total	%	Total	%
Whole Kingdom	61,641,944	100.0	2,803,899	4.5	58,838,046	95.5
Bangkok	32,174,518	100.0	986,084	3.1	31,188,433	96.9
Central Region	17,964,855	100.0	857,763	4.8	17,107,092	95.2
Northern Region	4,902,077	100.0	469,509	9.6	4,432,568	90.4
Northeastern Region	3,334,140	100.0	236,088	7.1	3,098,053	92.9
Southern Region	3,266,355	100.0	254,455	7.8	3,011,900	92.2

Source: National Statistical Office (2017)

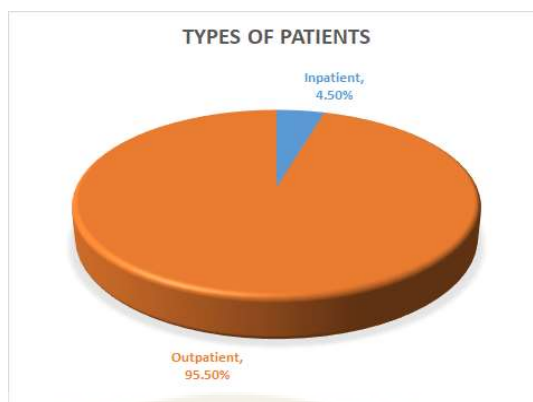


Figure 2.10 Types of patients

Source: National Statistical Office (2017)

The number of beds for the whole nation is 34,701 beds, the average number of patient days of inpatient is three days and the occupancy rate is 71% which can be divided by region as in the table:

Table 2.2 Number of patient days of all inpatients, number of beds and occupancy rate in 2016 by region

	Total number of Inpatients	Number of patient days of inpatients	Average number of patient days of inpatient	Number of total beds	Occupancy rate (%)
Whole Kingdom	2,803,899	9,027,568	3	34,701	71
Bangkok	986,084	3,683,318	4	14,687	69
Central Region	857,763	2,528,323	3	9,941	70
Northern Region	469,509	1,600,261	3	4,549	96
Northeastern Region	236,088	600,287	3	2,826	58
Southern Region	254,455	615,380	2	2,700	62

Source: National Statistical Office (2017)

The revenue structure from medicals treatment of private hospitals in Thailand consists of Drugs and Medicine 37.2%, Doctor fee 19.0%, Laboratories 10.4%, X-ray 5%, Surgical room and equipment 2.3%, Physical therapy 1.0%, Child care 0.2%, Room 5.8%, Food 1.7%, and others 12.1%.

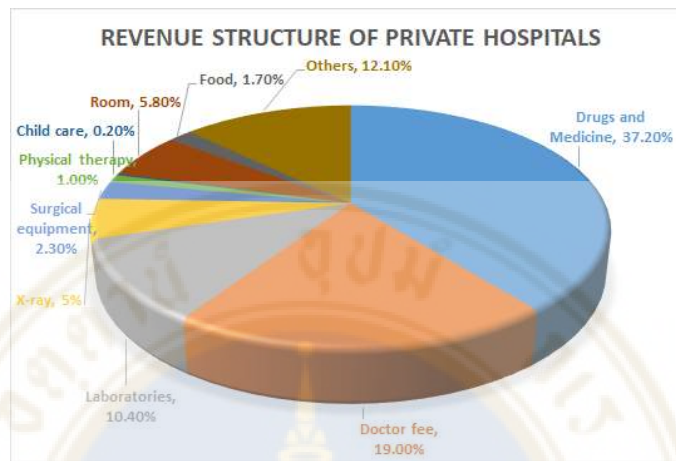


Figure 2.11 Revenue structure of private hospitals

Source: National Statistical Office (2017)

The government has a policy to support the healthcare industry in Thailand and promote the country to become a global medical & wellness hub within 2026. (Ninkitsaranont, 2020). The priority services that the government would like to promote are anti-aging treatments, cosmetic surgery, dental care, and fertility clinics. The plan also included the extending of the allowed length of stay in the country from 30 to 90 days for patients from China and CLMV Countries who are seeking medical treatment in the country. They also support several programs to achieve global medical hub goal such as: 1) Telemedicine for Thai who live overseas, they would like help Thai people outside the country to access medical service directly from their home country, 2) Support Global Health Insurance program to attract patients from CLMV and Middle East in order to increase revenue from those people, 3) Promote health check-up and wellness center at hotel call “Hotelistic” (Hotel+Holistic) to remove mind symptom at the hotel, and 4) Promote Thailand as top of mind for medical service around the world through international media.

The government also gives tax-exemption benefits to private hospitals as an incentive to increase margin and attract investors to do this business in order to maintain good health to people and expand the market to both Thai and foreign medical tourists.

2.7 Benchmark Identification

Thonburi Healthcare Group (THG) comprises large hospitals that provide from primary up to tertiary care services. The competitors to be analyzed should be the same tier. Hence, we picked five leading hospital groups in Thailand which are Chularat Hospital Group (CHG), Bangkok Chain Hospital (BCH), Bumrungrad Hospital (BH), Bangkok Dusit Medical Services (BDMS), Vibhavadi Hospital (VIBHA) and two leading international competitors which are PT Mitra Keluarga Karyasehat Tbk. (MIKA) from Indonesia and Max Healthcare Institute Ltd. (MAXHEALTH) to compare with our target company.

CHG (Chularat Hospital Group)

CHG consists of 10 subsidiaries that operate 14 branches of hospitals and clinics which cover areas in Eastern Bangkok, Chachoengsao, Prachinburi, Chonburi, Sa-Kaeo, Rayong. The group has a total capacity of 749 beds and can support 6,000 cases per day of outpatients. The hospitals are promoting themselves to be the best private hospital in the eastern region.

CHG provides service to both General patients and Government Welfare patients (SSO and NHSO). The company considered themselves for outstanding services in Orthopedic and Micro Vascular Clinic, Neonatal Intensive-Care Unit, Stroke Center, Skin Center and Cosmetics Surgery, Integrated Heart Center, Integrated Cancer Center with HIFU, Prostate Cancer Center using Brachytherapy, The New Baby Fertility Center, and Suvarnabhumi Eye Center.

In 2020, the company's revenue structure consisted of 59.1% from General Patient which can be divided into 31.1 from Outpatient and 28% from Inpatient, and 40.9% from Government Welfare Schemes.

BCH (Bangkok Chain Hospital)

BCH consists of 15 hospitals in Thailand which cover area in suburban of Bangkok, Nonthaburi, Sa-Kaeo, Chiang Rai, Saraburi, Chachoengsao, Prachinburi, Pathum Thani, Ayudhaya, and 1 hospital in Vientiane, Lao PDR.

The hospitals in the group have four sub-group with different names which target different patients as well as follows:

1. World Medical Hospital Group (WMC): their target customers are high-end and international patients. They provide tertiary care that requires high specialized medical services.

2. Kasemrad International Hospital Group (KIH): their target customers are middle to high income patients. The hospital provides secondary and up to some level of tertiary care.

3. Kasemrad Hospital Group (KH): their target customers are middle-income patients and social security patients. The hospital provides primary, secondary and up to some level of tertiary care.

4. Karunvej Hospital Group (KV): their target customers are mainly social security patients. The hospital provides primary and up to secondary care.

The group has a total capacity of 2,029 beds and 484 examination rooms for outpatients. In 2020, the company's revenue structure consisted of 63.10% from General Patient and 35.94% from Social Security Patients

BH (Bumrungrad Hospital)

BH is a single hospital that offers general medical service up to tertiary. The target customers of the hospital are high income patients and international patients. Bumrungrad Hospital is the first hospital in Asia to receive the Joint Commission International (JCI) accreditation. The hospital has a total capacity of 580 beds and 272 examination rooms to serve over 5,500 outpatients per day.

The hospital's revenue is contributed by 48% of outpatients and 52% of inpatients in 2020. BH also has the international patient service to accommodate foreign patients including medical and visa assistance that led the hospital to receive a revenue contribution over 60% of the total every year.

BDMS (Bangkok Dusit Medical Services)

Bangkok Dusit Medical Services has the largest market share in the healthcare sector. The group consists of 49 hospitals covered nationwide in Thailand. They first started from Bangkok Hospital and grew by acquisition of hospitals in the big city in every region of Thailand. Now, the company operates 6 hospital sub-groups which are Bangkok Hospital Group, Samitivej Hospital Group, BNH Hospital, Phyathai Hospital Group, Paolo Hospital Group, and Royal Hospital Group in Cambodia. The company provides tertiary care service and targets high income patients and international patients. The hospital specializes in neurology, orthopedic, and spine diseases.

