

**DISCOUNT CASH FLOW VALUATION OF BANGKOK CHAIN
HOSPITAL PUBLIC COMPANY LIMITED**



CHOMPUNUT CHAROENPHINYOCHAI

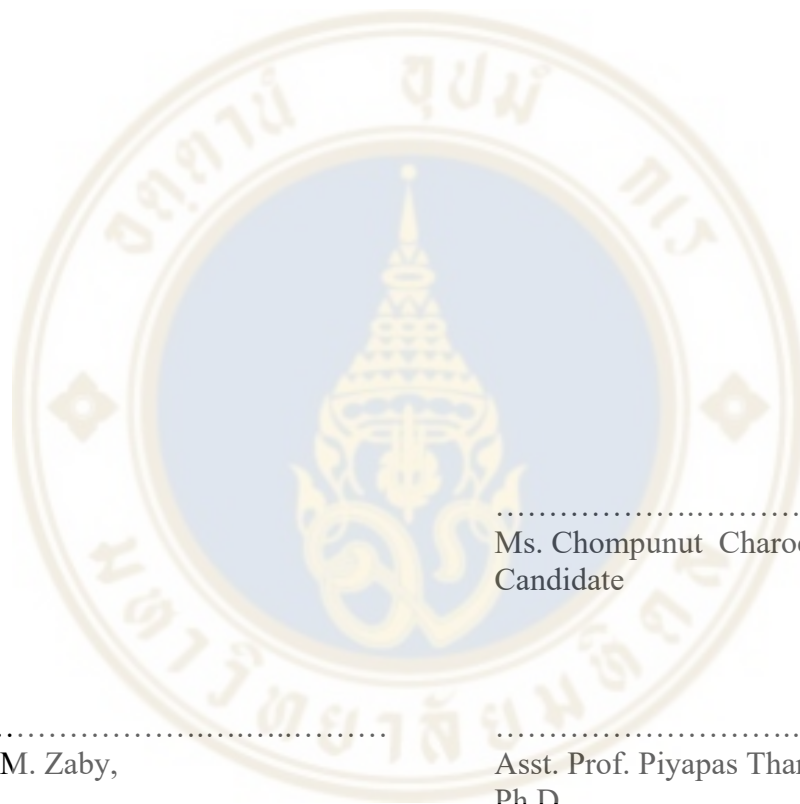
**A THEMATIC PAPER SUBMITTED IN PARTIAL
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Thematic paper
entitled
**DISCOUNT CASH FLOW VALUATION OF BANGKOK CHAIN
HOSPITAL PUBLIC COMPANY LIMITED (BCH)**

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DISCOUNTED CASH FLOW VALUATION OF BANGKOK CHAIN HOSPITAL PUBLIC COMPANY LIMITED

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ABSTRACT

This thematic paper intends to value the stock price of Bangkok Chain Hospital Public Company Limited (BCH) base on discounted cash flow valuation model (FCFF) which represent the concept that the stock price of the firm should reflect its fundamental value in term of cash flow, growth and risk. Considering with upside in Thailand's healthy trend and rising in aging society as well as monthly income per household, these factors enhance BCH opportunity to grow in both domestic and international especially for CLMV countries. The target price of year ended 2018 of BCH shall approximately equal to 18.11 Baht per share with 3% upside from the current price of 17.50 Baht per share on 20 November 2018. Therefore, the valuation is indicative to HOLD. In addition, BCH has strong profit from core operation. The expansion in Greenfield project will increase in capacity to support more patients Moreover the rising performance of World medical center support the performance of BCH. In conclusion, the valuation study is to suggest company intrinsic value which the method still has some limitations. Therefore, the value must be looked carefully. However, the study can still provide guidance regarding intrinsic valuation for investors and interested person in health care companies.

KEY WORDS: BCH / Valuation / Discounted Cash Flow / Hospital

68 pages

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LIST OF ABBREVIATIONS



CAGR	Compound Annual Growth Rate
CAPM	Capital Asset Pricing Model
CAPEX	Capital Expenditure
COGS	Cost of Goods Sold
DCF	Discounted Cash Flow
D/E	Debt/Equity
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes and Depreciation
EPS	Earnings per share
GDP	Gross Domestic Product
IPD	In-Patient
NOPAT	Net Operating Profit after Taxes
NOWC	Net Operating Working Capital
OPD	Out-Patient
R _f	Risk free
ROA	Return on Assets
ROE	Return on Equity
SET	Stock Exchange of Thailand
SG&A	Selling, General and Administrative Expense
SS	Social Security Patient
SSO	Social Security Office
WACC	Weighted Average Cost of Capital

CHAPTER I VALUATION

1.1 Highlight of BCH valuation

We issue a HOLD recommendation on Bangkok Chain Hospital Public Co. Ltd. with a target price of THB 18.11 applying the Discounted Free Cash Flow to Firm Method with offering 3% upside from its closing price of THB 17.5 on November 20, 2018. BCH has the opportunities to grow from its core business of revenues from hospital operation with a solid performance, growth from performance of WMC, growth from expansion new hospitals and secured recurring income from social security scheme. Moreover, the macro environment favors to BCH is the factor that enable BCH to grow.

Table1.1 Market profile

Market Profile	
Closing Price	THB 17.5
52-Week Price Range	14.90 - 21.10
Average Daily	183.26 M
Share Outstanding	2493.75 M
Market Cap.	43,640 M
Dividend Yield	1.05%
Trailing P/E	39.7
Forward P/E	40.3
P/BV	8
ROE	18.42%
EPS	THB 0.37
Dividend per share	THB 0.20
Book value per share	THB 2.47

1.1.1 Solid Performance from growth strategies

BCH can maintain the higher performance as reflecting in its historical financial statement because of its strategies. There are main strategies which consist of

strong brands, expansion and customer. The company also has the strategic plan to increasing revenue growth and net profit margin by four strategies of the enhancement of internal process of hospitals' facilities, the upgrade of hospitals in the strategic locations to be the patients referral centres, business expansion both local and international through the construction of new hospitals and strategic acquisitions and rebranding of existing hospital in order to capture more market segmentation. The overall strategies could support the solid performance of BCH as well as efficiently controlling of its cost to slightly increase over the years. Referring to the BCH's key financial ratios as below figure, gross margin and net profit margin increase over the years. The turnover ratios as total assets turnover, ROA and ROE also raise over the years that indicate the solid performance. In addition, the current ratio is quite high and interest bearing debt to equity is lower than 1. The EPS of BCH also increase over the years from 0.23 in 2013 to 0.37 in 2017 as below figure. Moreover, BCH share price also continuously raises from year 2015 until now.

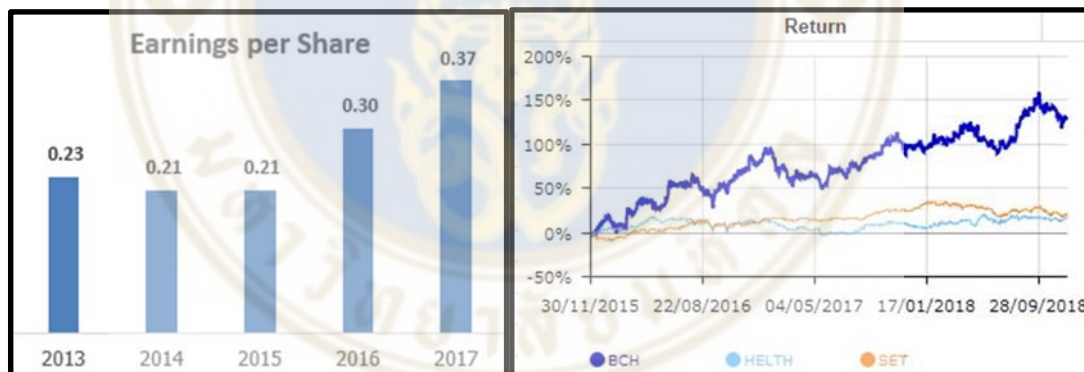


Figure 1.1 BCH's EPS and Return

Source: SET

Table 1.2 BCH's Key Financial Ratios

Key Ratios	2017	2016	2015	2014	2013
Gross Margin	33%	31%	31%	31%	32%
Net Profit Margin	15%	14%	12%	13%	15%
Total Asset Turnover	0.62	0.62	0.56	0.53	0.55
Return on Asset	10.80%	10.35%	8.12%	8.30%	9.65%
Return on Equity	20.32%	18.69%	14.62%	15.12%	17.19%
Current Ratio	1.48	0.74	0.70	1.07	1.25
Interest-bearing Debt to Equity	0.93	0.77	0.93	0.90	0.93

Source: Annual report BCH 2017

1.1.2 Growth from performance of WMC

WMC tend to dramatically increase in 2018 because of higher in the number of international patients. Especially in second half year of 2018, the OPD utilization increase by 26% and IPD utilization increase by 84%. The factor that help to enhance the number of patients comes from working with agents to attract the international patients. We assume the performance of WMC would be increasing over the years from the strategies of BCH to attract the new potential patients. The better performance of WMC would support the overall performance of BCH.

1.1.3 Growth from expansion new hospitals

The company increase their new hospital in the strategic location which is the zone of target customers and far from their competitors. From the Analyst Presentation in March 2018, the five more hospital branches both locally and internationally of Kasemrad brand will be opened in next three years at Ramkamhang in 2018, Chiang-Khong in 2019, Sakaeo in 2020, Prachinburi in 2020 and Vientiane in 2020. BCH can increase their capacities of beds and exam rooms for IPD and OPD respectively. Moreover, the social security scheme patients increase from 2 new hospitals about 70 thousand people. Therefore, the overall performance of BCH will increase from the higher capacities of expansion new hospitals in strategic location.

1.1.4 Secured recurring income from social security scheme

Almost Kasemrad and Karunvej hospitals are participating in group of social security scheme. The centers of excellence were quantified as a Supra Contractor by Social Security Office that affect to continual growth. In addition in 2017, the number of registered person under the social security scheme increased on the average of 5.5 percent per annum that came from extra quota allowance during the year from social security office and the facilities improvement of the existing hospital. In addition, the announced SC quota of existing hospitals from Analyst Presentation in March 2018 is 140 thousand people and add up the new quota from 2 new hospitals about 70 thousand people. Therefore BCH can secure its recurring income from social security scheme.

1.1.5 Macro environment favors to BCH

The ability to afford the healthcare is depend on their income due to the cost of private hospital is higher than government hospital. A hike in minimum wage in 2018 is expected to boost consumer income in the short term. Thailand monthly income per household increased by 51% during 2007-17. This would support growing demand for private healthcare. In terms of total gross income, the middle youth and mid-lifers tend to focus their spending around the family, creating a favorable environment for marketers of household facilities, durables, education, and financial and healthcare services. The healthcare expenditure to GDP in Thailand is 3.8%. In 2018, it will increase by 3.6%. Health goods and medical services will be the second fastest-growing consumer category in 2018-2030. Moreover, the high-income countries tend to spend more on healthcare expenditure. For Thailand, total fertility rate has declined. In the meantime, life expectancy at birth has increased. Lastly, as older people become more dominant as both workers and consumers, population ageing will create new demands and present many opportunities.

1.2 Business Description

1.2.1 Business

Bangkok Chain Hospital Public Company Limited, BCH, was established in 1993 to provide medical treatment for patients as a private hospitals in nursing business with paid-up capital of THB 2,494 million. There are 14 chained hospitals in Bangkok vicinity, Chiang Rai, Saraburi, Nonthaburi, Pathumthani, Ayudhaya, Chachoengsao, Prachinburi, Sa Kaeo Province and Lao People's Democratic Republic with 3 chained hospitals not started commercial operation. In addition, BCH also provides consultation services, management services and the assets management services relevant to the hospital and property for rent. The group of hospitals consists of eleven hospital branches and two polyclinics to serve all types of customers. The company has mainly four centers of excellences which consist of Heart Surgery, Heart Center and Cardiac Cath Lab, Lasik and Eye Center, Imaging Center and Cancer Center

to provide tertiary care services to patients under BCH Group's hospitals and referred patients from over 40 allied hospitals that are the main contractor of Social Security Office and National Security Office with offered an exclusive rate. With the centers of excellences, the company can service treatment or surgery quickly that affect to improve efficiency of equipment utilization and raise assets turnover to the company as below figures showing the higher ROA and utilization rate of beds day.

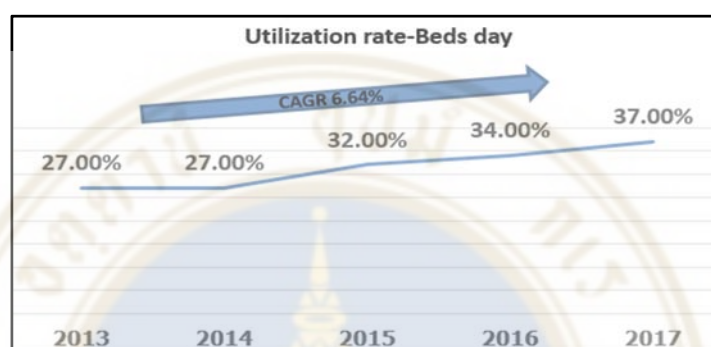


Figure 1.2 Utilization rate of IPD: Beds day

Source: Annual report BCH 2017

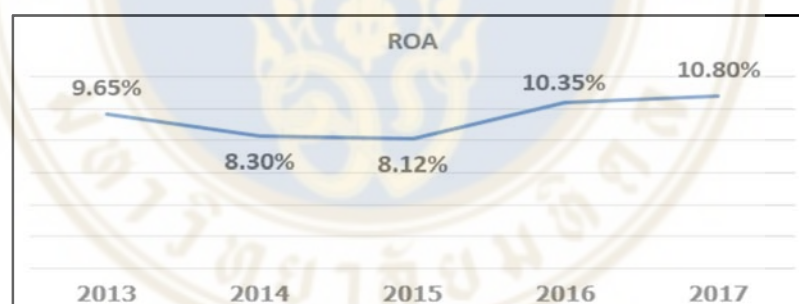


Figure 1.3 ROA

Source: Annual report BCH 2017

1.2.2 Revenue

The main revenue of the company comes from several types of customer and regular income from the Social Security Scheme and Universal Coverage Scheme. There are **two types of patients** on regular basis which consist of **cash patients and under government schemes** so the income from combined patient provides diversified sources of revenue. For **patients under the schemes**, Social Security Scheme and National Universal Coverage Office are responsible for the medical expenses incurred.

The company can create efficiency and productivity of their resources because of having various types of customers.

The nature of customers are Cash-base patients and Government schemes' customer group. Cash-base patients who select their preferred hospital by themselves are fully responsible for their own expenses. They also concentrate on quality of life with health conscious. Therefore the company can provide value added health package such as the other alternative medicines and health check-up package. The second types of customers are Government schemes' customer group which consist of group of Civil servant medical benefit scheme, group of Social security scheme and group of Universal coverage scheme. The factor to increase the government official customer base is the location of each hospital which is in working community. Almost Kasemrad and Karunvej hospitals are participating in group of social security scheme. Moreover the specialized center of the hospitals such as Heart center is qualified to be a referral center where patients from others hospitals to be acquired treatment up with tertiary care.

In 2017, the revenues structure of the company combined with about 62% from Cash-base patients, about 37% from Government schemes' customer group over the years and Universal Coverage patients 1%. Cash-base patients or walk in is the main revenue of the company that slightly decrease in year 2017. On the contrary, Government schemes' customer group lightly increase over the years because their centers of excellence were quantified as a Supra Contractor by Social Security Office that affect to continual growth. However, the company strives to maintain the portion of revenue as 70% for Cash-base patients and 30% for Government schemes' customer group because Cash-base patients who concentrate on quality of life with health conscious and fully responsibility for their own expenses generate higher profit for the company than other customers due to lower sensitive to price.