The group has a total capacity of around 8,600 beds. In 2020, the company's revenue structure consisted of 66.96% from General Patient which can be divided into 34.11% from outpatient and 32.85% from Inpatient, and 19.57% from Government Welfare Patients.

VIBHA (Vibhavadi Hospital)

Vibhavadi Hospital can be considered as a single hospital because it mainly operates one hospital in Northern Bangkok. VIBHA is a general hospital that has the capacity of 258 beds and more than 200 rooms that can serve about 2,000 patients per day. They also provide specialized eye care by setting up Advanced Lasik Center.

The company's revenue structure consisted of 45.44% from outpatient and 32.79% from Inpatient from both General Patients and Government Welfare Patients.

MIKA (PT MITRA KELUARGA KARYASEHAT TBK)

MIKA is a leading group of hospitals in Indonesia comprising 25 hospitals all over the country. The group has grown up through acquisition of other hospitals over an extended period.

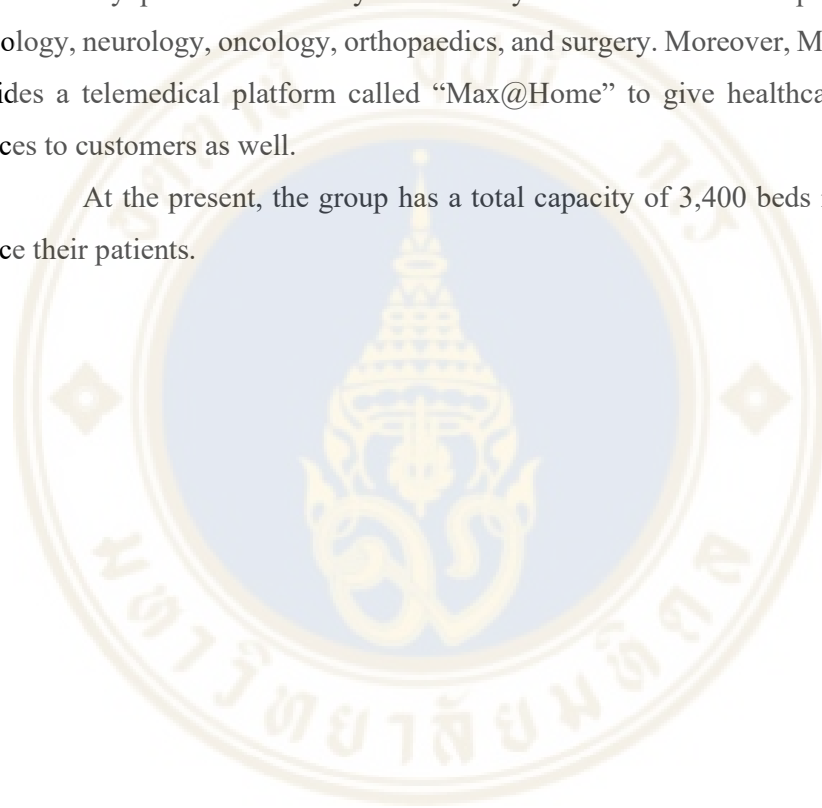
The hospital showed their emphasis and specialization by setting up a few Centers of Excellence such as Diabetes & Thyroid Center, Fertility & Reproduction Clinic, Neurosurgeon Clinic, and Urology Center.

At the present, the group has a total capacity of around 3,000 beds. The company's revenue structure consisted of 34.4% from outpatient and 65.6% from Inpatient.

MAXHEALTH (MAX HEALTHCARE INSTITUTE LTD)

Max Healthcare is the second largest hospital group in India. The group comprises 16 healthcare facilities located in Delhi, Bathinda, Dehradun, Mohali, and Mumbai. They provide secondary and tertiary care services with specialization in cardiology, neurology, oncology, orthopaedics, and surgery. Moreover, MAXHEALTH provides a telemedical platform called "Max@Home" to give healthcare consulting services to customers as well.

At the present, the group has a total capacity of 3,400 beds nationwide to service their patients.



CHAPTER III

FINANCIAL STATEMENT ANALYSIS

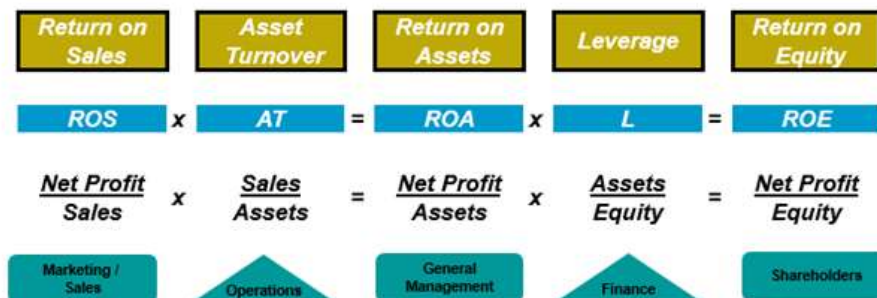
For financial statement analysis, we would like to see the financial strength of THG in Profitability, Margin, Utilization of assets, Short Term Liquidity, and Long Term Solvency. We will use the healthcare sector average ratio computed from information of all companies (excluded THG) in the sector from SETSMART. Yet, there is a limitation that the number which they use to calculate ratios for peer companies from the database might not be consistent with our own calculation for THG.

3.1 Profitability

Return on Equity (ROE) and Return on Assets (ROA)

ROE is the measure of business performance or profitability of the company. ROE can be used to identify problems or gaps for improvement of the company as well. DuPont Analysis break down the ROE into three factors:

1. Return on Sales or Net Profit Margin calculated by Net Profit divided by Sales. We can use the factor to measure marketing and sales performance or operating efficiency of the company.
2. Asset Turnover calculated by Sales divided by Total Assets. We can use this factor to measure operations performance or asset used efficiency.
3. Leverage or Equity Multiplier calculated by Total Assets divided by Total Equity. We can use this factor to measure the financial leverage of the company.



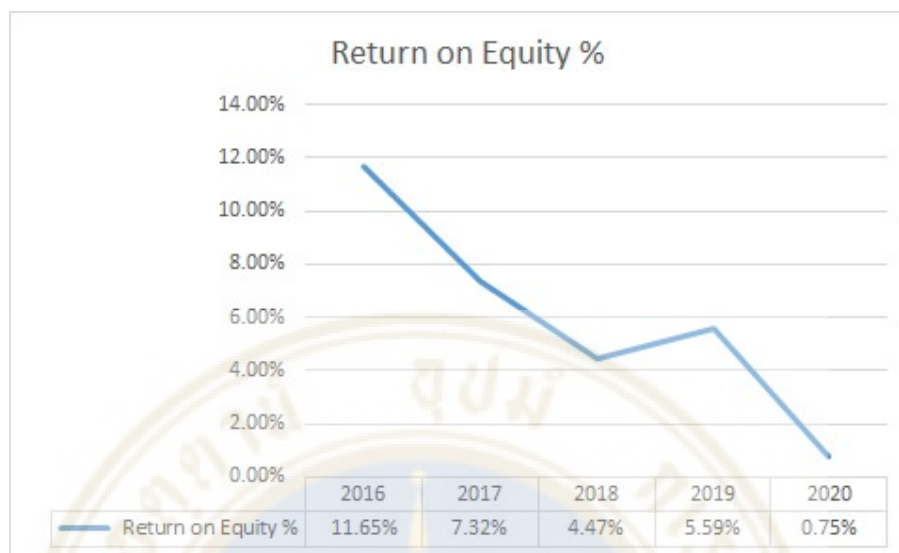


Figure 3.1 ROE

Source: Own calculation

Table 3.1 ROE and ROA

THG	2016	2017	2018	2019	2020
ROE	11.65%	7.32%	4.47%	5.59%	0.75%
ROA	5.74%	4.53%	2.18%	2.42%	0.31%
Net Profit Margin	8.21%	8.38%	4.90%	5.62%	0.85%
Asset Turnover	0.70	0.54	0.44	0.43	0.36
Assets/Equity	2.03	1.62	2.05	2.31	2.43

Source: Own calculation

The ROE of THG has declined from 2016 to 2018 and began to recover back in 2019. However, it's really worse again in 2020 that the ROE is only 0.75% due to COVID-19 pandemic. The hospital lost international patients because they couldn't travel across countries to use the service as the hospital. However, the average ROE of the healthcare sector in SET is 8.11%, so THG has a huge lower ROE from the peers.

We can understand it more by looking deeper in detail, the ROA is very low in 2020 because of the huge decrease in Profit Margin as well as the decreasing of asset turnover caused by lower revenue from previous years. However, the leverage level (assets/equity) is not so different from the previous year.

3.2 Margin Analysis

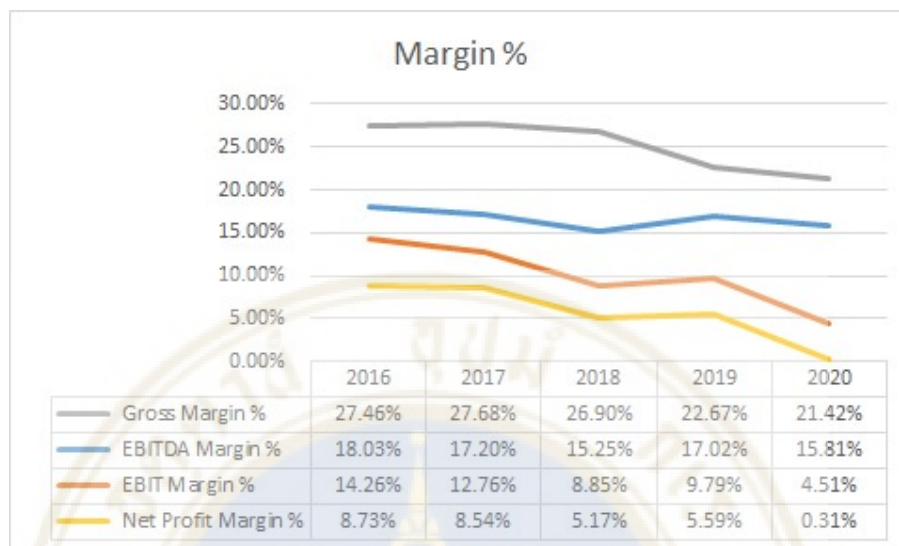


Figure 3.2 Margin

Source: Own calculation

Gross Profit Margin showed the amount of profit left after deducted by the Cost of Goods Sold. In 2020, THG has Gross Profit Margin at 21.42% which is not far from the sector average at 25.92%.

EBIT Margin showed the amount of profit left after Gross Profit and SG&A cost. We can see that THG has much lower EBIT Margin in 2020 than 2019 because they can generate less revenue at 4.51% compared to the peers that have average EBIT Margin at 9.96%, meaning that THG may have more admin cost than the peers.

EBITDA Margin showed the EBIT include Depreciation and Amortization, we can see that THG have big amount of Depreciation and Amortization as the chart showed the big gap between EBITDA and EBIT.

Net Profit Margin showed a net amount of profit after excluding all costs including finance cost and tax out of revenue. We can see that the net profit of THG dropped a lot from 2019 because they can generate lower revenue but have to pay the same fixed cost, so the Net Profit Margin is only 0.31% while the sector average is 6.96%. THG will need to improve their cost structure more efficiently to compete with the peers.

3.3 Asset Turnover

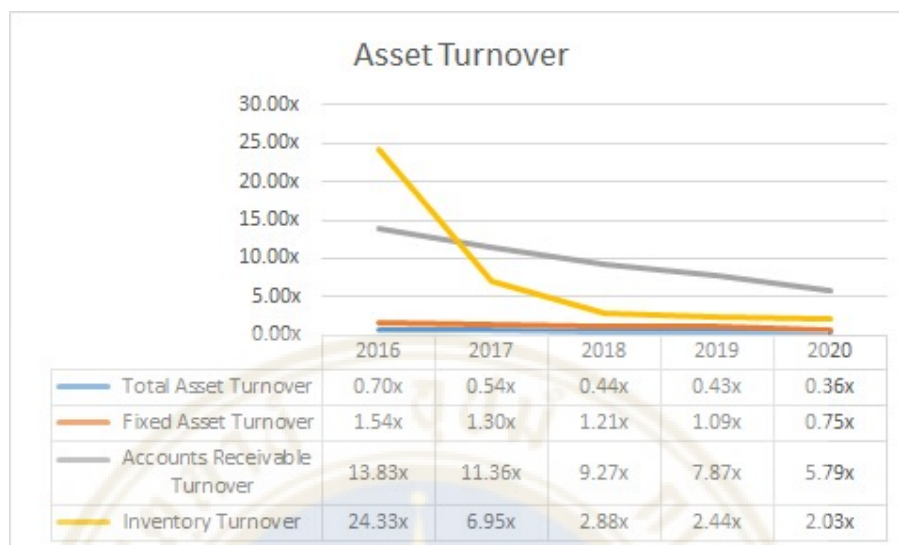


Figure 3.3 Asset Turnover

Source: Own calculation

To analyze asset turnover, we should have the common size of each asset as well. We set the total asset to have common size as 100% and calculate the result that the common size of Fixed Asset is 54.91%, Account Receivable is 6.27%, and Inventory is 25.86%. We can see that Fixed Asset and Inventory will drive the turnover ratio a lot.

In 2020, the Total Asset Turnover showed that THG could generate revenue by 0.36 times of its total assets while the sector average is 0.62x, showing that THG has less efficiency to utilize total assets than the peers.

The Fixed Asset Turnover showed that THG could generate revenue by 0.75 times of its property and equipment net of accumulated depreciation while the sector average is 1.08x, showing that THG has less efficiency to utilize fixed assets than the peers.

The Account Receivable Turnover showed that THG could generate revenue by 5.79 times of its investment in account receivable while the sector average is 9.94x, showing that THG has less efficiency to generate sales by offering credit terms to customers than the peers.

Lastly, the Inventory Turnover showed that THG could generate revenue by 2.03 times of its investment in inventories while the sector average is 30.02x, showing that THG has less efficiency to utilize Inventory to generate sales than the peers.

3.4 Short Term Liquidity

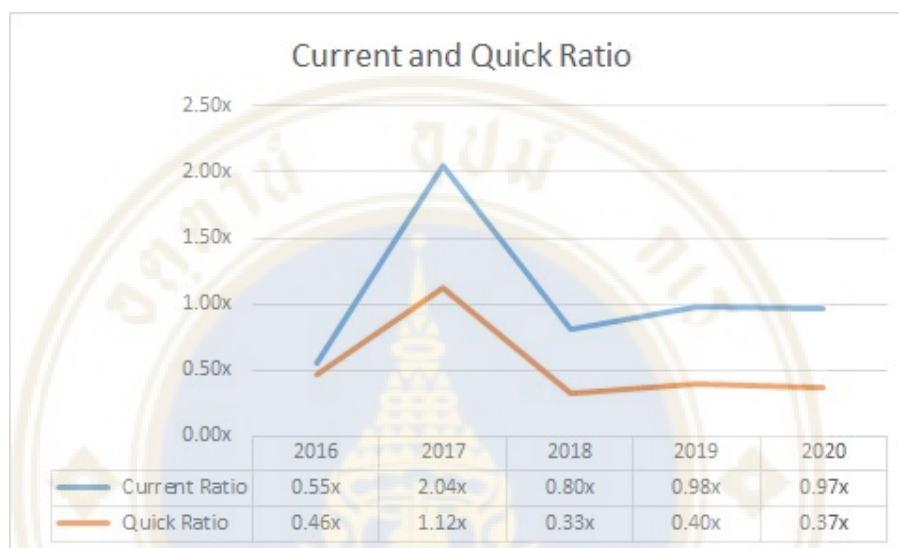


Figure 3.4 Current Ratio and Quick Ratio

Source: Own calculation

Current Ratio and Quick Ratio showed the ability of the firm to pay off its debt that will be due within one year.

Current Ratio calculated from Current Assets divided by Current Liability. THG has the Current Ratio at about 1 time which is acceptable because the company has enough assets to pay off its incoming due shortly. Even, it's lower than the sector average which is 1.65 times but it's still good enough.

The more aggressive ratio is Quick Ratio which is calculated from Cash, Short Term Investment, and Account Receivable divided by Current Liability. That means the assets which the company can liquidate really quick to pay off their debt. THG has Quick ratio at 0.37 times while the sector average is at 1.12 times, meaning that THG has much lower ability to pay off its debt compared to the peers.