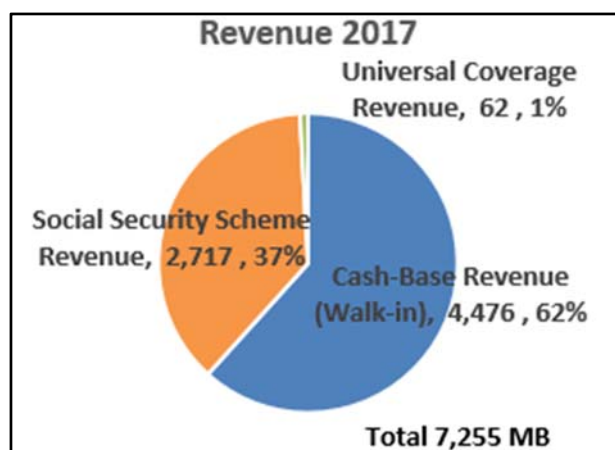


Figure 1.4 BCH's Revenue 2017 - Breakdown by type of patients
Source: Annual report BCH 2017

Table 1.3 BCH's Revenue 2017 - Breakdown by type of patients

Revenue Structure (MB)	2017		2016		2015	
Cash-Base Revenue (Walk-in)	4,476	62%	4,140	64%	3,740	65%
Social Security Scheme Revenue	2,717	37%	2,305	35%	1,963	34%
Universal Coverage Revenue	62	1%	66	1%	63	1%
Total Revenues	7,255	100%	6,511	100%	5,766	100%

Source: Annual report BCH 2017

1.2.3 Services and brands

Products and services of the hospitals depend on level of care that divided into three categories as primary care, secondary care and tertiary care. The primary care are generalized stop for symptoms and medical concerns which is typically responsible for coordinating patient's care among specialists and other levels of care. Secondary care simply means taken care of by more specific expertise. Specialists focus either on a specific system of the body or a specific disease or condition. Tertiary care requires highly specialized equipment and expertise which includes severe burn treatments and any other very complex treatments or procedures.

The Company have **three brands** of the hospital which are categorized by their types of target customers and level of excellent cares. The first brand is **World Medical Hospital Group (WMC)** which focus on high-end and international patients by providing tertiary care which required high specialized medical services. WMC also services to referral patients from hospital in the group and other alliance hospitals nationwide. The second brand is KH group which consists of **Kasemrad Hospital**

Group (KH) and Kasemrad International Hospital Group (KIH). KH group concentrates on middle-income patients and social security patients by providing primary, secondary and up to some level of tertiary care. In addition, KH consists of Kasemrad Medical Center (KHMC), Kasemrad Community Clinic (KCC) and Kasemrad Better Life (KH Better Life). KHMC have five centers as Heart Surgery Center, Imaging Center, Lasik and Eyes Center, Cardiac Cath Lab Center and Cancer Center to serve comprehensive medical services in the level of tertiary care. KCC services primary care to out-patients in Mae-Sai District and Chiangsan District, Chiangrai province. KH Better Life focus on healthy lifestyle and alternative medicine with various types of services such as Aesthetics (Skin Care and Non-Invasive), Dental & Aesthetic Dentistry and Wellness Center (Health Check-up). The last brand is **Karunvej Hospital Group (KV)** which has mainly customers as social security patients that provide primary and up to secondary care.

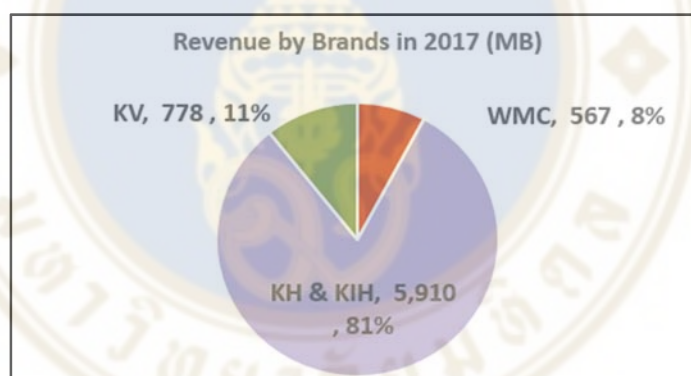


Figure 1.5 Revenue by brands in 2017

Source: Annual report BCH 2017

Table 1.4 Revenue by brands in 2017

Brands	Target customers	Level of Excellence	Revenue by Brands in 2017 (MB)	% Revenue by Brands in 2017
WMC	High-end / International patients	Tertiary care which required high specialized medical services.	567	8%
KH & KIH	Middle to High income patients and Social security patients	Primary, secondary and up to some level of tertiary care	5,910	81%
KV	Mainly social security patients	Primary and up to secondary care	778	11%

Source: Annual report BCH 2017 and Analyst Presentation BCH 4Q2017

1.2.4 Management and Administration

The company operates under group policies therefore each hospital apply the same directions which are guided by top management. In addition the knowledge sharing policies are exchanged between the hospitals such as administrative experiences. Moreover, the top management is an acting president of the Private Hospitals Association and has many important roles in a national healthcare administrative level so the business operations is well managed. The company can well adapt and resolve in line of the current economic situations from experiences of top management. The top management introduced the centers of excellences to the group that aim to reduce referral costs and once group of the hospitals so the company also gain advantage because those centers of excellence were quantified as a Supra Contractor by Social Security Office that affect to continual growth.

The key indicator to measure annualized rate of return is CAGR as the higher the better as below figures. The Compound Annual Growth Rate (CAGR) is very useful for investment analysis which are also referred to as the annualized rate of return or annual percent yield or effective annual rate. Over the past five years, the utilization rate of IPD cash patients and social security patients grew on average of 6.6 percent per annum. In 2017, the factors which helped surging the number of patients are upgrading the hospital standards to support the expansions of local communities and increasing number of specialized clinic center to help complication treatment. For the utilization rate of OPD, it raised on the average of 3.9 percent per annum on average over the past five years because of the support from social security office for their patients under the scheme to receive a health checkup service and expansion of the mobile medical services in several provinces in Thailand. In addition the number of registered person under the social security scheme increased on the average of 5.5 percent per annum that came from extra quota allowance during the year from social security office and the facilities improvement of the existing hospital.

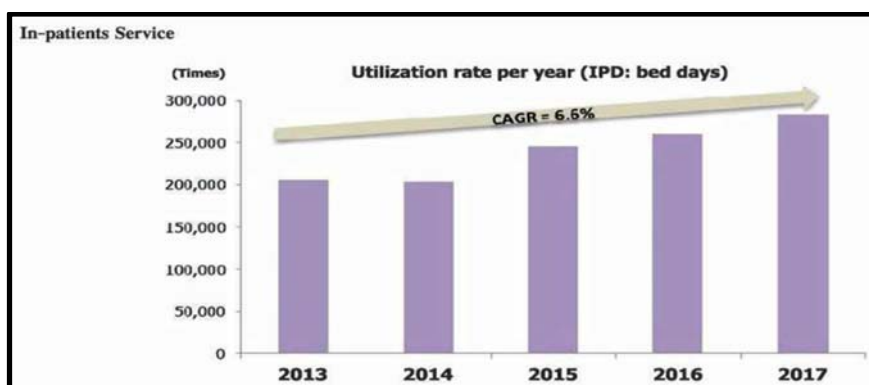


Figure 1.6 IPD-Utilization rate per year

Source: Annual report BCH 2017

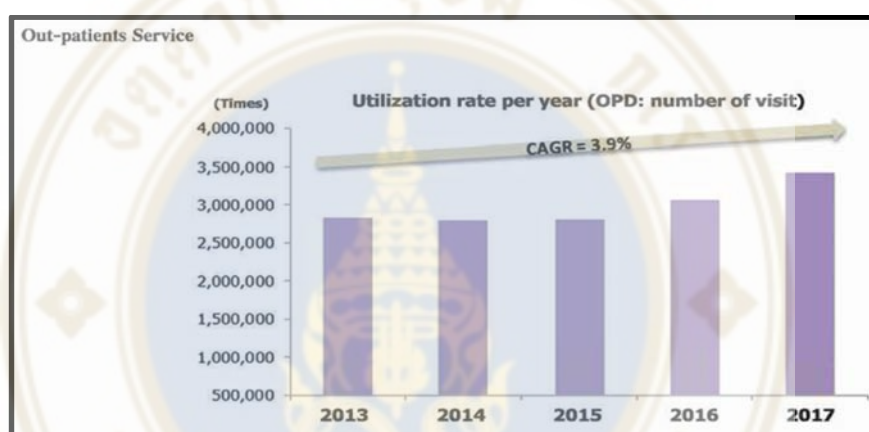


Figure 1.7 OPD-Utilization rate per year

Source: Annual report BCH 2017

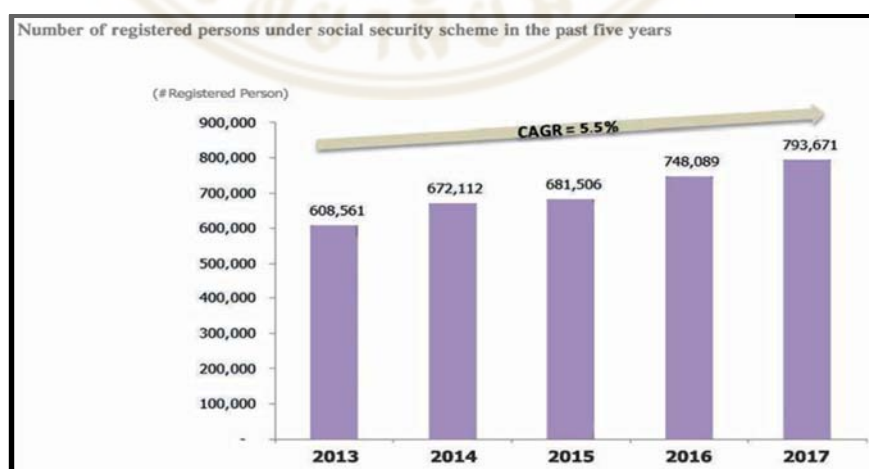


Figure 1.8 SS-CAGR Numbers of registered persons

Source: Annual report BCH 2017

1.2.5 Strategies

BCH group's hospital aim to build their brand to be a number one preferred hospital in patients' mind. So they focus on Brand strategy to create strong four brands as World Medical Hospital Group (WMC), Kasemrad Hospital Group (KH), Kasemrad International Hospital Group (KIH) and Karunvej Hospital Group (KV). Each brand serves different types of customers in order to capture all of market segments. The overview of BCH brand is only one brand who focus on social security patients to high-end and international patient as low-medium-high group of customers. Generally, the company strives to manage their risk to be low by having about 70% of revenue from Cash-base patients and about 30% of revenue from Government schemes' customer group. The goals of the company can be achieved by developing a successful brand which combine their company's character that customers can identify. To create brand loyalty is hard to succeed that requires marketing communication and word of mouth strategy. For example the company launched the marketing campaign to create brand awareness called "Happiness Observer" to enhance brand awareness. Moreover, the strategic location of the company is the key to build brand image. For instance, World Medical Hospital Group (WMC) located on Chaeng Watthana road which is affluent residential neighborhoods because WMC focus on high-end patients. WMC also concentrate on international patient so Chaeng Watthana road is not far from Don Mueang International Airport that provide convenience for international patients. Especially, ASEAN country who is their main customers such as Myanmar and Pakistan. However, Europe also is the major patients of this brand. Moreover, BCH launched two campaigns to raise brand awareness as "Best Job in Thailand" and "Kasemrad Super Run" that gain good responses by a lot of people in 2017.

In the future, the company plans to Re-brand of the existing hospitals. World Medical Hospital launched the marketing campaigns such as the perception about the ability to provide the best medical service with reasonable price to target local hi-end patients and international patients. In addition, Hospitals' rebranding will be implemented for brand Karunvej.

The company also apply Expansion strategy to gain more market share. The company increase their new hospital in the strategic location which is the zone of target customers and far from their competitors. For example Karunvej concentrate on the

patients under social security scheme so it was located at Navanakorn industrial estate, Sukhaphiban 3, Ayutthaya and Pathum Thani. So the workers will choose Karunvej because it provides convenience. The company continuously expand the new hospital in various strategic location to enhance new customers. Nowadays, the company gain the highest patients under social security scheme about 1 million persons. In addition, the company have to expand more hospital to increase its service coverage for cash patients, patients under social security scheme and patients around the borders. The local and international business expansion is their strategies in the future plan. The five more hospital branches both locally and internationally of Kasemrad brand will be opened in next three years at Ramkamhang in 2018, Chiang-Khong in 2019, Sakaeo in 2020, Prachinburi in 2020 and Vientiane in 2020.

For Customer strategy, the company strives to provide better service to its patients. Therefore to enhance standard of the hospitals, it will manage to add medical specialties centers into the hospitals that located in the strategic locations such as Heart Center and Imaging Center in order to upgrade them to be the referral centers for patients from different region in Thailand. In addition, the company plan to renovate facilities in the hospital as well as improve operational process to be better efficiency. Training staff is important way to improve the skill of them that will help to enhance hospital's standard. When the company provides quality services that helps it to gain more new patients and keep existing patients as well as create its brand loyalty in the future.

1.2.6 Corporate Governance

The company's management and administrations are efficient, transparent and auditable so the shareholders, investors and other stakeholders are trust and confidence to the company. The company realizes that good corporate governance shall add a firm's value and contribute to sustainable growth of the company therefore the company has complied with the corporate governance guidelines in five sections which consist of Shareholders' right, Fair and equitable treatment to shareholders, Awareness in stakeholders, information disclosure and transparency and Directors' responsibility. To ensure company's good governance, BCH had been received certificate from Thailand's Private Sector Collective Action Coalition Against Corruption. Moreover, to reflect the commitment of BCH to operate its business in line with good corporate

governance, the company obtained “Good” rating in CGR report from Corporate Governance Report of Thai Listed Companies in 2017.

1.3 Macro-Economic Analysis

1.3.1 Private hospital in nutshell

The government has a policy to encourage public access to health service. All the Thai people are given right to access to government hospital at low cost. The private hospital get benefit from government promotion by contribution through the social security program as one part of revenue. However, for Thais who does not have social security. The ability to afford the healthcare is depend on their income due to the cost of private hospital is higher than government hospital. A hike in minimum wage in 2018 is expected to boost consumer income in the short term. Thailand monthly income per household increased by 51% during 2007-17. This would support growing demand for private healthcare.

In terms of total gross income, the largest concentration can be witnessed in the age segment 37-55 and a small concentration was found in the age group 17-27, reflecting the high proportion of the population belonging to these age. The middle youth and mid-lifers tend to focus their spending around the family, creating a favorable environment for marketers of household facilities, durables, education, and financial and healthcare services.

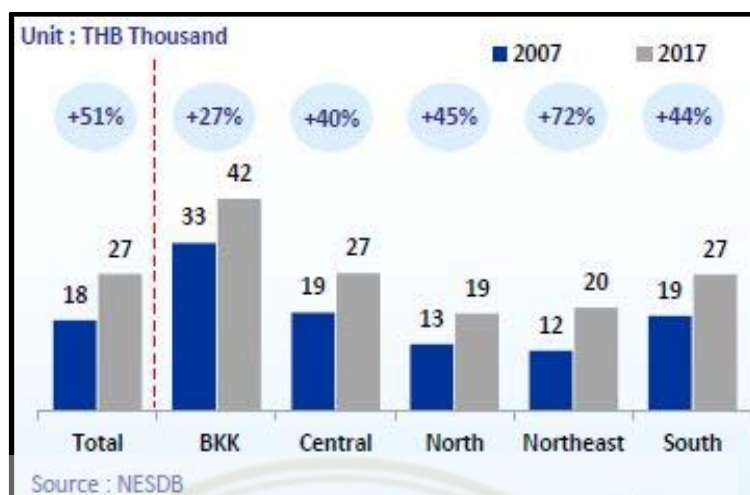


Figure 1.9 Monthly Income per Household
Source: NESDB

1.3.2 Health expenditures is lower than other countries

The healthcare expenditure to GDP in Thailand is 3.8% (both the government spending and the private expenditures). The number showed that Thailand spend on this portion is below than the average (World 6.3%). In 2017, consumer expenditure per capita amounted to Bt125,305 (US\$3,692). In 2018, it will increase by 3.6%. Communications will be the fastest-growing consumer category in 2018-2030 followed by health goods and medical services. (Source: Euromonitor)

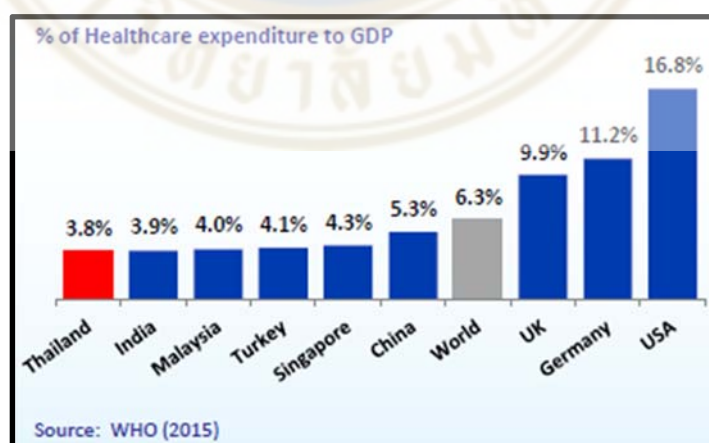


Figure 1.10 % of Healthcare expenditure to GDP
Source: WHO (2015)

1.3.3 Income and health expenditure

The high-income countries tend to spend more on healthcare expenditure. This link to the number of ICU beds per million population. The higher spending on healthcare expenditure, the increase in number of beds and capacity of hospital.