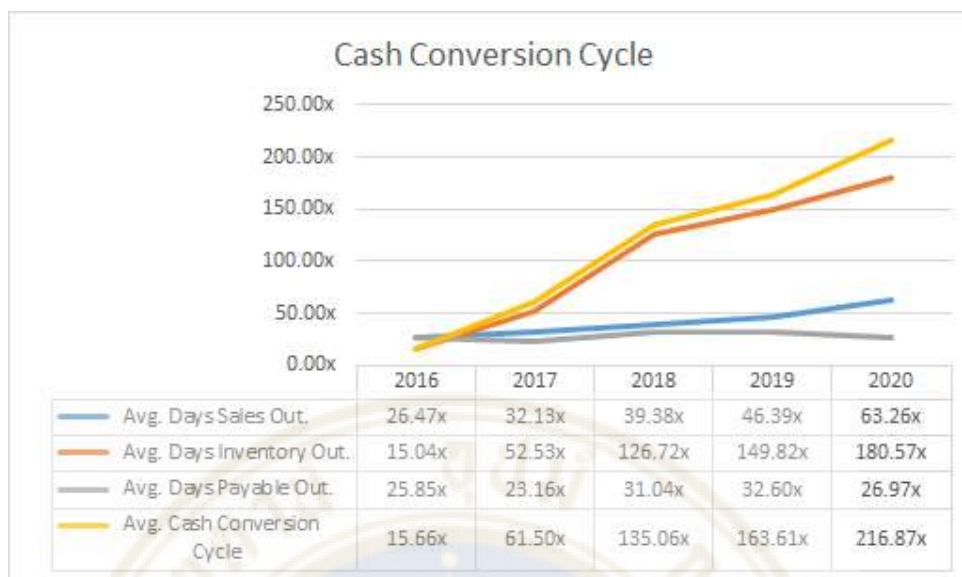


Figure 3.5 Cash Conversion Cycle

Source: Own calculation

Days sales Outstanding (DSO) is the period that the company collects cash from customers after product/service has been sold. The DSO of THG is 63.26 days while the sector average is 41.54 means that THG can collect cash from customers slower or give longer credit terms to customers than the peers

Days Inventory Outstanding (DIO) is the period that the company purchases inventory to the sale of product/service. The DIO of THG is 180.57 days while the sector average is 14.67 means that THG can make sales of product/service a lot slower than the peers.

Days Payable Outstanding (DPO) is the period that the company purchases inventory to the day the company has to pay to suppliers. The DPO of THG is 26.97 days while the sector average is 58.86 means that THG has shorter credit terms from suppliers and lower negotiation power than the peers.

Lastly, Cash Conversion Cycle (CCC) showed the period that the company collects cash from customers after payout to suppliers for inventory. The CCC of THS is 216.87 days which is derived from long collection period and long inventory holding period while the sector average is -2.65 days. That means other competitors can even collect cash from customers before paying out to suppliers. This issue needed to be addressed seriously to help THG compete with competitors in better position.

3.5 Long Term Solvency

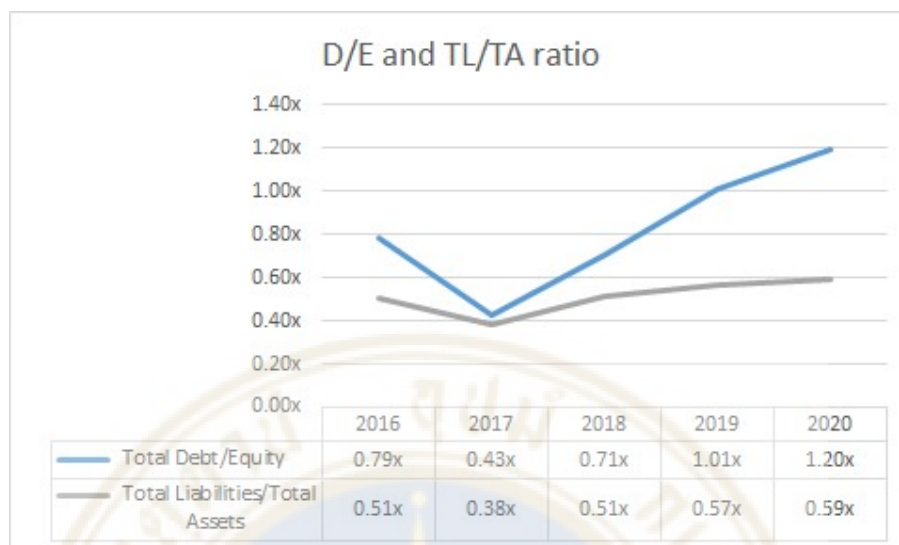


Figure 3.6 Solvency Ratio

Source: Own calculation

To see the risk of the company whether the company can meet long-term financial obligation or not, we will consider Debt to Equity (D/E) and Total Liabilities to Total Assets (TL/TA).

Debt to Equity (D/E), to see how much the company uses debt to finance their operation. THG has the D/E ratio at 1.20 times compared to the sector average which is 0.62 times, meaning that THG uses Debt to finance their business more than the peers. However, the ratio is still at an acceptable level, not too much risk.

Total Liabilities to Total Assets (TL/TA), to see if the company goes into bankruptcy process whether they can dispose of the total asset to pay debt and remain to pay for equity holders or not. THG has TL/TA ratio at 0.59 times, meaning that they use 59% capital from liability to finance their assets which is still at an acceptable level.

3.6 Interest Coverage Ratio

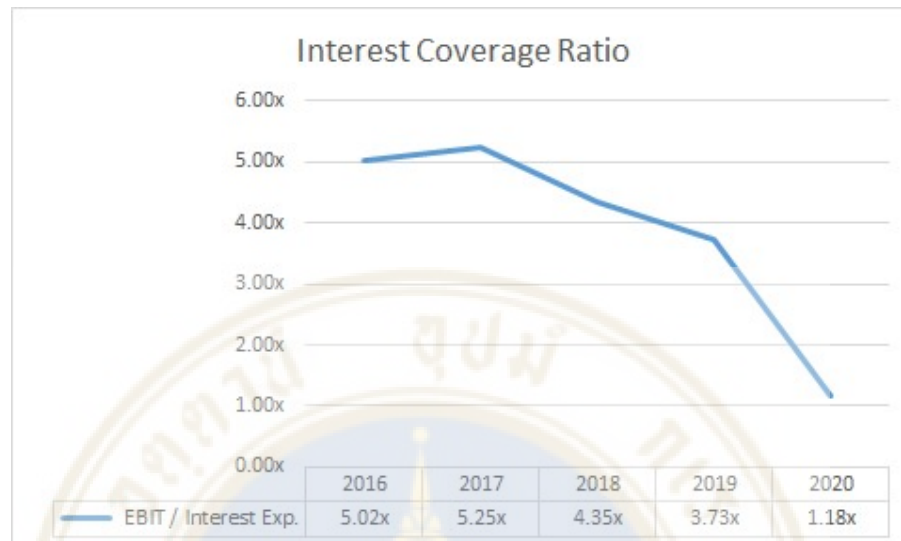


Figure 3.7 Interest Coverage Ratio

Source: Own calculation

Interest Coverage Ratio showed the ability whether the company can generate operating profit to cover interest expense or not. We can see that the Interest Coverage Ratio keeps going over the past year because they can generate less income and issue more debt as well, especially in 2020, the ratio is only 1.18 times while the sector average is 136.03 times. We can conclude that THG has a long way lower ability to pay interest and is riskier than the peers.

CHAPTER IV

DISCOUNTED CASH FLOW VALUATION

In the following chapter, free cash flow to the firm (FCFF) valuation will be applied to value THG. FCFF is the most widespread method in the analyst industry to value firms by investigating DCFs. In contrast to the free cash flow to equity, the cash flow available to all financiers of the corporation are included. That requires using the WACC as the discount rate.

In detail, we will estimate the pro forma income statement first. Hereafter, the FCFF itself will be computed, which includes the terminal growth and cost of capital. Lastly, the valuation results will be tested by conducting a sensitivity analysis.

4.1 Pro Forma Statement Analysis

The projection of pro forma income statement is constructed based on company historical data and macro-economic influences.