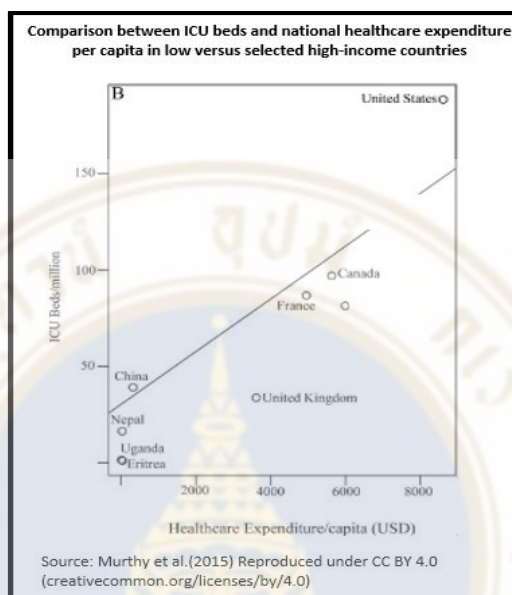


Figure 1.11 Number of ICU beds per million population
Source: Murthy et al. (2015) Reproduced under CC BY 4.0

1.3.4 Aging population

Population ageing, driven by rising life expectancy and falling fertility rates, is a powerful and transformative demographic force. The fertility rates of all developed countries have fallen below 2.1 children born per female, which is the rate needed for a developed nation to hold its population constant. For Thailand, total fertility rate has declined from over 6 births per woman in 1960s to below 2 in the mid of 1990. In the meantime, life expectancy at birth has increased from 55.2 to 69.9 years for men and 61.8 years to 74.9 years for women. The population in Thailand was 69.0 million in 2017, an increase of 6.1 million since 2000. Growth of population was relatively rapid in recent decades but is now decelerating. The slowdown means the country's pool of young workers will shrink in the medium term. Median age in 2017 was 38.8 years. It increase from 30.1 years in 2000. The gradually increase is a signal of an ageing process. Median age will reach 43.8 years in 2030. The number of elderly (those over 65 years)

was 11.4% of the total in 2017 but the total will rise sharply by 2030. Result in this group represents 19.4% of total population.

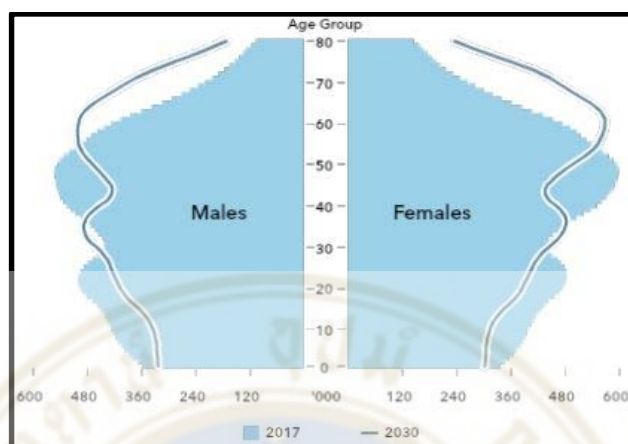


Figure 1.12 Age pyramid in 2017 and 2030

Source: Euromonitor International from national statistic/UN

The lower middle class is expected to remain the most prevalent in the country. Overall, the large size of social classes in lower middle class and lower class in Thailand represents a vast market for basic necessities. Due to population ageing, the share of individuals aged more than 65 years old will rise significantly in lower middle class, creating demand for affordable healthcare products and services. Ageing also presents challenges such as a shrinking labor force, reduced savings leading to depressed investment and growth, and increasing government spending on healthcare and pensions. However, as older people become more active as both workers and consumers, population ageing will create new demands and present many opportunities.

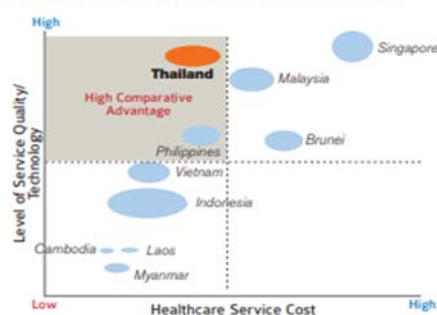
1.4 Industry Analysis

There are over 1,000 hospitals in Thailand, of which over 470 are private facilities. Thailand has the largest private hospital in Asia, as well as Bumrungrad is the first Asian hospital to receive the ISO 9001 certification and JCI accreditation. Moreover, all of the JCI accredited hospitals in Thailand are all private.

1.4.1 Asia healthcare medical hub

The strong support from government to promote Thailand 4.0 by putting healthcare as one of a priority sector. The government spends 14% of its total budget on the healthcare industry, which accounts for 4.6% of Thailand's GDP. This is considered to be the highest among ASEAN countries. The advantage of location which is placed in a well-positioned to be the medical hub of the region. An excellent medical foundation that includes world-class medical facilities such as highly accredited doctors and using of sophisticated technology and equipment. The using of advanced healthcare services at highly competitive prices, qualified healthcare specialists and various internationally accredited medical facilities. This provides a competitive advantage for Thailand's healthcare industry over ASEAN countries. Thai medical services are well-known, resulting in a rapid growth in supporting industries such as pharmaceuticals, laboratory tests and clinical R&D. The ten-year strategic plan starting from 2016 proposes to turn Thailand into a medical hub in four major areas: wellness, medical services, academics and products.

Competitiveness of Thai Private Hospital vs. Others in ASEAN Countries



Source: MFA

Figure 1.13 Competitiveness of Thai Private Hospital vs. Other in ASEAN
Source: MFA

1.4.2 Digital Innovation integrated in healthcare

Technology and innovation is crucial for sustained economic growth for the medical and healthcare sector. Data from the National Electronics and Computer Technology Centre (NECTEC) and the National Broadcasting and Telecommunications Commission (NBTC), indicate that ICT adoption is increasing. The country's broadband subscribers in the latter quarter of 2014 reached more than 5 million, totaling nearly 27% broadband penetration/household. Mobile phone use has also reached 120% in the country in 2015. This bring internet come to people daily life in hand. It create the opportunity for healthcare apps which will allows digital healthcare to become an integrated part of people lives. The benefits of healthcare apps are for patients, providers and doctors. It allow patient to find information on their health condition adapt to individual, make an appointment, pay their healthcare bills and so on. The provider can collect information from the apps to improve the management of hospital workflows, coordinate with vendors, reducing their cost of operation. The doctors can easily access to patients information and communicate with their patients 24/7 as well as tracking record and set plan for reviving patients individually.

1.4.3 Health awareness

By 2030, Thai people will consist of 65+ years old about 19.4% of total population as mentioned above. Hence, the demand for healthcare service and medical treatment will upsurge and the business can grow much further. The internet penetration and the use of social media bring news quickly result in increase of health awareness. People put more serious on health condition and increase health conscious lifestyle. Therefore, there are concern start from the food, drink. The increase trend and encourage people to do exercise, reduce their smoking habit. All of these improve people's health awareness. There will be much more opportunities from this industry to support these demand.

1.4.4 Medical tourism

Thailand is one of the top target for medical tourism, capable of medical personal, convenient infrastructure and facilities. It is largely driven by private hospitals.

The number of medical tourists that come in Thailand has been steadily increasing since the early 2000's. This has resulted in the country taking its place on the top of the global medical tourism market. The main reasons that have enabled Thailand to dominate this growing market are: the low cost of medical treatment than their home country, the quality of treatment provided by private medical centers and the highly developed tourism industry from the rich culture and friendly personality to foreigners. Foreigner patients come from many countries such as UAE, China and Cambodia. The service prefer to do in Thailand for example cosmetic and plastic surgeries, the operation cost a small amount compare to what patients in US and UK would pay back at home. The cardiac procedures, Thailand has many hospitals specialize in heart. They have their own cardiac surgery centers which can perform heart bypass, heart valve replacement and many at high quality standard and competitive price.

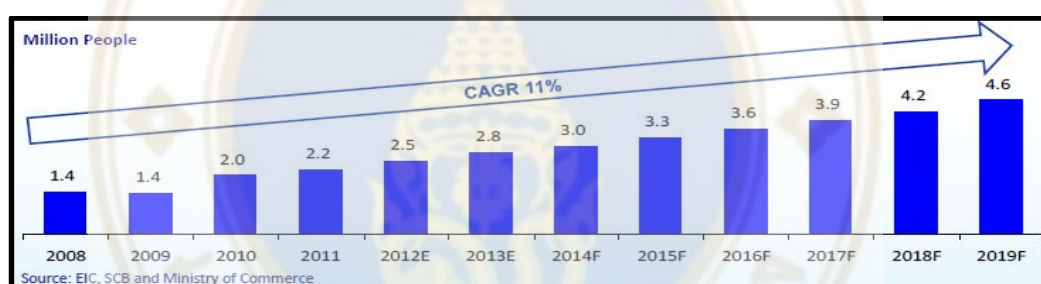


Figure 1.14 Trend of Medical tourist to Thailand

Source: EIC, SCB and Ministry of Commerce

Table 1.5 Price and procedure comparison

Procedures (In USD)	USA	Singapore	Thailand	Malaysia	India
Heart Bypass	123,000	17,200	15,000	12,100	7,900
Heart Valve Replacement	170,000	16,900	17,200	13,500	9,500
Knee Replacement	35,000	16,000	14,000	7,700	6,600
Spinal Fusion	110,000	12,800	9,500	6,000	10,300
IVF Treatment	12,400	14,900	4,100	6,900	2,500

Source: Medcaltourism.com (2016)

1.5 Competition Analysis

We provided briefly analysis currently performance of BCH's competitors which consisted of BDMS, BH, RAM, CHG and THG. With our analysis, we chose the main competitor to compare with of BCH who is Vibhavadi Medical Center Public Company Limited and its Subsidiaries, VIBHA. So we analyzed financial performance in detail through the historical financial statement and our forecasted financial statement in various dimensions which divided into size analysis, common size analysis, CAGR, and financial ratio.

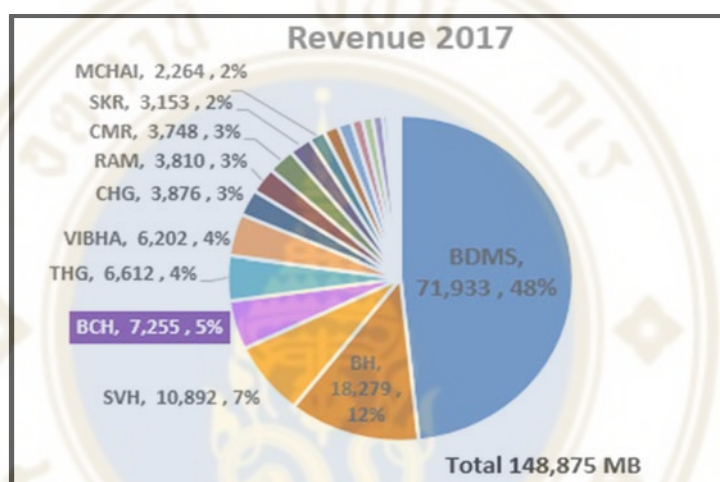


Figure 1.15 Revenue 2017 - Breakdown by private hospitals

Source: Team calculate from data of Bloomberg and SET

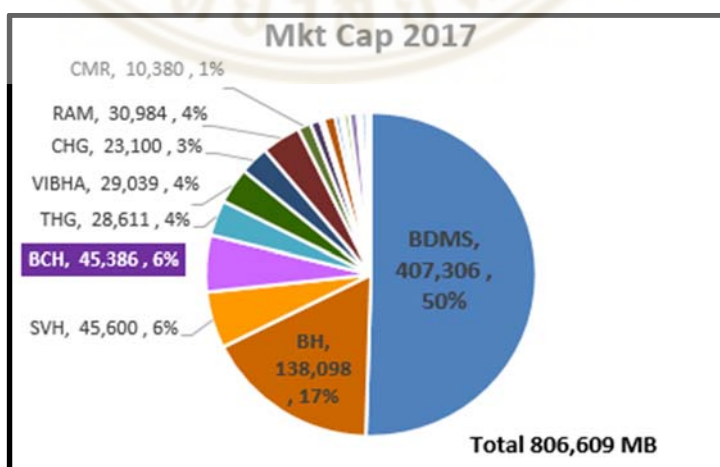


Figure 1.16 Market Capital 2017 - Breakdown by private hospitals

Source: Team calculate from data of Bloomberg and SET

BDMS, Bangkok hospital was the top 5 private hospital operators in the world by market capitalization with company and its subsidiaries. BDMS has 45 network hospitals. The capacity of inpatients are about 8,000 beds. BDMS concentrate on High-end and international patient and intend to become Center of Excellence (CoE). The revenue of BDMS consist of 72% for Thai patients and 28% for international patients. BDMS reports the totals revenue of 72,772 MB which increase 6% from the previous year. The higher performance mainly came from strong patient referral system and synergies and benefits scale among hospitals within the group.

BH, Bumrungrad Hospital Public Company Limited, operates a premium private hospital business with capacity 5,500 outpatients and 580 beds per day in Bangkok which is the leading healthcare providers in Thailand and Southeast Asian region. BH focus on High-end and international patient that is appropriate to compare with WMC of BCH group but the size of BH is higher than WMC. The BH's historical revenue contribution of international patients over the past five years is about 63% and the remainder for Thai patients. In addition, the average utilization rate of last three year were 70% for IPD and 54% for OPD. In 2017, BH reported total revenues of 18,527 MB which mainly comes from revenues from hospital operations as 18,279 MB. The revenue from hospital operations increases from previous year about 2.4% because of the increase in revenues from Thai and foreign patients by 2.3% and 3.1% respectively. Moreover, the cost of hospital presented 10,460 MB in 2017 which increase 0.5% from 2016. Administration expenses were 0.1% higher a bit than expenses in 2016. So this represents a favorable change to Net profit as an 8.8% improving year-over-year. Basic EPS for 2017 was 5.41 that 8.8% more than 4.98 in 2016.

RAM, Ramkhamhaeng hospital, operates a private hospital business with offering medical services that focus on middle-income patients and social security patients. The hospital provides capacity of 485 beds for inpatients and 2,500 persons for outpatients with average utilization rate of last three year as 50% for IPD and 60% for OPD. In 2017, RAM reported total revenue of 4,173 MB which increase 1.38% from previous year and Net profit presented 1,322.12 MB that was higher than last year about 17.36%. The higher performance mainly came from increasing of other income which combined of profit of investment in associate and dividend income.