4.1.1 Revenue Structure and Analysis

Table 4.1 Revenue Structure

In Million Baht											
Revenue Structure: Thonburi Hospital Group	% of Shareholding	Registered Bed	CMS (2020)	2020	2019	2018	2017	2016	2015	CAGR	
Hospital Operation		1,068	94.84%	6,912.34	7,460.51	6,579.05	6,171.54	5,815.15	5,416.42	5.00%	
Thonburi Healthcare Group PCL			65%	4,718.29	5,272.53	5,099.43	4,730.62	4,469.02	4,245.20	2.14%	
<i>Overseas</i>											
Ar Yu International Hospital	40%	200		-25.00	(125.00)	-	-	-	-	-	
<i>Domestics</i>											
Thonburi Hospital		435		-	-	-	-	-	-	-	
Thonburi 2 Hospital		95		-	-	-	-	-	-	-	
Thonburi Healthcare - Pattaya City Hospital		N/A	3%	252.86	261.48	310.56	412.69	294.76	229.25	1.98%	
Thonburi Healthcare -Phuket Provincial Hospital		129	2%	173.08	179.14	183.20	184.81	208.04	210.32	-3.82%	
Rajyindee Hospital PCL	56.91%	200	8%	607.25	690.76	695.53	627.47	713.18	673.55	-2.05%	
Thanarad Thung Song Co., Ltd.	56.43%	50	2%	113.81	9.17	-	-	-	-	-	
Thonburi Hospital Heart Centers Co., Ltd.	99.99%		3%	210.46	266.97	275.94	215.95	130.15	58.10	29.36%	
Thonburi Bamrungmuang Hospital Co., Ltd.	99.99%	47	12%	861.59	905.46	14.39	-	-	-	673.78%	
Healthcare Solution Provider				5.29%	386.85	756.47	491.89	413.96	394.46	1.57%	
Dental Siam Co., Ltd.	99.43%		4%	271.48	317.81	396.38	400.04	380.89	356.66	-5.31%	
Thonburi Wellbeing Co., Ltd.	99.99%		2%	115.37	438.66	95.51	13.92	13.57	1.16	150.92%	
Other Business				0.21%	15.61	15.18	23.26	26.15	19.06	12.43	4.66%
Modular Software Expertise Co., Ltd.	70%		0.21%	15.61	15.18	23.26	26.15	19.06	10.63	7.99%	
Rajthanee Realty Co., Ltd.	100%		-	-	-	-	-	-	1.80	-	
Thonburi Realty Development Co., Ltd.	99.86%		-	-	-	-	-	-	-	-	
Total			100%	7,314.80	8,232.16	7,094.20	6,611.65	6,228.67	5,786.67	4.80%	

Source: Thonburi Healthcare Group (2021)

THG's revenue relies on domestic medical services which accounts for 94.84% of total income. In this amount, consumers can be grouped into those who fly for medical treatment and those local patients at a rate of 10% and 90% respectively. A very small income derives from dental care, real estate and software developer approximately 5%. Overseas branches in China and Myanmar made losses for the last two years. THG sold all shares of its Chinese business in 2020.

Looking deeper into prime business, first, there is a fall in Rajyindee Hospital's CAGR at negative 2.05 percent. This is important because RYD used to be a main revenue stream with 200 registered beds. Bamrungmuang Hospital, on the other hand, has recorded a CAGR of 674% for the last three year. Phuket and Pattaya Hospital rely on the contract between THG and local administration. Pattaya City hospital contract terminated in 2020.

Moving on to the next segment, Thonburi wellbeing reports a small number of income due to the COVID-19. However, over two billion (Table 4.2) potential revenue derived from two projects: Jin Wellbeing County and Thonburi Health village. As a result, the valuation put a spotlight on domestic hospital operation and healthcare solution provider business.

4.1.2 Earning Capacity

Table 4.2 Earning Capacity

Segment	CMS	% of Total Revenue	Capacity	Current Utilization	Unused Capacity	Revenue Per sequence				
Sector I - Hospital Operation										
Cash or cash equivalent	In Thailand	94.5%	OPD- Thai	38%	220	Room	61% (252,438 visits)	39%	THB 2,517.69	
			OPD- Foreigners	9%		1,068	Bed	66% (36,063 beds)		66%
			IPD - Thai	47%	-		N/A	Room	N/A	-
			IPD- Foreigners	-						
	Overseas-based			OPD	(Lost)	200	Bed	45 people/day	-	
SSO	No services offered	0%								
Sector II - Healthcare Solution Provider										
Dental Siam		3.71%		Minus CAGR						
Thonburi Wellbeing	5.29%	Jin Wellbeing	1.58%	494	Unit	158 unit sold	336 unit	4-6 MB		
		THG Village		412	Unit	-	412 unit	1.9 MB		
Sector III - Other business										
Other business	0.2%		0.2%	Not Significant						

Source: Thonburi Healthcare Group (2021)

THG was not filled to earning capacity in both primary business: Domestic hospital operation and healthcare solution provider (Jin Wellbeing and Thonburi Pracha-Uthit Village Project). OPD services saw an unused capacity approximately at 39%. IPD recorded a greater number at 66%. Additionally, Thonburi Wellbeing's potential residents delay their visits and contract signing. Therefore, there are about seven-hundred units available for sales. After recovery, chances are a considerable sales growth according to available units.

4.1.3 Revenue Forecast

Table 4.3 Revenue Forecast

In Million Baht												
	2015A	2016A	2017A	2018A	2019A	2020A	2021F	2022F	2023F	2024F	2025F	CAGR
Revenue	5,786.67	6,228.67	6,611.66	7,094.19	8,232.16	7,314.80	7,680.54	8,064.57	8,629.09	9,492.00	10,441.19	6.08%
% Growth		7.64%	6.15%	7.30%	16.04%	-11.14%	5.00%	5.00%	7.00%	10.00%	10.00%	

Source: Thonburi Healthcare Group

Table 4.4 Revenue Forecast

In Million Baht				
Broker Estimation	2020A	2021F	2022F	2023F
Consensus	7,314.80	8,679.00	8,853.67	9,712.67
Thanachart Securities Plc.	7,353.00	8,912.00	8,498.00	9,671.00
Tisco Securities Co. Ltd.	7,416.00	8,547.00	8,621.00	9,183.00
Consensus (in percentage)		19%	2%	10%

Source: S&P Capital IQ

Revenue is expected to recover back to normal in 2024 at a growth rate of 10% which is an average annual growth during 2015 to 2019. In 2021-2022 and 2023 applied a growth rate of five percent and seven percent respectively. Brokers have better expectations on revenue (Table 4.4). They expect to fully recover in 2023.

The forecast is small for these reasons. First, THG does not take part in Thailand Universal Coverage Scheme (UCS). Cash-based patients avoid hospitals to reduce expenses as a result of recession. Secondly, Jin Wellbeing and Thonburi health village is a kind of real estate business where its earning depends on the economic environment.

4.1.4 Cost

Table 4.5 Cost Structure

In Million Baht

	2015A	2016A	2017A	2018A	2019A	2020A	CAGR
COGS	-4,258.89	-4,518.43	-4,781.23	-5,185.58	-6,365.68	-5,747.77	6.18%
% of Revenue	73.60%	72.54%	72.32%	73.10%	77.33%	78.58%	
% Growth		6.09%	5.82%	8.46%	22.76%	-9.71%	
SG&A	-780.93	-854.84	-1,005.40	-1,378.54	-1,397.11	-1,404.69	12.46%
% of Revenue	13.50%	13.72%	15.21%	19.43%	16.97%	19.20%	
% Growth		9.46%	17.61%	37.11%	1.35%	0.54%	

Source: Thonburi Healthcare Group

For the last five years, cost is growing faster than revenue (Figure 4.1) for both COGS and SG&A at a CAGR of 6.18% and 12.46% in sequence. SG&A's compounding annual growth rate doubled its revenue (Figure 4.1). Its annual growth rate fluctuated.

Regarding percentage of revenue, the recorded data shows an increasing trend. The highest point is at 78.58% in 2020A and is likely to continuously increase.

Table 4.6 Cost Forecast

In Million Baht

	2015A	2016A	2017A	2018A	2019A	2020A	2021F	2022F	2023F	2024F	2025F	CAGR
COGS	-4,258.89	-4,518.43	-4,781.23	-5,185.58	-6,365.68	-5,747.77	-5,990.82	-6,290.36	-6,730.69	-7,403.76	-8,144.13	6.07%
% of Revenue	73.60%	72.54%	72.32%	73.10%	77.33%	78.58%	78.00%	78.00%	78.00%	78.00%	78.00%	
% Growth		6.09%	5.82%	8.46%	22.76%	-9.71%	4.23%	5.00%	7.00%	10.00%	10.00%	
SG&A	-780.93	-854.84	-1,005.40	-1,378.54	-1,397.11	-1,404.69	-1,459.30	-1,532.27	-1,639.53	-1,803.48	-1,983.83	8.78%
% of Revenue	13.50%	13.72%	15.21%	19.43%	16.97%	19.20%	19.00%	19.00%	19.00%	19.00%	19.00%	
% Growth		9.46%	17.61%	37.11%	1.35%	0.54%	3.89%	5.00%	7.00%	10.00%	10.00%	

Source: Thonburi Healthcare Group

Since EBIT margin has underperformed peers (Figure 3.2), the forecast expects improvement in cost efficiency. THG is predicted to successfully maintain cost at 78% (COGS) and 19% (SG&A) of total revenue. Under this assumption, CAGR will decrease for both categories.