CHG, Chularat Hospital Public Company Limited, operates a private hospital business which provide services to 2 main types of customers, General patients and social welfare patients. The total capacity are 705 beds for IPD and 6,000 cases for IPD. The revenue of hospital operations were reported as 3,876 MB which increased 6.57 % from last year. The company focus on middle-income patients and social security patients. The key factors which increased company's income were increasing general patients, higher average income by case, increasing number of people with social security account and medical service fee received from social security account. From aforementioned factors, the company maintained a steady profit. In 2017 the company had 565 MB which slightly increased from previous year about 2.48% and could maintain profit rate higher than the industry average. The company could maintain good control on principal costs.

THG, Thonburi Healthcare group, operates a private hospital business by providing three major segment as Medical Services business, Healthcare Solution provider and other business that focus on middle-income to high-end patients and social security patients. The capacity to service are 5,580 outpatients daily and 435 beds for inpatients. In 2017, total revenue presented 6,611 MB which were higher than last year 6.1% and gross profit slightly increased 0.2%. So the net profit were reported 554 MB which was more than previous year 8.4%.

BCH as the fourth highest market capital and revenue has capacity for IPD of 2,178 beds and examination room for OPD of 414 rooms in 2017. BCH as the large hospital with more extended business network can gain advantage of economies of scale, a strong capital base and flexibility in marketing domestically and internationally. Due to their large size, BCH can absorb pressures arising from a changing business environment better than small and medium competitors. In addition, BCH still expand their hospital into strategic location which currently have 5 projects in pipeline. BCH captures all of market segments. The overview of BCH brand is only one brand who focus on social security patients to high-end and international patient as low-medium-high group of customers. Moreover, BCH strives to provide better service to its patients due to enhance standard of the hospitals, they manage to add medical specialties centers into the hospitals that located in the strategic locations. Currently, the company gain the highest patients under social security scheme about 1 million persons. Moreover, it will

plan to open more hospital to gain more patients under scheme. BCH also gain advantage over their competitors because BCH Group's hospitals has referred patients from over 40 allied hospitals that are the main contractor of Social Security Office and National Security Office with offered an exclusive rate. With the centers of excellences, the company can service treatment or surgery quickly that affect to improve efficiency of equipment utilization and raise turnover to the company. So with the factors that mention before, BCH can well competitive in the market that reflected higher performance over the years and strong balance sheet which came from their good strategy.

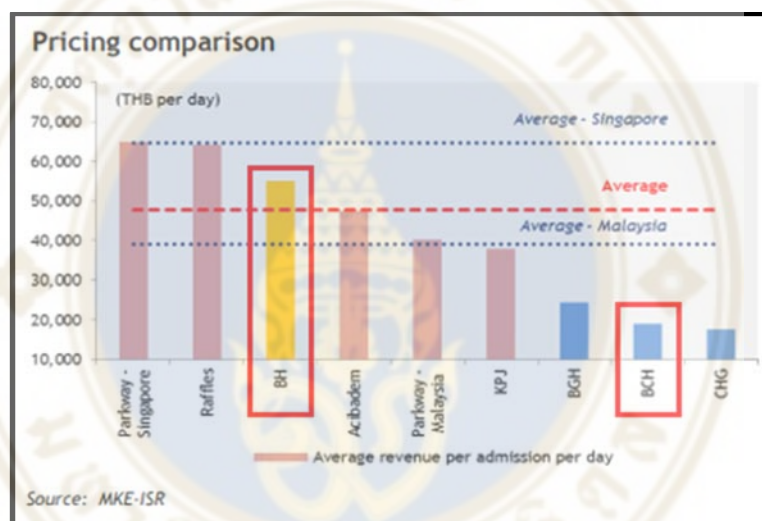


Figure 1.17 Pricing comparison

Source: MKE-ISR

When comparing the price, premium hospital bill is more expensive than private hospital by 250%. BH as the premium hospital has average hospital bill (IPD) per day is higher than average Malaysia hospital by 38% but lower than Singapore by 14% that is still competitive in the international market. WMC is the premium hospital like BH with quite similar service rate that focus on high-end to international patients. So BH can be representative for WMC in the market. While BCH as private hospital charged at lower price than average by 50% which is competitive price in the domestic and international market.

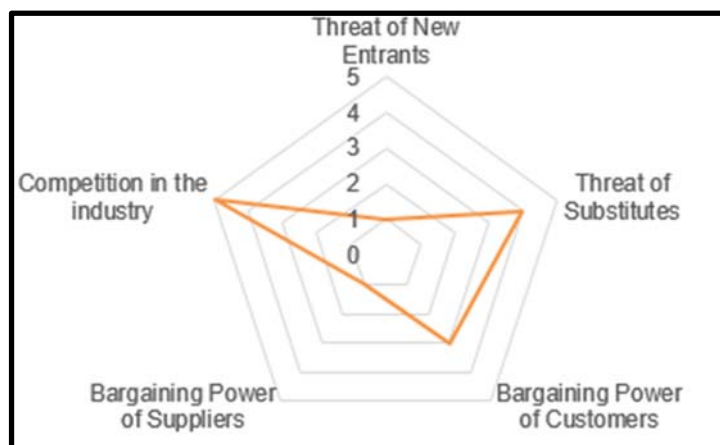


Figure 1.18 Five force analysis of BCH

The five force analysis of BCH which we estimated shown that BCH had **high sector competition** because there are many private hospitals in the same areas especially in Bangkok. Although, the largest hospitals as BCH dominate high market shares. Moreover expansion medical service as opening after-hours clinics, many private hospitals have set up specialized tertiary centers to serve full medical services and to provide more new services with attractive pricing and promotion to compete. **High threat of substitute products** and services, the patients can choose to seek treatment in public hospitals or clinics. However, the private hospitals can provide more complex treatments and better services which are required for many patients. **Medium bargaining power of customers**, most of patients focus on hospital facilities and special clinics rather than a well-known doctors. In addition, patients have a little sensitive in price due to necessary services. However, some patients can switch hospital choice at a low cost for a not serious case. The private hospitals may offer a wide variety of health insurance packages. **Low bargaining power of suppliers**, most of private hospitals have own companies to purchase drugs and source medical equipment. The pharmaceutical manufacturers are high competition especially for local manufacturers. **Low threat of new entrants**, the private hospitals require high investment for a 100 bed hospital typically costs more than 1,000 MB. Moreover, the suitable land sites are scare especially in high traffic provinces such as Bangkok, Chiang Mai and Pattaya. The available qualified and experienced doctors are also limit.

1.6 Financial Statement Analysis

Table 1.6 Profit / (Loss) - Compare with Peer

PL-Compare with Peer							
BCH			Year Ending Dec. 31,				
Income Statement (MB)	CAGR	Common Size 2017	2017	2016	2015	2014	2013
Revenues from hospital operations	9%	100%	7,255	6,511	5,766	5,301	4,702
Cost of hospital operations	2%	67%	4,877	4,472	3,989	3,670	3,191
Gross profit	10%	33%	2,378	2,039	1,777	1,631	1,510
Other incomes	2%	1%	107	98	86	80	95
Distribution costs	29%	2%	120	87	64	74	34
Administrative expenses	8%	12%	840	748	791	647	566
EBIT	9%	21%	1,526	1,303	1,010	990	1,005
Finance costs	5%	2%	136	162	163	160	106
Income tax expense	9%	4%	271	208	174	159	178
NI	9%	15%	1,119	933	673	671	721
Gross profit rate			33%	31%	31%	31%	32%
Operating profit rate			20%	18%	16%	17%	19%
VIBHA							
VIBHA			Year Ending Dec. 31,				
Income Statement (MB)	CAGR	Common Size 2017	2017	2016	2015	2014	2013
Revenues from hospital operations	6%	100%	5,983	5,602	5,242	4,750	4,371
Cost of hospital operations	6%	68%	4,040	3,734	3,472	3,246	2,955
Gross profit	7%	32%	1,943	1,867	1,770	1,504	1,415
Other incomes	15%	2%	110	86	72	77	54
Distribution costs	-100%	0%	-	-	13	12	13
Administrative expenses	7%	15%	871	860	733	668	617
EBIT	8%	24%	1,414	1,212	1,260	1,042	969
Finance costs	14%	3%	153	122	108	99	81
Income tax expense	4%	3%	196	225	211	170	161
NI	8%	18%	1,065	866	941	773	727
Gross profit rate			32%	33%	34%	32%	32%
Operating profit rate			18%	18%	20%	17%	18%

In 2017, the revenue from hospital operations of BCH increased from previous year by 11 percent from 6,511 MB to 7,255 MB. And net profit raised from 933 MB to 1,119 MB about 20% because of budget allocation to the hospitals in the scheme by the Social Security Office (SSO) since July 1, 2017 an increase in number of SSO insurers in its chain hospital and higher general walk-in patients that create an improved performance. When comparing income statement with the key competitor as VIBHA, revenues from hospital operations of BCH is higher than VIBHA because of BCH is larger size than VIBHA. So in 2017 the revenue of BCH presents 7,255 MB increasing 9% over 5 years and VIBHA presents 5,983 MB increasing 6% over 5 years.

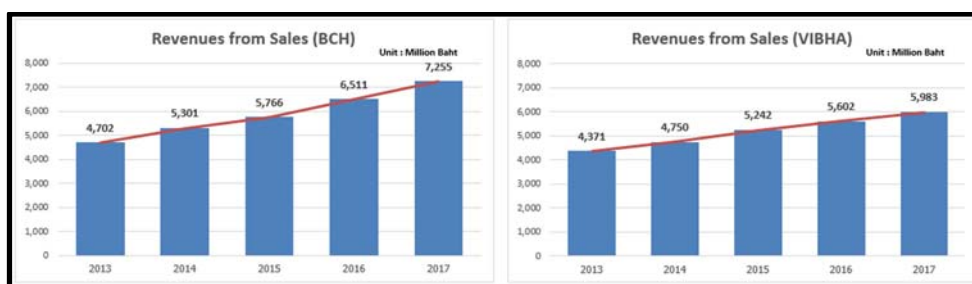


Figure 1.19 Revenue of hospital operations - Compare with Peer

BCH's cost of hospital operations is 4,877 MB which is also higher than VIBHA as 4,040 MB. Cost of BCH slightly increase about 2% over the years on the contrary cost of VIBHA raise about 6% over the years. The gross profit margin of two companies is reported 33% for BCH and 32% for VIBHA that is quite similar. Moreover, BCH can maintain gross profit margin to increase over the years but gross profit margin of VIBHA slightly drops over the years. CAGR of gross profit margin show 10% for BCH and 7% for VIBHA. Therefore, BCH can generate higher profit over the year and control their cost efficiently.

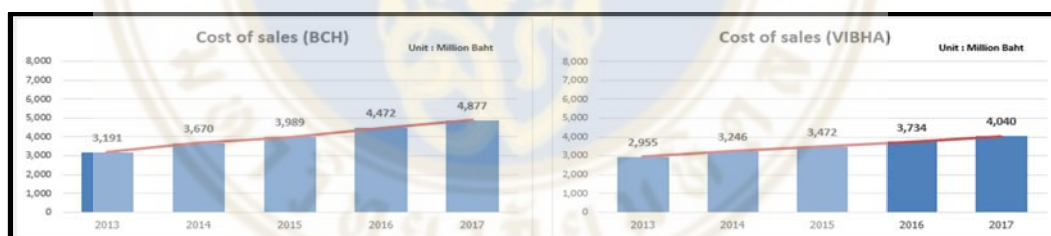


Figure 1.20 Cost of hospital operations - Compare with Peer

In term of common size, performance of BCH and VIBHA depend on Sales and Cost to generate net profit. Distribution costs and administrative expense of BCH also are higher than VIBHA. VIBHA can maintain their expenses very well due to showing lower amounts over the years. However, EBIT of BCH is more than VIBHA that comes from higher sales of BCH. Finance cost of BCH is 136 MB with 5% CAGR and VIBHA is 153 MB with 14% CAGR. Interest bearing debt of BCH is 5,345 MB which is higher than VIBHA as 3,523 MB that show the ability of BCH to maintain lower cost of debt than their competitor. For the tax expenses of BCH, it is higher than

VIBHA because of generating profit more than VIBHA. The bottom line of two companies as Net income present 1,119 MB for BCH and 1,065 MB for VIBHA in 2017 so the performance of BCH is better than VIBHA due to their solid operation.

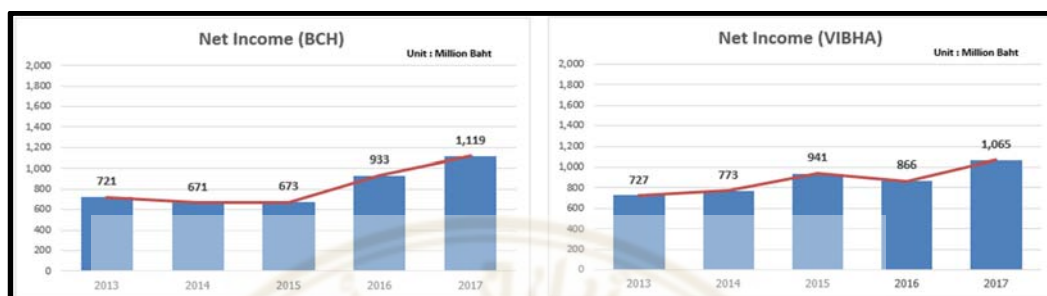


Figure 1.21 Net income - Compare with Peer

Table 1.7 BCH's Statement of financial position

BS-Compare with Peer							
Historical Financial Statement for BCH							
Balance Sheet (MB)	CAGR	Common Size 2017	Year Ending Dec. 31,				
			2017	2016	2015	2014	2013
Assets							
Cash and cash equivalents	-13%	4%	486	513	675	466	985
Current investments	37%	12%	1,580	168	131	143	322
Trade accounts receivable	7%	8%	1,054	997	1,077	1,099	759
Other receivables	-1%	0%	37	48	48	34	39
Inventories	5%	2%	204	195	189	178	164
Other Current Assets	-8%	0%	3	17	17	13	4
Total Current Assets	8%	27%	3,364	1,937	2,137	1,933	2,273
Restricted deposits	-54%	0%	1	1	19	39	38
Investment in associate	0%	0%	7	7	7	3	-
Other long-term investments	79%	0%	43	38	37	48	2
Long-term loan to related party	0%	0%	-	3	6	-	-
Investment properties	0%	8%	973	669	671	674	-
Property, Plant, and equipment, Net	1%	61%	7,744	7,371	7,188	6,884	7,403
Goodwill	10%	3%	329	329	329	202	202
Intangible assets	17%	1%	142	142	121	87	66
Deferred tax assets	4%	0%	28	27	36	32	22
Other non-current assets	12%	0%	43	46	46	91	24
Total Non-Current Assets	4%	73%	9,310	8,633	8,461	8,058	7,757
Total Assets	5%	100%	12,674	10,569	10,598	9,992	10,030
Liabilities and Shareholders' Equity							
Short-term borrowings from financial institutions							
Trade accounts payable	-25%	1%	150	80	1,138	694	620
Payables for hospital equipment and medical instruments	3%	4%	458	413	355	338	399
Current portion of long-term loans from financial institutions	-5%	1%	97	44	54	61	124
Current portion of debentures	-100%	0%	-	-	14	13	16
Current portion of finance lease liabilities	0%	8%	1,000	1,500	800	-	-
Current income tax payable	-100%	0%	-	16	76	82	89
Accrued expenses	13%	1%	126	69	66	65	69
Deferred income	2%	3%	375	387	395	365	347
Other current liabilities	-19%	0%	19	55	58	54	55
Total Current Liabilities	-12%	0%	51	59	86	133	96
Total Current Liabilities	5%	18%	2,276	2,621	3,042	1,803	1,815
Long-term borrowings from financial institutions							
Debtentures	108%	15%	1,847	-	10	24	47
Finance lease liabilities	-5%	20%	2,498	2,498	2,500	3,300	3,300
Non-current provision for employee benefit	-100%	0%	-	-	16	94	170
Other non-current liabilities	8%	1%	117	100	95	83	81
Total Non-Current Liabilities	-19%	0%	24	13	13	20	72
Total Non-Current Liabilities	4%	35%	4,486	2,611	2,634	3,522	3,669
Total Liabilities	4%	53%	6,762	5,233	5,676	5,325	5,485
Equity							
Issued and paid-up share capital	0%	20%	2,494	2,494	2,494	2,494	2,494
Premium on share capital	0%	5%	645	645	645	645	645
Retained Earnings		0%	-	-	-	-	-
Appropriated – legal reserve	2%	2%	249	249	249	249	229
Unappropriated	25%	14%	1,837	1,387	985	758	598
Other components of equity	0%	0%	(31)	(14)	(15)	(8)	-
Equity attributable to the company	6%	41%	5,195	4,761	4,359	4,137	3,966
Non-controlling interests	4%	6%	717	576	563	530	580
Total equity	5%	47%	5,912	5,337	4,922	4,667	4,546
Total Liabilities and Shareholders' Equity	5%	100%	12,674	10,569	10,598	9,992	10,030

Table 1.8 VIBHA's Statement of financial position

Historical Financial Statement for VIBHA							
Balance Sheet (MB)	CAGR	Common Size 2017	Year Ending Dec. 31,				
			2017	2016	2015	2014	2013
Assets							
Cash and cash equivalents	11%	3%	433	235	323	249	255
Current investments	-10%	0%	1	7	1	1	1
Trade accounts receivable	9%	3%	520	504	460	495	345
Short-term loans to related parties	-9%	2%	294	123	313	343	463
Inventories	3%	1%	155	140	128	136	131
Accrued dividend	-100%	0%	-	16	-	47	47
Other Current Assets	21%	0%	32	23	35	17	12
Total Current Assets	3%	9%	1,433	1,048	1,261	1,288	1,255
Fixed deposits pledged as collateral	8%	0%	43	46	35	41	30
Available-for-sale investments	15%	23%	3,579	3,840	2,586	2,478	1,789
Investments in associates	23%	15%	2,358	2,180	1,284	1,021	834
Other long-term investments	15%	6%	955	965	861	740	480
Long-term loans to related parties	39%	0%	30	30	6	6	6
Long-term loans to other persons	0%	0%	-	-	-	-	-
Investment property	6%	2%	233	236	172	174	175
Property, plant and equipment	10%	39%	6,043	5,377	4,405	3,969	3,748
Goodwill	0%	5%	723	723	723	723	723
Intangible asset	-4%	0%	10	12	15	13	13
Deferred tax assets	-13%	0%	23	20	20	21	45
Advance payment for assets	-13%	0%	10	5	13	73	20
Other non-current assets	-5%	0%	6	6	5	12	8
Total Non-Current Assets	12%	91%	14,013	13,440	10,124	9,271	7,871
Total Assets	11%	100%	15,446	14,487	11,385	10,560	9,127
Liabilities and Shareholders' Equity							
Bank overdrafts and short-term loans	18%	7%	1,032	1,228	1,022	1,123	450
Trade payables	6%	2%	309	287	270	258	233
Current portion: Long-term loan from financial institutions	18%	5%	722	504	518	372	312
Current portion: Liabilities under finance lease contracts	16%	0%	10	7	4	3	5
Short-term loans from related parties	15%	5%	814	602	363	420	406
Short-term loan from other persons	-4%	1%	207	212	275	269	252
Payable from acquisition of assets	-2%	0%	36	63	36	22	40
Share subscription payable	0%	0%	-	-	-	5	0
Accrued doctor fee	3%	1%	170	152	151	144	146
Accrued expenses	7%	0%	71	56	70	57	50
Accrued dividends	-8%	0%	16	15	12	11	24
Income tax payable	2%	1%	100	88	100	81	90
Advance received from social security office	0%	0%	-	29	-	40	-
Other current liabilities	-4%	0%	48	47	43	43	59
Total Current Liabilities	11%	23%	3,534	3,291	2,863	2,848	2,068
Long-term loan from financial institutions	16%	11%	1,685	1,017	791	612	798
Liabilities under finance lease agreements	6%	0%	14	15	13	14	10
Liabilities under operating lease agreements	5%	0%	71	68	64	60	56
Deferred tax liabilities	7%	4%	626	730	517	504	450
Employee benefit obligations	7%	1%	134	116	113	98	94
Other non-current liabilities	24%	0%	14	21	7	10	5
Total Non-Current Liabilities	12%	16%	2,545	1,967	1,505	1,299	1,413
Total Liabilities	12%	39%	6,079	5,258	4,369	4,147	3,481
Issued and paid-up share capital	1%	9%	1,320	1,316	1,261	1,258	1,258
Premium on share capital	6%	15%	2,377	2,346	1,846	1,818	1,818
Retained Earnings	0%	0%					
Appropriated – legal reserve	9%	1%	132	132	131	108	88
Unappropriated	25%	13%	1,953	1,542	1,256	917	649
Other components of equity	21%	8%	1,232	1,464	798	756	471
Equity attributable to the company	10%	45%	7,013	6,800	5,292	4,856	4,284
Non-controlling interests	12%	15%	2,354	2,430	1,724	1,556	1,362
Total equity	11%	61%	9,367	9,229	7,016	6,413	5,646
Total Liabilities and Shareholders' Equity	11%	100%	15,446	14,487	11,385	10,560	9,127

In view of financial position, BCH has smaller asset size with 12,674 MB in 2017 being classified into 3,364 MB current assets or 27% of total assets and 9,310 MB non-current assets or 73% of total assets. VIBHA has 15,446 MB being classified into 1,433 MB current assets or 9% of total assets and 14,013 MB or 91% of total assets. BCH has higher current assets so it is better than VIBHA because of higher liquidity. In term of investment, BCH mostly invest in current investment but VIBHA invest in long term investment. BCH is better than VIBHA because of high liquidity although BCH generated a bit lower interest income than VIBHA about 50 MB in 2017. In addition trade account receivable of BCH are quite high as 1,054 MB or 8% of total assets that mainly comes from Social Security Office and National Health Security Office with 78% less than 3 months. In 2017, BCH already has submitted the letter to Social Security Office which was during the process to follow up the collectability of the remaining that certain subsidiaries had partial receipt. The majority portion of non-current assets of BCH are Property Plant and equipment about 7,744 MB or 61% of total assets because it is normal hospital operation to initially generate assets to serve their customers. The higher fixed assets creates the higher sales to the hospital. VIBHA has lower fixed assets that are reported of 6,043 MB or 39% of total assets. Besides, PPE of VIBHA increase about 10% over the years, BCH has constant PPE over the years as CAGR only 1% that show currently VIBHA highly invest in fixed assets. For BCH, they had large investment in WMC in 2013. However, BCH will plan to invest for 5 projects in 2018-2020 so their PPE will increase in the following years. AS the higher PPE of two companies, it reflects that BCH and VIBHA apply expansion strategy. In term of liabilities, BCH has larger size than VIBHA. BCH reported 6,762 MB or 53% of total assets and VIBHA reported 6,079 MB or 39% of total assets in 2017. BCH had high liabilities in 2017 because they would invest in 5 projects in next years but they have low amount of short term debt because of sufficient cash in operation. For VIBHA, they had high Bank OD for using in operation and high long term debt for investing in new projects. So BCH is better capital management than VIBHA because BCH has lower default risk due to higher portion of an extended payback period of more than one year with lower interest expenses when comparing with VIBHA.

Table 1.9 Summary of Cash flow - Compare with Peer

Compare with Peer					
BCH	Year Ending Dec. 31,				
Statements of Cash Flows (Million Baht)	2017	2016	2015	2014	2013
Cash Flows from Operations	1,814	1,701	1,338	823	1,394
Cash Flows from Investing	(2,483)	(729)	(857)	(605)	(2,258)
Cash Flows from Financing	642	(1,134)	(272)	(736)	1,255
Net Change in Cash	(27)	(163)	209	(519)	391
Cash and cash equivalents at 1 January	513	675	466	985	594
Cash and cash equivalents at 31 December	486	513	675	466	985
VIBHA					
Statements of Cash Flows (Million Baht)	2017	2016	2015	2014	2013
Cash Flows from Operations	1,376	1,250	1,304	950	979
Cash Flows from Investing	(1,407)	(1,908)	(874)	(1,047)	(1,156)
Cash Flows from Financing	228	570	(355)	91	245
Net Change in Cash	197	(88)	74	(7)	69
Cash and cash equivalents at 1 January	235	323	249	255	187
Cash and cash equivalents at 31 December	433	235	323	249	255

When comparing the statement of cash flow, Cash flow from operations of BCH presented as 1,814 MB in 2017 which was higher than VIBHA as 1,376 MB that mainly comes from high net profit. BCH and VIBHA have positive CFO over the year that shows the ability of the companies to generate cash from operation to support other activities. For BCH, the mainly increasing comes from the net profit about 62% of CFO in 2017 which generate cash to the company from 2013 to 2017. In addition, the second largest part of CFO is depreciation and amortization about 30% of CFO that is quite constant over the year aligned with PPE which is quite constantly. For VIBHA, the mainly increasing comes from the net profit about 77% of CFO which generate cash to the company from 2013 to 2017. In addition, the second largest part of CFO is depreciation and amortization about 28% of CFO that is higher over the year aligned with PPE which increase from their projects.

BCH and VIBHA have negative CFI is a good sign that the company more invests in building and equipment for their new hospital projects to support increasing of sales. Besides, after paying debt and dividend they have cash to invest in temporary investment to gain interest income. However, BCH has higher amount of CFI due to larger size.

BCH and VIBHA have positive CFF because they increase long-term loans to invest in their projects and decrease from repayment loans and paying the dividend

to shareholders and repay loans from financial institutions due to having cash from operation, CFO.

In conclusion, BCH has net change in cash quite low with negative sign in 2017 because they bring almost cash from operation to use in investing. VIBHA has net change in cash quite high in 2017 due to lower in investing. However, BCH has higher cash than VIBHA that is sufficient for their operation so BCH doesn't need to borrow more in short term loan. VIBHA has high amount of Bank overdrafts and short-term loans because they don't have enough cash for operation. Therefore, BCH can better manage cash than VIBHA.

1.6.1 Trend Analysis

Revenue from hospital operation of BCH increases over the year as well as cost of them. The increasing of revenue is higher than the increasing of cost so the net profit raise over the years especially in 2017 about 18%. Therefore, BCH always has good performance.

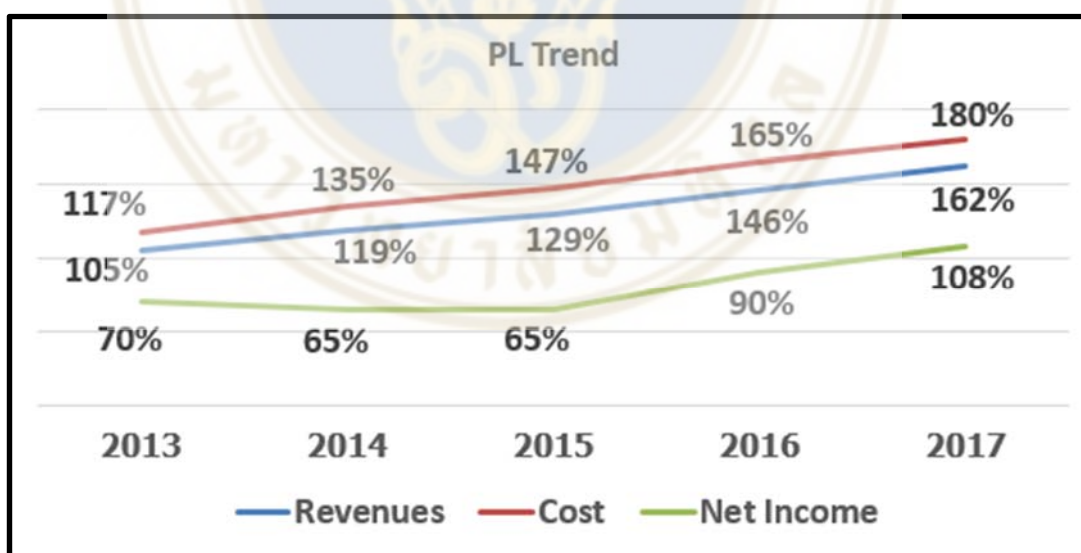


Figure 1.22 Profit and Loss Trend

In term of financial position of BCH, in assets side the major items are cash and cash equivalent and PPE as 16% and 61% respectively. Cash and cash equivalent increase over the years especially in 2017 which increase almost double of the base year

because BCH plan to pay for their new projects. For PPE, it also increase about 56% of the base years which mainly come from gradually receive assets from their new projects. In liability side, the main items are interest bearing debt which about three times of base year because BCH borrows for its new projects. Moreover for equity side, it mainly comes from unappropriated retained earning which increase over the years from its good performance.

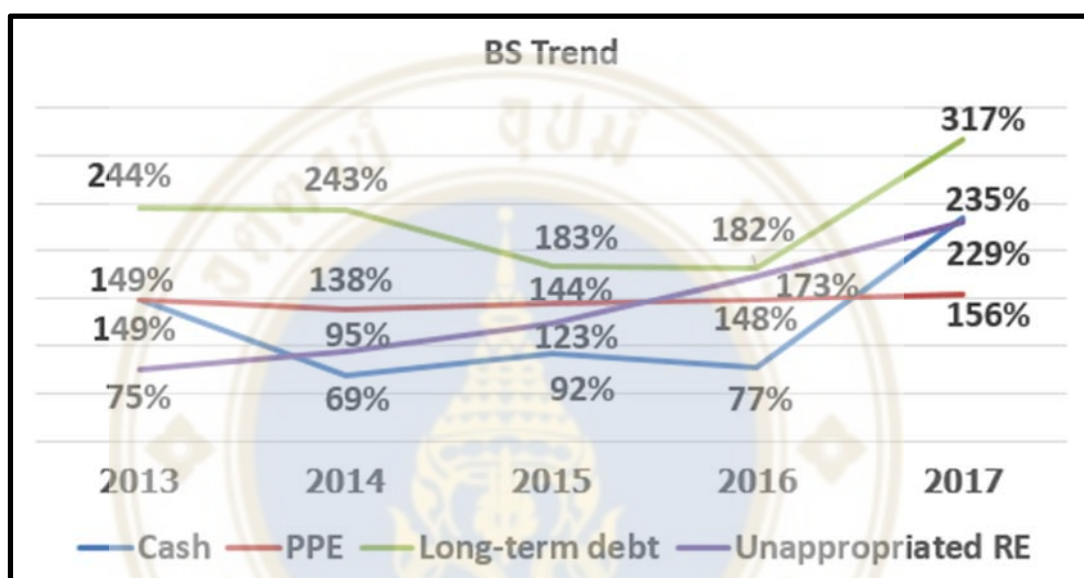


Figure 1.23 Financial position Trend

1.6.2 Financial Ratio: Return

**Table 1.10 BCH's financial ratio – Return
Financial Indicators for BCH**

	2017	2016	2015	2014	2013
ROA	10.80%	10.35%	8.12%	8.30%	9.65%
Profit Margin (PM)	16.82%	16.01%	14.02%	14.94%	17.10%
Tax Change (TC)	1.00	1.00	1.00	1.00	1.00
Tax Management (TM)	1.03	1.05	1.03	1.05	1.03
Total Asset TurnOver (TATO)	0.62	0.62	0.56	0.53	0.55

	2017	2016	2015	2014	2013
ROE	22.31%	21.35%	17.44%	18.03%	19.22%
ROA	10.80%	10.35%	8.12%	8.30%	9.65%
Capital Structure Leverage (CSL)	2.07	2.06	2.15	2.17	1.99

Turnover Ratios	Common Size 2017					
		2017	2016	2015	2014	2013
Total Asset TurnOver (TATO)	100%	0.62	0.62	0.56	0.53	0.55
Accounts Receivable TurnOver (ARTO)	8%	7.08	6.28	5.30	5.71	6.02
Inventory TurnOver (ITO)	2%	24.42	23.28	21.75	21.50	20.95
Fixed Assets TurnOver (FATO)	61%	0.96	0.89	0.82	0.74	0.76
Accounts Payable TurnOver (APTO)	4%	11.22	11.66	11.54	10.00	9.51

**Table 1.11 VIBHA's financial ratio – Return
Financial Indicators for VIBHA**

	2017	2016	2015	2014	2013
ROA	8.14%	7.63%	9.56%	8.86%	9.61%
Profit margin (PM)	18.91%	17.31%	19.23%	17.55%	17.73%
Tax Change (TC)	1.00	1.00	1.00	1.00	1.00
Tax Management (TM)	1.08	1.02	1.04	1.05	1.04
Total Asset TurnOver (TATO)	0.40	0.43	0.48	0.48	0.52

	2017	2016	2015	2014	2013
ROE	13.10%	12.16%	15.62%	14.46%	15.54%
ROA	8.14%	7.63%	9.56%	8.86%	9.61%
Capital Structure Leverage (CSL)	1.61	1.59	1.63	1.63	1.62

Turnover Ratios	Common Size					
		2017	2016	2015	2014	2013
Total Asset TurnOver (TATO)	100%	0.40	0.43	0.48	0.48	0.52
Accounts Receivable TurnOver (ARTO)	3%	11.69	11.63	10.98	11.31	13.31
Inventory TurnOver (ITO)	1%	27.39	27.84	26.29	24.28	24.13
Fixed Assets TurnOver (FATO)	39%	1.05	1.15	1.25	1.23	1.19
Accounts Payable TurnOver (APTO)	2%	13.61	13.45	13.12	13.24	12.61

In term of ROA, as if BCH has no debt and still pay taxes at the effective tax rate, out of 100 Baht of total assets, ROA would generate net income of 10.80 Baht which is higher than VIBHA as 8.14% ROA. The reasons shows that BCH has higher total asset turnover (TATO) as 0.62 than VIBHA as 0.40 because BCH generate higher revenues with lower total assets. BCH has better operating performance without the effect from its capital structure.