4.1.5 Capital Expenditure

Table 4.7 Capital Expenditure

CapEx Plan



Project	CapEx (MB)					
	2018	2019	2020	2021 (E)	2022-2023 (E)	6 Year
Thonburi Hospital 1	-	15	455	483	742	1,695
Thonburi Hospital 2	-	-	75	187	388	650
Thonburi Bumrungrmuang	750	1,030	238	252	-	2,270
Jin Wellbeing County	1,000	730	157	43	-	1,930
Thonburi Health Village	300	135	75	165	-	675
Total	2,050	1,910	1,000	1,130	1,130	

Source: Thonburi Healthcare Group

Capital Expenditure during 2021-2023 is given by THG management in opportunities day presentation 2021. We halved the amount of 2022-2023 and used it in calculation. After 2023, it is roughly estimated at 500 million baht.

4.1.6 Depreciation

Table 4.8 Depreciation

In Million Baht	2015A	2016A	2017A	2018A	2019A	2020A	2021F	2022F	2023F	2024F	2025F
Capital Expenditure	-673.18	-2,424.63	-1,167.54	-1,292.16	-2,228.71	-1,584.05	-1,130.00	-565.00	-565.00	-500.00	-500.00
PP&E & Others	2,813.99	5,410.17	7,287.81	9,263.28	10,669.91	11,365.52	11,633.08	11,336.71	11,061.77	10,744.05	10,449.30
Depreciation	226.48	239.49	304.01	466.21	612.83	826.58	862.45	861.37	839.94	817.72	794.75
Depre to PP&E Ratio		5.82%	4.79%	5.63%	6.15%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Source: Thonburi Healthcare Group

Depreciation is estimated by using an average fixed asset (prior and current period) times depreciation to fixed asset ratio. Fixed asset projection is a prior-period balance plus current capital expenditure and subtract current depreciation expense. We follow historical depreciation to fixed asset ratio at a rate of 7%.

4.1.7 Working Capital

Table 4.9 Working Capital

In Million Baht											
	2015A	2016A	2017A	2018A	2019A	2020A	2021F	2022F	2023F	2024F	2025F
Account Receivable											
Avg. Day Sales Out.	NA	26.468	32.135	39.377	46.39	63.259	42	42	42	42	42
A/R	431.73	469.15	695.04	835.65	1,256.93	1,271.63	873.81	917.50	981.73	1,079.90	1,187.89
% of Revenue	7%	8%	11%	12%	15%	17%	11%	11%	11%	11%	11%
Inventory											
Avg. Day Inventory Out.	NA	15.04	52.53	126.72	149.82	180.57	104.94	104.94	104.94	104.94	104.94
Inventory	161.87	209.52	194.68	1,126.93	1,378.51	1,349.97	1,722.37	1,808.48	1,935.08	2,128.59	2,341.44
% of COGS	4%	5%	4%	22%	22%	23%	29%	29%	29%	29%	29%
Account Payable											
Avg. Day Payable Out.	NA	26	23	31	33	27	28	28	28	28	28
A/P	290.80	354.21	374.15	723.52	477.51	382.46	458.34	481.26	514.95	566.44	623.09
% of COGS		7.84%	7.83%	13.95%	7.50%	6.65%	7.65%	7.65%	7.65%	7.65%	7.65%
Working Capital											
Net Working Capital	-353.09	324.46	515.58	1,239.06	2,157.94	2,239.14	2,137.83	2,244.73	2,401.86	2,642.04	2,906.25
Change in NWC	NA	677.55	191.12	723.48	918.88	81.20	-101.31	106.89	157.13	240.19	264.20

Source: Thonburi Healthcare Group

Working Capital is an account payable deduction from account receivable and inventory. The projection of A/R is calculated by multiplying the average day sales outstanding with revenue per day. Similar pattern applies to inventory and A/P but COGS per day is used instead. Forecast day (sales, inventory and payable) outstanding is an average number of the last five years.

4.2 Discounted Cash Flow Valuation

After we obtain pro forma statement, the following part is going to estimate WACC and terminal growth rate which will be used to discount the free cash flow.

4.2.1 Weight Average Cost of Capital (WACC)

Table 4.10 Weight Average Cost of Capital

Cost of Debt		Reference
Credit Rating	B+	Refinitiv Workspace
Average MLR	4.32%	Annual Report 2020
Tax Rate	20%	Thailand Tax Rate
Cost of Debt after Taxes	3.46%	
Cost of equity		Reference
10-year government bond	1.71%	ThaiBMA
Beta	0.660	SET
Market risk premium	4.49%	Market-Risk-Premia
Cost of Equity	4.67%	
WACC		Reference
WACC	4%	
Weight of debt	55%	Avg. FY15-FY19
Weight of equity	45%	Avg. FY15-FY20

Source: Thonburi Healthcare Group

WACC involves the summation of two terms: cost of debt and cost of equity. We use the average long-term interest rate to compute the cost of debt before taxes. THG reported interest payment rate (Fixed rate, prime rate and MLR) of 1.63-7.01% or at average of 4.32%. For tax rate, we follow Thai corporate income tax (CIT) at a rate of 20%, without standard deduction. Cost of debt will rise if there is a credit rating downgrade. Current rating which is computed by Refinitiv's model implied rating & Probability of default is B+.

The Capital Asset Pricing Model (CAPM) is widely used to determine cost of equity. The model is composed of risk-free rate, beta and market risk premium. We assume risk-free rate to be equal to 10-years government bond yield of 1.71% (ThaiBMA, 2021). Beta of 0.66 is from Stock Exchange of Thailand (SET). Implied Market risk premium of 4.49% is calculated by Market-Risk-Premia.com. They are non-profit experts circle thither with university of Munich and Frankfurt School of Finance.

THG's capital structure is quite stable with debt of 55% and equity of 45%. So, we follow the same structure.

4.2.2 Terminal Growth

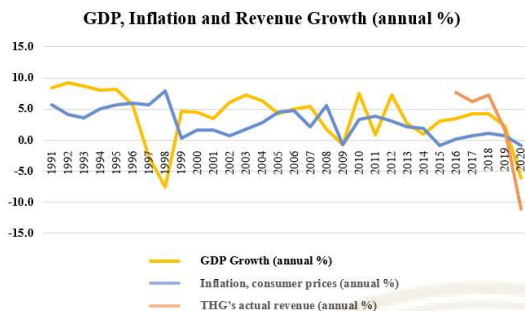


Figure 4.1 Inflation and GDP

Source: Thonburi Healthcare Group

Table 4.11 Inflation and GDP

	2010	2011	2012	2013	2014	2015	2016	2017	2018 p	2019 p	2020 p	Average
GDP : Chain volume measures (Billion baht)	8,232.4	8,301.6	8,902.8	9,142.1	9,232.1	9,521.4	9,848.5	10,259.9	10,689.8	10,932.1	10,265.3	
(% change)	7.5	0.8	7.2	2.7	1.0	3.1	3.4	4.2	4.2	2.3	-6.1	2.8
Inflation: Headline CPI (2015=100)	88.29	91.65	94.41	96.47	98.30	97.42	97.60	98.25	99.30	100.00	99.15	
(% change)	3.26	3.81	3.01	2.18	1.90	-0.90	0.18	0.67	1.07	0.70	-0.85	1.37

Source: Thonburi Healthcare Group

There are four factors involved in assumption: GDP, Inflation rate, highly available capacity and aging society factor.

First, organic growth is set at lower than GDP of 2.8% although healthcare growth rate statistically runs above GDP growth rate (Figure 2.2) for the chance that a business grows over GDP in a long-term period is rare. Next, inflation, which has a positive correlation at a significant level with healthcare growth rate, has increased at a decreasing rate for the last ten year. We assume a decreasing growth rate in the healthcare business in the future. Thirdly, THG has highly available capacity for additional growth for both main business: hospital operation and healthcare provider. Lastly, Thailand is entering an aging society which benefits THG's healthcare business provider segment.