By comparing ROE, BCH's ROE is 22.31%, meaning that out of 100 Baht of their equity investment, shareholders would get a return back in form of net income of 22.31 Baht which also greater than VIBHA. The factors of BCH that generate higher ROE are higher ROA that means BCH can generate higher return from their assets when compare with VIBHA. The other turnover ratios that impact to financial position of two companies are fixed assets turnover (FATO) with high common size. FATO of BCH as 0.96 is a bit lower than VIBHA as 1.05 because BCH has greater PPE than VIBHA.

1.6.3 Financial Ratio: Risk

**Table 1.12 BCH's financial ratio - Risk
Financial Indicators for BCH**

Liquidity risk	2017	2016	2015	2014	2013
Current Ratio (CR)	1.48	0.74	0.70	1.07	1.25
Quick Ratio (QR)	1.39	0.66	0.63	0.97	1.16
Receivable Collection Period (RCP)	52	58	69	64	61
Inventory Conversion Period (ICP)	15	16	17	17	17
Payables Deferral Period (PDP)	33	31	32	37	38
Cash Conversion Cycle (CCC)	34	42	54	44	40

Solvency risk	2017	2016	2015	2014	2013
Debt -to-Equity ratio (DE)	92.9%	76.7%	92.5%	90.1%	93.3%
Debt-to-Total Assets ratio (DTA)	43.4%	38.7%	43.0%	42.1%	42.3%
Interest coverage ration (ICR)	11.2	8.0	6.2	6.2	9.5

Table 1.13 VIBHA's financial ratio – Risk

Financial Indicators for VIBHA

Liquidity risk	2017	2016	2015	2014	2013
Current Ratio (CR)	0.41	0.32	0.44	0.45	0.61
Quick Ratio (QR)	0.27	0.23	0.27	0.26	0.29
Receivable Collection Period (RCP)	31	31	33	32	27
Inventory Conversion Period (ICP)	13	13	14	15	15
Payables Deferral Period (PDP)	27	27	28	28	29
Cash Conversion Cycle (CCC)	18	17	19	20	14

Solvency risk	2017	2016	2015	2014	2013
Debt -to-Equity ratio (DE)	48.6%	39.6%	43.5%	44.8%	40.5%
Debt-to-Total Assets ratio (DTA)	29.5%	25.2%	26.8%	27.2%	25.1%
Interest coverage ration (ICR)	9.22	9.97	11.71	10.53	11.98

In view of liquidity risk, BCH's current ratio and quick ratio are greater than VIBHA so BCH is higher liquidity because they has higher current assets than VIBHA. However, BCH's CCC is higher than VIBHA due to more account receivables and inventories. Although the payables of BCH are a bit higher than VIBHA. The BCH's inventories and payables are closed to VIBHA. The major components of CCC are receivables. Mostly, account receivables of BCH are Social Security Office and National Health Security Office that are credibility to pay back. Moreover, the main items of inventories is medicine and medical supplies which is quite high turnover. For solvency risk, BCH's DE ratio and DTA ratio are higher than VIBHA due to high debt in 2017 for investment in 5 new projects. However, BCH has ICR as 11.2 which is greater than VIBHA as 9.22 that shows the higher ability to pay back their interest expenses.

Table 1.14 BCH's forecast financial ratio 2018-2022
Forecast Financial Ratio 2018-2022

Ratio	2017	2018F	2019F	2020F	2021F	2022F
Profitability						
Operating profit margin	20%	19%	22%	26%	28%	29%
Net profit margin	15%	15%	17%	20%	22%	23%
ROA	10.80%	10.84%	12.94%	16.83%	19.66%	21.78%
Profit Margin (PM)	16.82%	16.65%	18.23%	21.66%	23.39%	24.24%
Tax Change (TC)	1	1	1	1	1	1
Tax Management (TM)	1.03	1.02	1.02	1.01	1.01	1.01
Total Asset TurnOver (TATO)	0.62	0.64	0.70	0.77	0.83	0.89
ROE	22.31%	19.71%	21.90%	27.70%	29.06%	28.19%
ROA	10.80%	10.84%	12.94%	16.83%	19.66%	21.78%
Earning Leverage (EL)	0.91	0.92	0.92	0.95	0.96	0.97
Capital Structure Leverage (CSL)	2.07	1.98	1.83	1.74	1.54	1.34
Liquidity & Financial Leverage						
Current Ratio (CR)	1.48	0.85	0.89	0.99	1.11	1.25
Quick Ratio (QR)	1.39	0.85	0.89	0.98	1.11	1.25
Debt -to-Equity ratio (DE)	92.9%	62.0%	61.6%	45.3%	25.3%	8.4%
Debt-to-Total Assets ratio (DTA)	43.4%	33.8%	33.7%	27.3%	17.5%	6.7%
Interest coverage ration (ICR)	11.2	12.3	13.2	19.1	24.4	29.0

1.6.4 Forecast financial ratio 2018-2022

1.6.4.1 Profitability margins improve by solid operations

According to the forecast financial ratio 2018-2022, the operating profit margin and net profit margin continuously increase because of the strategies to create the solid operations. Especially, the utilization rate of OPD and IPD raise over the years of KH and KV from improving the standard and quality services and expansion new hospitals. Additional quota of social security scheme for existing and new hospitals influent to create higher performance. The better performance from WMC also enhance the BCH the higher operating profit margin and net profit margin. Moreover, the macro environment favors BCH which generate improving in solid operations.

1.6.4.2 Stronger financial ratio for return and risk ratios

BCH has remained strong financial performance as ROA and ROE increasing over the years. In term of ROA, the main item to support the higher ROA is profit margin (PM). The profit margin raise because the higher revenue is more than increasing in cost. BCH can increase the utilization rate as well as efficiently control its cost. The current ratio and interest coverage ratio of BCH is stronger than the

competitor. For the outlook of the company's financial position, BCH is expected to become much more solid with higher lower risks from debt level. Although the current ratio is expected to a bit lower which come from the higher in non-current asset from expansion strategies. In term of debt ratio, they are expected to decrease over the years because of the lower interest-bearing debt level. In addition the interest coverage ratio tends to increase over the years. With the higher performance, BCH can generate more cash from operating activities to repay debt and interest expense.

1.7 Investment Summary

We issue a Hold recommendation on Bangkok Chain Hospital Public Company Limited (BCH) with a one year target price of THB 18.11 using the Discounted Free Cash Flow to Firm Method. This offer a 3% upside from its closing price of THB 17.50 on 20 November 2018. Nevertheless, we expect BCH to grow from its core business and hit the new high record, WMC has turned to report a strong profit, growth from investments in new hospitals which most of them start services in 2020.

1.7.1 Profit will hit new high record in 2019

Revenue is expected to rise by 14%. The expectation come from both higher OPD and IPD patients. The number of cash patient local is expected to rise 3.9% based on the company CAGR. The bed day's utilization rate will increase from 40% in year 2018 to 42% in year 2019. The price for OPD and IPD are expected to be in line with Thailand inflation which is 2.5%. The quota for social security patients will increase by 57,000 or 4.8% from BCH's three main hospitals at Prachachuen, Bangkae and Rattana Thibet. Moreover, the number of Thai patients will increase along with domestic consumption which remains strong and serve as an important key to drive domestic economy. The 15 months of annual check-up services for personnel under the Ministry of Education start in 4Q18 will also boost revenue for full year in 2019.

1.7.2 Rising of World Medical Center (WMC) performance

WMC made its first ever quarterly net profit in 2Q18, it took five years since it opened and the revenues jumped 78% with a 118% year over year increase in foreign patient revenues and a 33% year over year increase in Thai patient revenues. The improvement mainly come from the increase in utilization rate of IPD. The foreign patients also make significant impact as the hospital can charge higher price than Thai patients. BCH also works with agents to bring in foreign patients which will further strengthen the revenue of WMC. The revenue portion from WMC is contribute higher from 6.40% in 2016 to 7.82% in 2017. WMC is likely to generate higher margins than its mid- and low-end hospitals as it focus more on foreign patients after recent specialized clinics are build.

1.7.3 Open Kasemrad hospital Ramkhamhaeng in Q4 2018 and three greenfield hospitals over the next three years

Kasemrad hospital Ramkhamheang (139 IPD beds) is used to transfer patient from Karunvej Sukhapiban 3 (100 beds, close 2018 yearend). The transition has been smooth, result in Kasemrad hospital Ramkhamheang can perceive the revenue immediately. The rest of hospitals are Kasemrad Sa Kaeo (115 beds), Kasemrad Prachiburi (116 beds) and Kasemrad international hospital (250 beds). These offer the opportunity to receive new patients from both OPD and IPD as well as social security patients. Moreover, the social security scheme patients can increase from 2 new hospitals is expected about 70 thousand people.

1.8 Valuation

1.8.1 Pro Forma analysis

Revenue from hospital operation

The method of calculation the revenues of hospital base on the research from Hospital valuation in emerging countries of MIT and general practice of many private hospitals which shown in the presentations to shareholder meeting and annual reports.

1.8.1.1 Segmentation

The revenue from hospital operation can be decomposed into 2 groups of revenue as revenue from WMC which concentrate on high-end and international patients and revenue from KIH, KH and KV which concentrate on middle to high income patients. Therefore we forecast the revenue of 2 groups which base on different assumptions for quantity and price.

Table 1.15 Revenue by segments

1. Revenue Breakdown					
1.1 Revenue Breakdown by type of patients					
		Average portion	2015	2016	2017
WMC		6.54%	5.40%	6.40%	7.82%
Kasemrad		82.89%	83.80%	83.40%	81.46%
Karunvej		10.57%	10.80%	10.20%	10.72%
Source from BCH Presentation in Analyst conference Y2015-Q2'2016					
1.2 Revenue Breakdown by type of patients					
WMC		Average portion	2015	2016	2017
Cash patient-(Walk-in) - %	Utilize rate by cate	100%	100%	100%	100%
	OPD-TH	81%	44%	42%	39%
	OPD-FN	19%	10%	11%	9%
	IPD-TH	65%	29%	26%	32%
	IPD-FN	35%	17%	21%	20%
Cash patient-(Walk-in) - MB			2015	2016	2017
	OPD		196	221	272
	IPD		115	196	295
Kasemrad & Karunvej		Average portion	2015	2016	2017
Cash patient-(Walk-in) - %		63%	65%	64%	62%
	OPD	36%	38%	36%	36%
	IPD	27%	27%	28%	26%
Social security scheme Universal Coverage		36%	34%	35%	37%
		1%	1%	1%	1%
Cash patient-(Walk-in) - MB					
	OPD	2,125	1,975	2,094	2,306
	IPD	1,562	1,454	1,630	1,603
Social security scheme Universal Coverage		2,328	1,963	2,305	2,717
		63	63	65	62
Source from BCH Presentation in Analyst conference Y2015-2017					

1.8.1.2 Quantity

The patients can be categorized into OPD and IPD. We apply the number of visits per day and bed days to identify capacities of the company after that we calculate utilization rate for OPD and IPD respectively. The first step is calculation historical utilization rate per year of OPD and IPD as the total capacity per year divide with actual number of visits per year or bed year. In term of WMC, we set the benchmark as BH because BH is a premium hospital which mainly serve high-end and international

patients similarly to BCH. Moreover BH was in the mature stage so we assumed that WMC would have the same utilization rate as BH in the future. We collected the past revenue of BH about 20 years ago and found that BH had the stable growth in 2016. BH took about 17 years to mature stage. We assume utilization rate of WMC will be close to BH at the same period. Therefore the target growth of utilization rate of WMC for OPD and IPD are BH's rate and we proportionate of the target growth rate with mature stage of BH, 17 years that come from BH's mature stage as below figure.

Table 1.16 Quantity of WMC

WMC		CAGR	2015	2016	2017							
Cash patient (Walk-in)												
OPD	Number of visits	1.27%	62,000	59,000	64,400							
	Number of visits per day	1.27%	170	162	176							
IPD	bed days	15.05%	4,400	6,100	6,700							
Capacity						2017	2018	2019	2020	2021	2022	
Cash patient (Walk-in)	IPD	Operation	beds			150	150	150	150	150	150	
Utilization rate		Number of beds * 365	365 days									
Cash patient (Walk-in)		Full capacity	CAGR	2015	2016	2017	2018	2019	2020	2021	2022	
OPD*		613,200	1.27%	10%	10%	11%	13%	16%	18%	21%	23%	
IPD-bed days		54,750	15.05%	8%	11%	12%	16%	19%	22%	26%	29%	
		* 20 times per room per day										
		Target Utilization rate compared with BH					2018	2019	2020	2021	2022	
		OPD-TH					64,873	77,582	90,290	102,999	115,708	
		OPD-FN					15,217	18,198	21,179	24,160	27,141	
		IPD-TH					5,536	6,739	7,942	9,145	10,348	
		IPD-FN					3,025	3,682	4,339	4,997	5,654	

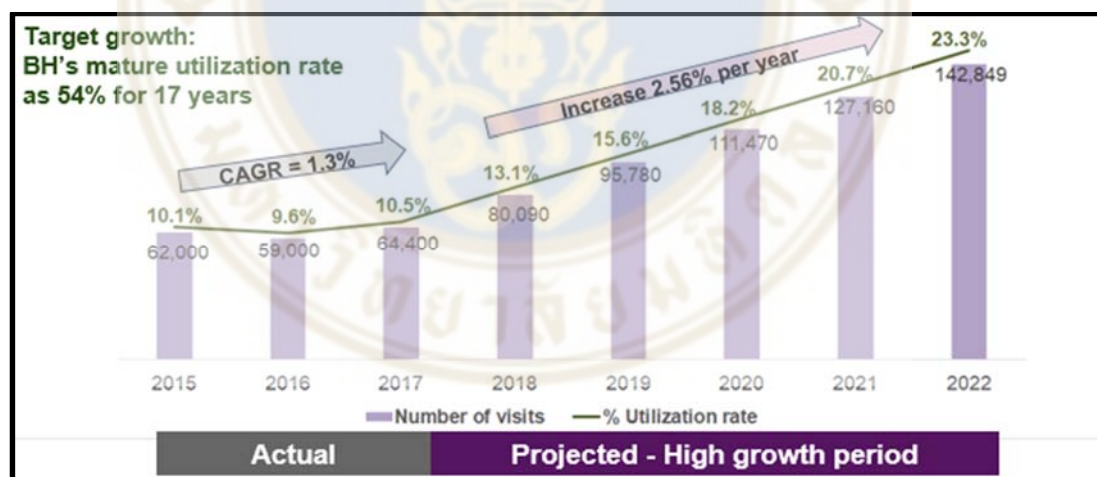


Figure 1.24 Quantity of WMC – OPD

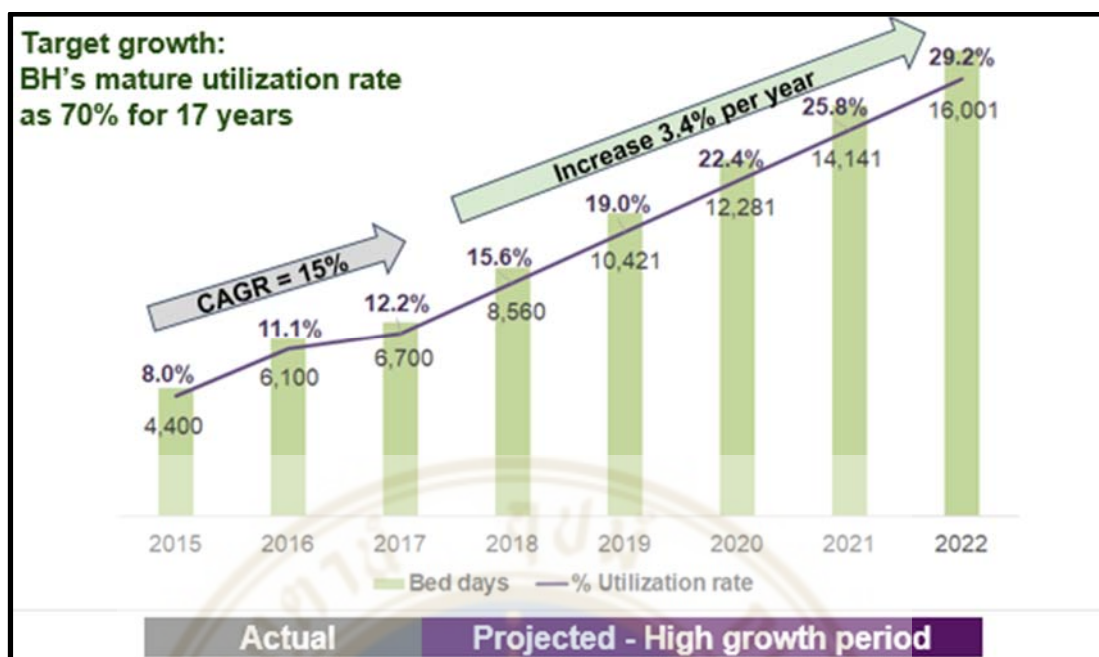


Figure 1.25 Quantity of WMC – IPD

In term of KIH, KH and KV, we divide in to 3 types of patients as OPD-cash patients, IPD-cash patients and Social security scheme. The quantity of OPD-cash patient, we obtain the capacities base on examination rooms and add up the new capacity of 5 new hospitals in each year. After that we calculate the utilization rate and assume the rate to grow as historical CAGR of utilization rate. For IPD-cash patients, we also take into account of opening 5 new hospitals in 2018-2020 so we add up the new capacity (beds) in each year that plan to operate. The quantity of IPD comes from the utilization rate with new capacity that grow up by historical CAGR. For Social security scheme, we collected the announced SC quota as figure below from Analyst Presentation in March 2018 so we found that the additional data is 140 thousand people and add up the new quota of new hospitals which receive social security scheme about 210 thousand people. The additional quota will equally add up to existing quota in forecasting period.

Table 1.17 Quantity of KH & KV

Capacity				2017	2018	2019	2020	2021	2022	SC	Years				
Cash patient (Walk-in)															
OPD	Exam rooms	rooms		330	340	374	447	469	469						
IPD	Operation	beds		2,028	2,063	2,197	2,526	2,682	2,682						
Kasemrad Hospital Ramkhamhang	In Q4 2018	139		39						70,000	5				
Kasemrad Hospital Chiang-Khong	In Q1 2019	30		5											
Kasemrad Hospital Sakaeo: 115 t	In Q1 2020	115		36											
Kasemrad Hospital Prachinburi: 1	In Q2 2020	116		29						140,000	3				
Kasemrad International Hospital \	In Q3 2020	254		30											
Kasemrad & Karunvej				CAGR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Cash patient (Walk-in)															
OPD	Number of visits		3.90%	2,640,000	2,700,000	2,750,000	3,005,000	3,200,000	3,426,290	3,916,752	4,862,149	5,304,515	5,512,580		
IPD	bed days		6.60%	200,500	200,000	240,000	250,000	276,500	299,946	340,635	417,647	472,880	504,274		
Social security scheme															
	Number of registered pers		5.50%	608,561	672,112	681,506	748,089	793,671	825,171	867,171	944,171	1,032,838	1,121,504		
										Quota 140K+New Projects					
										327,833					
Utilization rate															
Cash patient (Walk-in)				Full capacity 17	CAGR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
OPD*				9,636,000	3.92%	27%	28%	29%	31%	33%	35%	36%	37%	39%	40%
IPD - bed days				740,220	6.64%	27%	27%	32%	34%	37%	40%	42%	45%	48%	52%

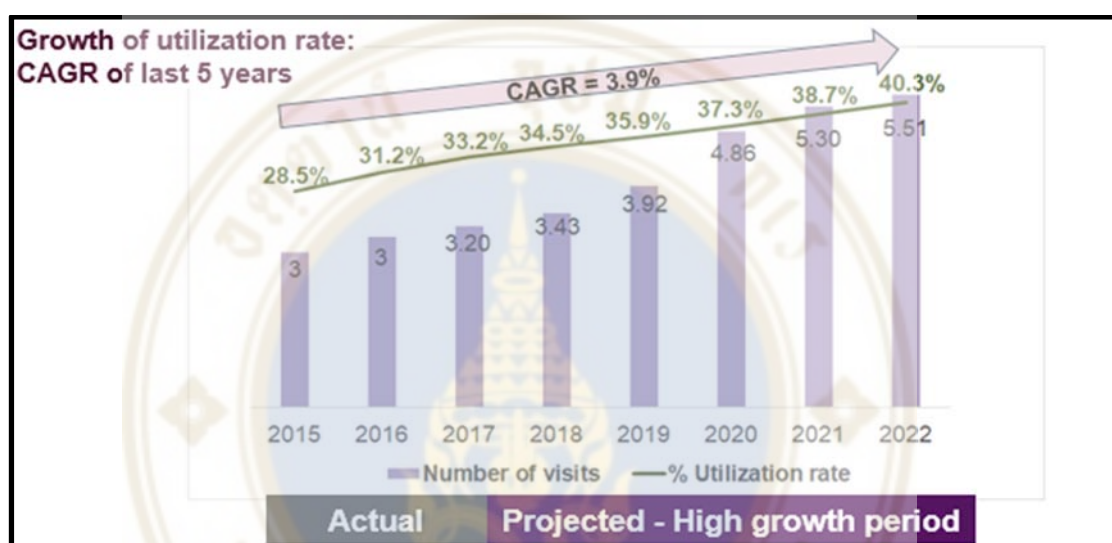


Figure 1.26 Quantity of KH & KV – OPD

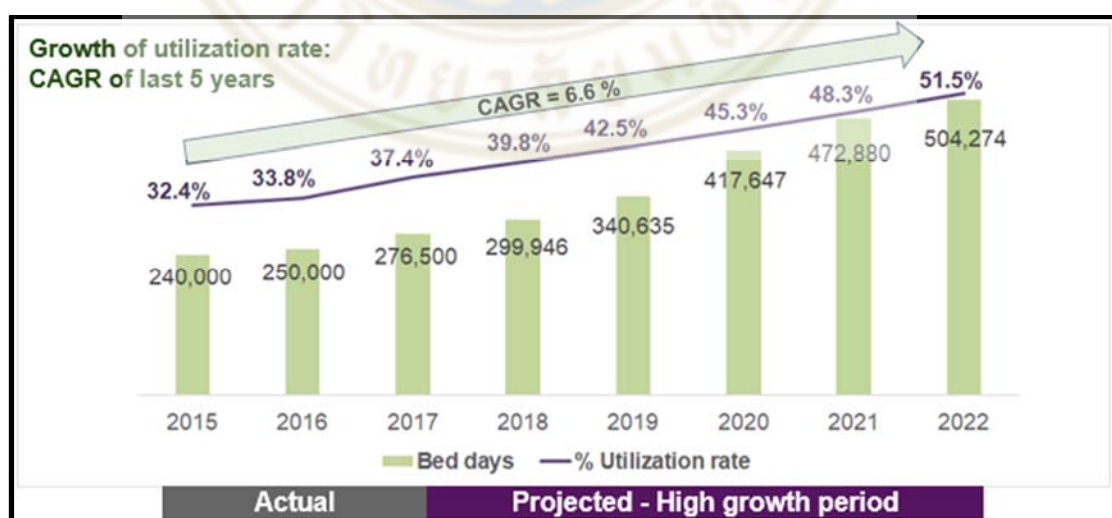


Figure 1.27 Quantity of KH & KV – IPD

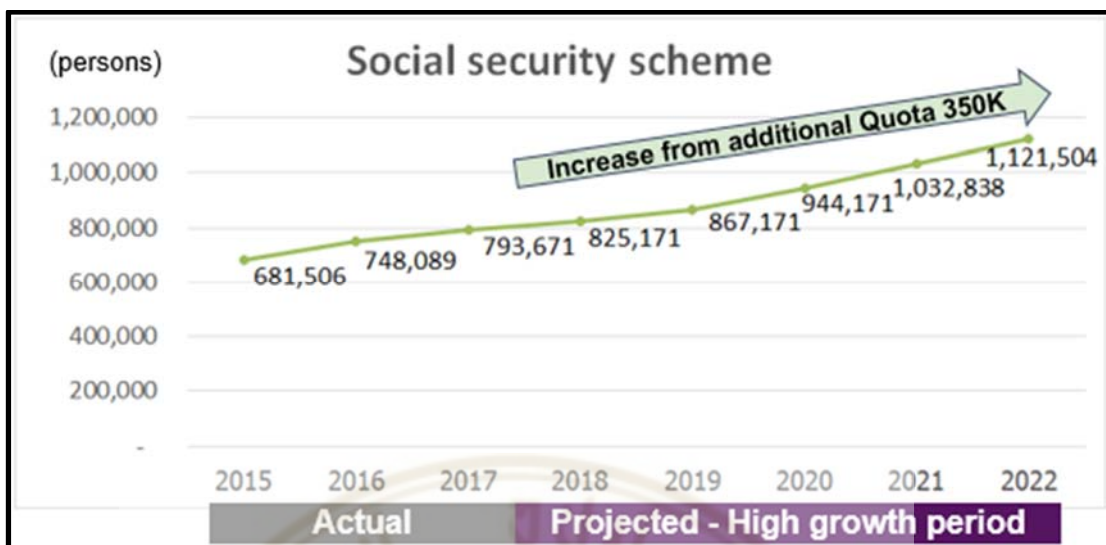


Figure 1.28 Quantity of KH & KV – SS

1.8.1.3 Price

The price of WMC can be decomposed into 4 groups as OPD-Foreign, OPD-Thai, IPD-Foreign and IPD-Thai that we assume to grow by CAGR.

Table 1.18 Price of WMC

3. Price				Forecast: High growth period						
WMC		CAGR	2015	2016	2017	2018	2019	2020	2021	2022
Revenue (unit: MB)										
Cash patient-(Walk-in):										
	OPD-TH	4.54%	2,635	2,720	3,010	3,147	3,289	3,438	3,594	3,752
	OPD-FN	17.31%	6,250	8,180	10,090	11,837	13,886	16,289	19,109	22,417
	IPD-TH	15.91%	19,632	20,889	30,575	35,441	41,081	47,618	55,196	63,980
	IPD-FN	9.41%	51,531	47,530	67,487	73,836	80,783	88,383	96,699	105,796

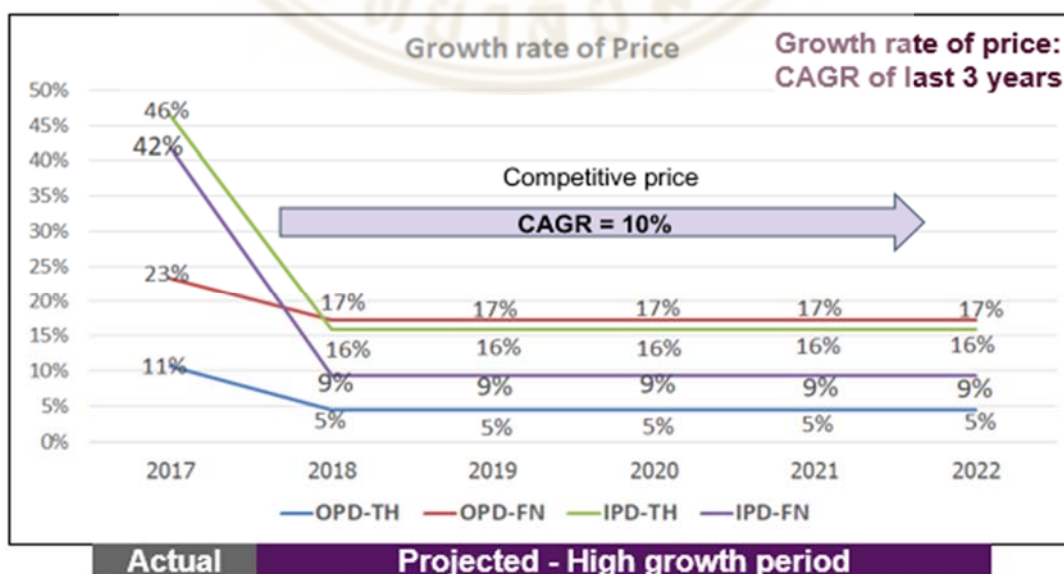


Figure 1.29 Price of WMC

The price of KIH, KH and KV we assume to increase by inflation rate because CAGR is quite low since the company maintain a competitive price excepting social security scheme. We assume the price of social security scheme will be stable for conservative method because of limited budget allocation to the hospitals in the scheme by the Social Security Office (SSO).

Table 1.19 Price of KH & KV

Kasemrad & Karunvej		2015	2016	2017	2018	2019	2020	2021	2022
Revenue (unit: MB)									
Cash patient-(Walk-in):	Inflation rate	2.50%							
	OPD	0.11%	718	697	721	739	757	776	795
	IPD	-1.45%	6,058	6,521	5,797	5,942	6,091	6,243	6,399
Social security scheme:		5.92%	2,881	3,081	3,423	3,423	3,423	3,423	3,423

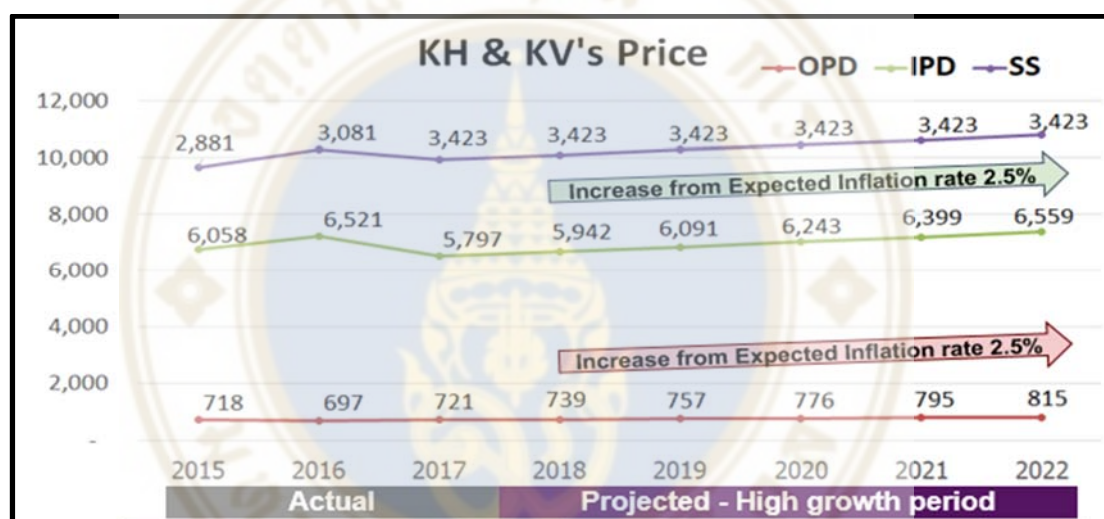


Figure 1.30 Price of KH & KV

The forecasted revenue of all types of patient would come from quantity multiply with price as below figures. The forecasted revenues have CAGR of 11.66% which quite reasonable since it is in range of the management expectation as 10-15% from 2018-2022 in annual report 2017.