Therefore, the study expects organic growth to be between inflation and GDP growth rate. Ten years GDP and inflation growth rate reported by Bank of Thailand (BOT) is at a rate of 2.8% and 1.37% respectively. Terminal rate of 2% is

conservatively estimated based on current situation which THG's projects are considerably impacted due to the COVID-19

4.2.3 Valuation

Table 4.12 Weight Average Cost of Capital

In Million Baht											
Discounted Cash Flow	2015A	2016A	2017A	2018A	2019A	2020A	2021F	2022F	2023F	2024F	2025F
Revenue	5,786.67	6,228.67	6,611.66	7,094.19	8,232.16	7,314.80	7,680.54	8,064.57	8,629.09	9,492.00	10,441.19
COGS	4,258.89	4,518.43	4,781.23	5,185.58	6,365.68	5,747.77	5,990.82	6,290.36	6,730.69	7,403.76	8,144.13
Gross Profit	1,527.78	1,710.25	1,830.43	1,908.61	1,866.48	1,567.03	1,689.72	1,774.20	1,898.40	2,088.24	2,297.06
SG&A and other expense	780.93	854.84	1,005.40	1,378.54	1,397.11	1,404.69	1,459.30	1,532.27	1,639.53	1,803.48	1,983.83
EBIT	746.85	855.41	825.03	530.07	469.37	162.34	230.42	241.94	258.87	284.76	313.24
Less: Taxes on EBIT	149.37	171.08	165.01	106.01	93.87	32.47	46.08	48.39	51.77	56.95	62.65
Plus: Depreciation & Amortization	226.48	239.49	304.01	466.21	612.83	826.58	862.45	861.37	839.94	817.72	794.75
Less: Change in Net Working Capital	NA	677.55	191.12	723.48	918.88	81.20	-101.31	106.89	157.13	240.19	264.20
Less: Capital Expenditure	652.77	2,390.78	688.37	1,261.81	2,128.46	1,536.05	1,130.00	565.00	565.00	500.00	500.00
Unlevered Free Cash Flow (FCFF)	NA	NA	84.54	-1,095.03	-2,059.01	-660.80	18.09	383.02	324.91	305.34	281.14
Terminal value of firm (%)											14,310.48
Summary of cash flow							18.09	383.02	324.91	305.34	14,591.62

	Enterprise Value	Reference	
Enterprise Value	12,912.31		
Add: Cash and non-op assets	534.96		
Total value of firm	13,447.27		
Value of Debt	7,396.00		
Value of equity	6,051.27		
Weight of debt	55%	Avg. FY15-FY19	
Weight of equity	45%	Avg. FY15-FY20	
Cost of Debt			
Credit Rating	B+	Refinitiv Workspace	
Average MLR	4.32%	Annual Report 2020	
Tax Rate	20%	Thailand Tax Rate	
Cost of Debt after Taxes	3.46%		
Cost of equity			
10-year government bond	1.71%	ThaiBMA	
Beta	0.660	SET	
Market risk premium	4.49%	Market-Risk-Premia	
Cost of Equity	4.67%		
WACC			
WACC	4%		
Growth rate	2.00%		
Intrinsic Value			
	2021F	2022F	Current Price
No of share	843,798,600	843,798,600	843,798,600
Price of share	15.94	16.68	30.00

Source: Thonburi Healthcare Group

Free cash flow to the firm is the summation of EBIT after tax and depreciation & amortization, subtract change in net working capital and capital expenditure. After the FCFF is discounted to net present value and divided by number of shares outstanding, the output is intrinsic value or fair price at 15.94 baht per share, which is nearly half less than current market price of 30 baht. The number is saying that the current market price is overvalued (August 2021) Therefore, I recommend investors to sell.

4.2.4 Sensitivity Analysis

Table 4.13 WACC and Terminal Growth Rate Sensitivity Analysis

		WACC						
		15.94	3.00%	3.50%	4.00%	4.50%	5.00%	5.50%
Terminal Growth	1.00%	16.56	13.35	11.21	9.69	8.55	7.66	
	1.50%	21.49	16.26	13.10	11.02	9.53	8.41	
	2.00%	31.36	21.10	15.94	12.89	10.83	9.37	
	2.50%	60.96	30.78	20.66	15.68	12.66	10.65	
	3.00%	10.65	59.81	30.09	20.34	15.40	12.44	
	3.50%	0.00	0.00	58.24	29.65	19.97	15.13	
	4.00%	0.00	0.00	7436.71	57.59	29.11	19.61	
	4.00%	0.00	0.00	7436.71	57.59	29.11	19.61	

Source: Thonburi Healthcare Group

Table 4.14 Revenue, COGS and SG&A Sensitivity Analysis

Item	Case	2021F	2022F	2023F	2024F	2025F	Share Price
Revenue	Best case	10%	10%	10%	10%	10%	15.57
	Base case	5%	5%	7%	10%	10%	15.94
	Weak case	5%	5%	5%	5%	5%	21.85
COGS	Best case	77%	77%	77%	77%	77%	20.57
	Base case	78%	78%	78%	78%	78%	15.94
	Weak case	79%	79%	79%	79%	79%	11.3
SG&A	Best case	18%	18%	18%	18%	18%	20.45
	Base case	19%	19%	19%	19%	19%	15.94
	Weak case	20%	20%	20%	20%	20%	11.42

Source: Thonburi Healthcare Group

This report conducted sensitivity analysis for two items: terminal growth rate and WACC. Stock price doubles the current calculation with an organic growth rate change of 1%, and it is higher than the current market price already.

Revenue and cost sensitivity analysis illustrates that a ten-percent increase in revenue without improving cost efficiency benefits cash flow less than a percentage decrease in cost. One percent decrease in cost, intrinsic price move about 5 baht.

A negative stock price is not possible. It probably means bankruptcy. However, terminal growth and, as well as, WACC is affected by many uncontrollable factors. Sensitivity analysis only is not justified.

CHAPTER V

INVESTMENT RISKS AND DOWNSIDE POSSIBILITIES

The risk matrix illustrates risks that are likely to occur to Thonburi Healthcare Group, as well as, assess the degree of the likelihood and severity.

Table 5.1 Risk Matrix

RISK MATRIX	Not Significant	Minor	Moderate	Severe
Almost Certain		New healthcare policies	Economic uncertainty	
Likely		Competition Risks		Investment expansion
Possible				
Rare				

Source: Thonburi Healthcare Group (2020)

1. Economic Uncertainty

The COVID-19 Pandemic adversely results in global economic fluctuation. It radically disrupts the consumer's lifestyle. An increasing uncertainty makes it more difficult to assess expected revenue, expenses and threads. Although healthcare is a defensive sector where it does not fluctuate much from market fluctuation, revenue records a significant decrease. The reason is that patients delay their treatment or use public hospitals instead because they have lower purchasing power and less confidence on their future earnings. A bad investment climate does not benefit THG's recent investment project. The shortage of income growth harshly damages EBIT margin and it directly affects company cash flow.

2. Risk in Healthcare Policies issued by the Public Sector

Private hospitals have to follow the public sector regulation. Therefore, if the government approves healthcare-related policy, the new policy probably hurts margins. Firstly, THG enjoys cash-based patients. If the government launches an

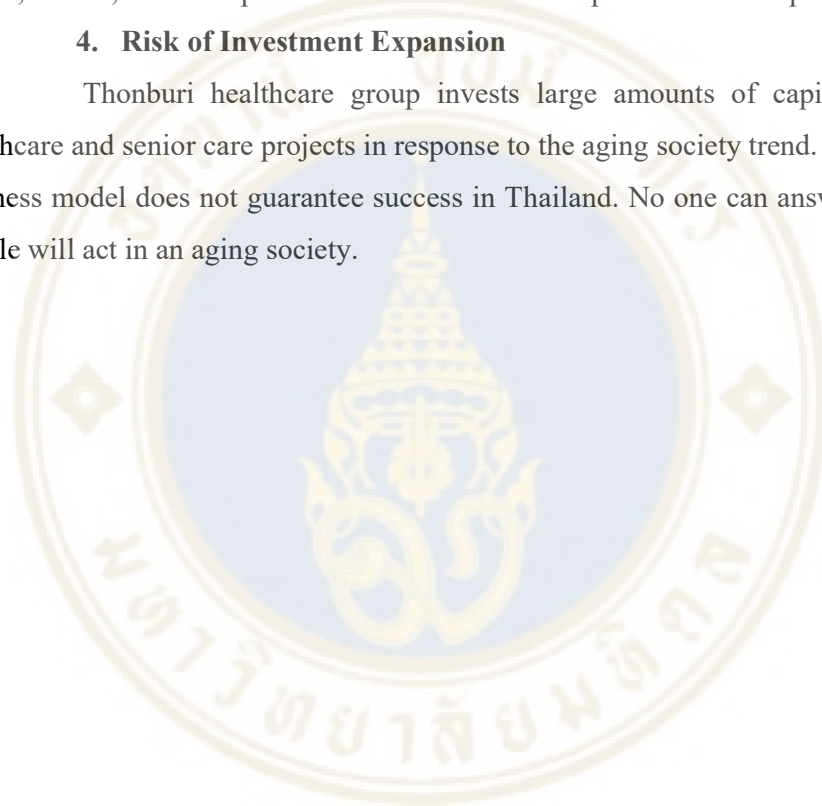
expanded number of people entitled for universal healthcare coverage, it may affect the number of general patients. Moreover, the commerce department is keeping an eye on the price of medicine and medical services in private hospitals. The margin of medicine charge may decrease.

3. Competition Risk

The competition is fierce because every company tries to survive in the global depression. The hospital has to compete with public hospitals, bigger hospital chains, clinics, and even pharmacies. The intense competition reduces profitability.

4. Risk of Investment Expansion

Thonburi healthcare group invests large amounts of capital for home healthcare and senior care projects in response to the aging society trend. However, the business model does not guarantee success in Thailand. No one can answer how Thai people will act in an aging society.



CHAPTER VI

CONCLUSION AND RECOMMENDATION

The study conducted a discounted cash flow valuation to evaluate Thonburi Healthcare Group (THG). The methods rely on many variables and assumptions including FCFF, terminal value and WACC.

Starting with free cash flow to the firm, the study gathers historical data and conducts statistical analysis to build a pro forma statement. As a result, FCFF is carefully computed and waiting to be discounted. For WACC, variables such as beta, MRP, Risk free rate are carefully collected from reliable websites under reasonable assumptions. Terminal growth rate is checked for its sensitivity to fair price so that the study does not overlook any possibilities.

Stock price of 15.94 and 16.68 baht per share is much lower than current market value. The difference can be explained by terminal growth rate. If we assume a terminal growth rate of 3%, the outcome is very close to market value.

THG's terminal growth is influenced by internal and external factors. For example, the Wellbeing project adopted foreign business model which may not be successful in Thai society. Moreover, COVID-19 situation drastically impacts Thailand and it changes people's behavior and lifestyle. THG needs to adapt its products and services quite a lost in response to the new normal while THG already wasted billions in debt for previous projects. The company bears huge fixed costs and may face liquidity problems.

Therefore, the study suggests current investors hold it and potential customers to wait for timing. Current price is quite expensive under the present economic situation

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Appendix A: FIVE FORCE ANALYSIS

The **Five Force Analysis** of THG and Hospital Industry can be described as followed:

1. Rivalry among competitors.

It's high competition in the healthcare industry because there are many healthcare providers in Bangkok and other provinces of Thailand both public and private. However, THG is among the top 5 private hospitals in Thailand that can provide up to tertiary care and cover many areas.

2. The bargaining power of buyers.

It's weak bargaining power of buyers. The buyers hold a weaker position in healthcare service because it's a specialized service. People have to pay professional and service fees to receive high quality and fast service. They are willing to pay for good health and a better life.

3. The bargaining power of suppliers.

It's low bargaining power of suppliers. The suppliers of hospitals are mostly the medical equipment and medicine. There are many competitors among suppliers and they would offer the best alternative and price to hospitals. Hence, the bargaining power of hospitals is higher than suppliers.

4. Substitute of existing products.

It's high threat of substitute products. Beside the private hospitals, there are other healthcare providers such as public hospital, private clinics. However, if the patients need more complex care, high technology and specialized treatment, the private hospitals would be the best place to serve patients with more comfort.

5. Threat of the entry of new entrants.

It's low threat of new entrants because private hospitals are capital intensive businesses, it requires a large amount of initial investment for both location and equipment. Moreover, the need for knowledge and specialization from doctors and other

healthcare practitioners is necessary to do the business. Hence, there is a high barrier for new players to enter the healthcare business



Appendix B: TREND ANALYSIS

Income Statement

Income Statement	CMS	2020	2019	2018	2017	2016	CAGR	2015 (STD)
Revenue	100%	126%	142%	123%	114%	108%	5%	100%
Other Revenue		-	-	-	-	-		-
Total Revenue	100%	126%	142%	123%	114%	108%	5%	100%
Cost Of Goods Sold	79%	135%	149%	122%	112%	106%	6%	100%
Gross Profit	21%	103%	122%	125%	120%	112%	1%	100%
Selling General & Admin Exp.	19%	180%	179%	177%	129%	109%	12%	100%
Other Operating Exp., Total	19%	180%	179%	177%	129%	109%	12%	100%
Operating Income	2%	22%	63%	71%	110%	115%	-26%	100%
Interest Expense	-4%	173%	133%	89%	99%	109%	12%	100%
Interest and Invest. Income	0%	92%	100%	83%	71%	83%	-2%	100%
Net Interest Exp.	-3%	198%	143%	90%	107%	117%	15%	100%
EBT Excl. Unusual Items	0.37%	4%	42%	58%	93%	99%	-48%	100%
EBT Incl. Unusual Items	1%	6%	77%	63%	89%	92%	-42%	100%
Income Tax Expense	0.36%	15%	72%	64%	65%	88%	-32%	100%
Earnings from Cont. Ops.	0.31%	4%	79%	63%	97%	93%	-48%	100%
Net Income to Company	0.31%	4%	79%	63%	97%	93%	-48%	100%
Minority Int. in Earnings	1%	-132%	-9%	64%	37%	109%	-206%	100%
Net Income	1%	11%	84%	63%	100%	93%	-35%	100%

Balance Sheet

Assets	CMS	2020	2019	2018	2017	2016	2015 (STD)
Cash And Equivalents	2%	69%	93%	104%	81%	78%	100%
Short Term Investments	0%	1%	11%	22%	21%	21%	100%
Total Cash & ST Investments	3%	39%	53%	64%	52%	51%	100%
Accounts Receivable	6%	295%	291%	194%	161%	109%	100%
Other Receivables	0%	66%	56%	19%	8%	9%	100%
Total Receivables	7%	253%	255%	170%	133%	91%	100%
Inventory	14%	1779%	1725%	1504%	721%	129%	100%
Other Current Assets	1%	228%	232%	65%	16%	24%	100%
Total Current Assets	24%	230%	236%	201%	123%	67%	100%
Gross Property, Plant & Equipment	80%	297%	216%	186%	145%	150%	100%
Accumulated Depreciation	-25%	188%	132%	122%	115%	107%	100%
Net Property, Plant & Equipment	55%	404%	299%	248%	175%	193%	100%
Long-term Investments	10%	285%	360%	334%	313%	274%	100%
Other Intangibles	1%	407%	4285%	4286%	4358%	150%	100%
Total Assets	100%	276%	276%	244%	191%	142%	100%

LIABILITIES	CMS	2020	2019	2018	2017	2016	2015 (STD)
Accounts Payable	2%	132%	164%	249%	129%	122%	100%
Accrued Exp.	2%	109%	136%	128%	130%	108%	100%
Short-term Borrowings	14%	614%	580%	588%	28%	244%	100%
Curr. Port. of LT Debt	5%	298%	203%	124%	31%	163%	100%
Curr. Port. of Leases	0%	4384%	1730%	301%	257%	74%	100%
Curr. Income Taxes Payable	0%	6%	105%	116%	81%	105%	100%
Unearned Revenue, Current	0%	150%	171%	254%	75%	40%	100%
Other Current Liabilities	2%	39%	69%	84%	21%	15%	100%
Total Current Liabilities	25%	197%	200%	208%	50%	100%	100%
Long-Term Debt	29%	232%	215%	120%	135%	94%	100%
Long-Term Leases	1%	17040%	1986%	701%	810%	44%	100%
Other Non-Current Liabilities	0%	48536%	79247%	93831%	5237%	2351%	100%
Total Liabilities	59%	224%	216%	173%	100%	100%	100%
Common Stock	4%	125%	125%	125%	125%	113%	100%
Retained Earnings	5%	213%	251%	233%	247%	201%	100%
Comprehensive Inc. and Other	-4%	-123%	-107%	-105%	-87%	-104%	100%
Total Common Equity	39%	433%	455%	450%	460%	271%	100%
Total Equity	41%	413%	435%	433%	429%	256%	100%
Total Liabilities And Equity	100%	276%	276%	244%	191%	142%	100%