Table 1.20 BCH's Forecast revenue from hospital operation

3. Revenue: Volumn*Price			Forecast				
Revenue (unit: MB)	CAGR	2017	2018	2019	2020	2021	2022
Cash patient-(Walk-in): Times of services							
OPD-WMC	25.1%	272	384	508	655	832	1,043
OPD-KH	11.8%	2,306	2,530	2,965	3,773	4,219	4,494
IPD-WMC	27.4%	295	420	574	762	988	1,260
IPD-KH	12.8%	1,603	1,782	2,075	2,607	3,026	3,308
Social security scheme: Number of registered person	5.9%	2,717	2,825	2,968	3,232	3,535	3,839
Total Revenue	11.66%	7,193	7,941	9,090	11,029	12,600	13,944

1.8.1.4 Cost from hospital operation

Cost from hospital operation can be divided into 2 types as variable and fixed cost. Medical and supply costs and Doctor Fee are classified to variable cost which appropriately grow with percentage of revenue from hospital operations. The remaining cost are classified into fixed cost because they don't change with an increase or decrease in the number of services. For personal expenses, it relates to personnel including salary, benefits, trainings, and payroll taxes incurred by the organization during the reporting period. The mainly item is salary of hospital staffs. Therefore forecasted personal expenses come from growth of salary rate increase in Thai at 5.5% from Willis Towers Watson who conducted a survey in Thailand with key industries. The other costs are depreciation and amortization, Utility expenses and other. For depreciation and amortization, we use growth rate as a percentage of PPE and other costs use inflation rate.

Table 1.21 BCH's Forecast cost from hospital operation

1. Cost of hospital operations Breakdown												
1.1 Cost of hospital operations Breakdown by nature												
	CAGR	Methods	sumptio	2014	2015	2016	2017	2018	2019	2020	2021	2022
Variable Cost												
Medical and supply costs	6%	% of Revenues from hospital operations	19%	1,081	1,092	1,247	1,347	1,530	1,751	2,124	2,427	2,686
Doctor fee	5.95%	% of Revenues from hospital operations	19.74%	1,098	1,130	1,276	1,384	1,568	1,795	2,178	2,488	2,753
Fixed Cost												
Personal expenses	8%	Salary rate increase in Thai	5.5%	916	1,054	1,139	1,244	1,313	1,385	1,461	1,542	1,626
Depreciation and amortization	6%	CAGR > % of PPE	6%	346	369	412	430	467	540	571	581	591
Utility expenses	1%	Expected Inflation Rate	2.50%	138	144	176	141	145	148	152	156	160
Other	38%	Expected Inflation Rate	2.50%	91	200	224	330	338	347	355	364	373
Total	7%	Expected Inflation Rate	9%	3,670	3,989	4,472	4,877	5,360	5,966	6,842	7,558	8,190

1.8.2 Discounted cash flow

The valuation method that was used to obtain the value per common share of THB 18.11 was the discounted free cash flow to firm. The value of operating assets was gained from this method and adjusted with net debt to arrive at equity value.

This method requires many factors which consist of FCFF, growth rate, WACC and time period. It takes into account long term perspective and time value of money. DCF method is suitable for BCH since BCH's cash flows are ready, stable, and predictable and will continue for a specified time period. BCH also has high growth prospects so it appropriately reflects the free cash flow value to firm. There are 4 strategies to support their growth which consist of enhancement of internal process and hospitals' facilities, upgrade of hospitals in the strategic locations, expansion both local

and international through the construction of the 5 new hospitals from 2018 to 2020 and strategic acquisitions and Re-branding of the existing hospital to capture more market segmentations.

For value of operating assets we prepare pro forma statement by deep down in detail of mainly items as revenue and cost from hospital operation. The forecast is total 5 years from 2018 to 2022 based on expectation of high growth period from applying 4 strategies according to management assertion which we assume it is an opportunities of BCH to expand their hospital to gain more market share and enhance their revenue of high-end and international patients under WMC brand. Therefore we assume the terminal value using the Dividend Discounted Model (DDM) with constant growth rate after 2023 onwards to reflect normal business growth of the industry.

1.8.2.1 Period

We assume that BCH should apply Three-stage growth model in valuation because the company has high growth period at about 11.66% from expansion new hospitals and enhance their revenue under WMC brand that is quite high so BCH should have transition period before it drop to be constant period.

In term of analyses period, we assume to be total 5 years from 2018 to 2022 based on expectation of applying the strategies according to management assertion which are an opportunities of BCH to expand their hospital to gain more market share and enhance their revenue of high-end and international patients under WMC brand. In addition, this period also align with the growth period of 10 hospitals which have highest market capitalization in the Stock Exchange of Thailand.

In term of transition period, we collected the data of 10 hospitals to see the trend of each hospital and we found that the average of transition period is about 9 years before they were mature stage.

Management assertion to growth of revenue 10-15% of 5 years from 2018-2022 in Annual report'17																				
Business Trend																				
The Company sets goals in accordance with the strategic plan to increase revenue's growth at the rate 10-15 percent as well as to increase net profit margin to be at the level 12-15 percent per annum from 2018-2022. To achieve the target, the Company has strategic plan as follows:																				
<ol style="list-style-type: none"> 1. The enhancement of internal process and hospitals' facilities. 2. The upgrade of hospitals in the strategic locations to be the patients' referral centers. 3. Business expansion both local and international through the construction of the new hospitals and strategic acquisitions. 4. Re-branding of the existing hospital in order to capture more market segmentations. 																				
Our research of Top 10 market capital of private hospital																				
Period (Years)	BCH	BH	RAM	BDMS	VIBHA	THG	CHG	SVH	NTV	CMR	Avg.									
High growth	5	6	6	5	7	6	4	6	4	4	5									
Transition	Over 8	11	10	9	Over 5	Over 1	Over 1	7	8	Over 2	9									
Growth rate of Revenue's Top 10 market capital of private hospital																				
Years	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
BCH Revenue	11%	13%	9%	12%	6%	14%	-10%	-6%	11%	16%	8%	21%	17%	15%	17%	16%	0%			
BH Revenue	2%	1%	13%	9%	12%	17%	12%	8%	5%	-8%	19%	16%	17%	26%	26%	20%	30%	25%	23%	3%
VIBHA Revenue	6%	7%	10%	8%	14%	149%	14%	19%	10%	15%	12%	25%	5%	-11%	15%	27%	8%	2%	-22%	6%
RAM Revenue	1%	13%	-1%	12%	-6%	12%	12%	14%	3%	15%	8%	20%	11%	20%	19%	14%	11%	2%	-10%	2%
THG Revenue	9%	39%	27%	8%	8%	3%	29%	-30%	-4%	-28%	-9%	12%	-3%	-2%	10%	38%	8%	2%	-11%	-16%
BDMS Revenue	10%	8%	12%	11%	7%	28%	55%	9%	1%	16%	18%	51%	95%	67%	38%	21%	17%	3%	4%	-5%
CHG Revenue	7%	15%	18%	20%	19%	0%														
SVH Revenue	8%	1%	3%	11%	9%	13%	14%	8%	0%	17%	27%	32%	14%	41%	15%	20%	15%	2%	-35%	51%
NTV Revenue	4%	4%	1%	6%	3%	19%	5%	5%	3%	12%	13%	20%	15%	20%	17%	10%	13%	10%	-5%	-24%
CMR Revenue	8%	5%	13%	10%	18%	15%	7%	4%	17%	43%										

Figure 1.31 Period

Source: Annual report BCH 2017 and SEC

1.8.2.2 Weighted Average Cost of Capital

To determine the discount rate of BCH, we calculate WACC by using CAPM model for cost of equity and currently interest rate for cost of debt. For the risk free rate, we assume 10 year government bond yield of 2.82% according to Thai BMA information.

For Beta, We apply the adjusted beta of 0.79 which is use for company's beta. This method is used by Bloomberg. The adjust beta is determined by regression of return on BCH' stock price and return from SETTRI. After we get slope from this regression, the slope is multiply by $\frac{2}{3}$ plus $\frac{1}{3}$ of market beta. The market beta is 1.

In term of the market risk premium of Thailand, we use as 6.92% according to Damodaran's website information. As a result, the cost of equity of BCH is 8.28%. For cost of debt, we obtain by using risk free rate plus credit default spread of company rating. The credit rating for BCH is A- by Tris. The after tax cost of debt is 3.25%. So WACC of BCH is 7.80% for using in DCF model as below figure. Note. There is no preferred stock for BCH.

There are many alternative way to determine the cost of capital as below table. For example, start from cost of debt can be determined using the cost of debt by financial costs and interest-bearing debt information as of Q3 2018. The after tax cost of debt is 1.98%. The other method is announced debenture rate of BCH. Alternative for cost of equity can be own bond yield plus risk premium and DCF model.

For DCF model, we can use Gordon growth and dividend discount method. The own bond yield method use the cost of debt plus market risk premium. The result for cost of equity by this method is $4.06\% + 5.48\% = 9.54\%$

Table 1.22 WACC

Methods of Calculation		Re			Rd		
		1. CAPM			1. Rf + Credit Spread		
		2. Cost of Debt of BCH + MRP			2. int. exp/IBD		
		3. DDM			3. Ask banker		
		Base case					
WACC		Cost of Debt			Cost of Equity		
		Base case	Cost of debt as of Q3 2018	Debenture Yield	BCH'S Beta from SET	Cost of Debt of BCH + MRP	DDM
Cost of Debt	Rf + Credit Spread (A-)	4.07%	2.47%	2.35%	4.07%	4.07%	4.07%
Cost of Equity		8.28%	8.28%	8.28%	8.70%	10.99%	5.48%
Risk-free Rate	10-Year government bond yield, Thai BMA	2.82%	2.82%	2.82%	2.82%	2.82%	2.82%
Beta	Adjusted beta	0.79	0.79	0.79	0.85	0.79	0.79
Market Risk Premium	Damadoran Website, Equity Risk Premium (Jan 2018)	6.92%	6.92%	6.92%	6.92%	6.92%	6.92%
Debt	Interest-Bearing Debt Q3 2018	4,650,584,000	4,650,584,000	4,650,584,000	4,650,584,000	4,650,584,000	4,650,584,000
Market Value of Equity		43,640,590,000	43,640,590,000	43,640,590,000	43,640,590,000	43,640,590,000	43,640,590,000
Share Price	THB per share	17.50	17.50	17.50	17.50	17.50	17.50
Number of Outstanding Shares		2,493,748,000	2,493,748,000	2,493,748,000	2,493,748,000	2,493,748,000	2,493,748,000
Tax Rate		20%	20%	20%	20%	20%	20%
Wd		10%	10%	10%	10%	10%	10%
We		90%	90%	90%	90%	90%	90%
WACC		7.80%	7.68%	7.67%	8.18%	10.24%	9.54%

1.8.2.3 Capital Expenditure

The mainly CAPEX of hospital consist of land, building and medical equipment. We calculate from 2 sources as announced CAPEX budget for 5 new hospitals in Analyst conference with concreted plan and percentage of change in PPE from financial statement as the reinvestment rate of PPE about 3%.

Table 1.23 CAPEX

CAPEX	2017	2018	2019	2020	2021	2022
Property, Plant And Equipments	12,484	13,504	15,325	16,418	17,156	17,926
PPE change		1,020	1,821	1,093	738	771
Reinvestment rate of PPE	3%	444	504	540	564	589
Total Capital Expenditure		1,464	2,325	1,632	1,302	1,360

1.8.2.4 Terminal Value

In term of terminal value, we apply Three Stage Value formula to estimate the terminal value which it calculate by using the constant growth rate from 2023 onward. The constant growth rate is 3% is based on average annual growth of GDP of Thailand and increasing healthcare expenditures in Thailand. The historical 5 and 10 years annual growth of GDP of Thailand are 2.78% and 3.27% respectively. Moreover, the 10 years average increasing healthcare expenditures in Thailand is 3.18%. Thai people have become more health-conscious so they are now willing to spend more on medicals services. The demand for medical services in the private hospitals sector have risen in line with increasing incomes. The terminal value is THB 67,215 million.

Table 1.24 Terminal Value

Terminal Value	
FCFF1	2,537
WACC	7.80%
High Growth	11.66%
Constant Growth Rate	3.00%
High Growth Period	-
Transition Period	9 period from our research
ThreeStageValue	67,215

1.8.2.5 Value of Non-operating assets

The value of non-operating assets is THB 501 million which combine with THB 417 million cash and cash equivalents and THB 84 million current investment. The value of non-operating assets per share is THB 0.20 per share.

Table 1.25 Value of Non-operating assets

Value of Non-operating Assets: Q3 2018	
Cash and cash equivalents	417
Current investments	84
Total	501

1.8.2.6 Valuation Summary

The value of operating assets is THB 49,306 million. Additional with value of non-operating assets of THB 501 million, the value of firm is total THB

49,807 million. With subtraction of debt amount of THB 4,651 million as of Q3 2018, the value of equity is THB 45,157 million and value per share is THB 18.11 combine with the value of operating assets at THB 19.77 and the value of non-operating assets at THB 0.20. The value of debt per share is THB 1.86. When comparing to current share price, the target price has 3% upside, so we issue HOLD recommendation.

Table 1.26 Valuation Summary

Valuation Summary		
Value of Operating Assets	49,306	Enterprise Value from FCFF
Value of Non-operating Assets	501	
Value of Firm	49,807	
Value of Debt	4,651	Interest-bearing Debt as of Q3'18
Value of Equity	45,157	
No. of Shares Outstanding	2,494	
Share Price	18.11	THB per share
Current Share Price	17.50	THB per share (20 Nov 2018)
Upside	Hold	
3%		

1.8.2.7 Rating Criteria

According to the common industry procedure, to provide the recommendation on target stock, we decide based on rating criteria as dividing into 3 categories. Firstly, if the value per stock is upside more than 10% from current price, we issue BUY recommendation. Secondly, if the value per stock is upside in range -10% to 10% so we issue HOLD recommendation. Thirdly, if the value per stock is 10% downside from current price, we issue SELL recommendation

Table 1.27 Rating Criteria

Rating Rules:	
Buy	10% or Greater Upside
Hold	Less than 10% upside and greater than 10% downside
Sell	Lower than 10% downside

1.8.2.8 Sensitivity analysis

To ensure our valuation, we prepare the sensitivity analysis of each variable which consist of WACC, terminal growth rate, high grow rate, high growth period and transition period as below figures to show the potential share price.

Based on the sensitivity analysis, the expected share price is THB 18.11. Referring to the WACC sensitivity, we found the possible range of WACC as 7-9%. The next step is run the sensitivity of other variables based on range of estimated WACC. For other sensitivity, mostly potential prices as over 50% tend to be higher than the target price as green highlight in below figures. Therefore, we can ensure that our valuation is reasonable.

Table 1.28 Sensitivity analysis – WACC

		WACC	
		Share price	18.11
Change Cost of Debt	Rf + Credit Spread (A-)	7.80%	18.11
	Cost of debt as of Q3 2018	7.68%	18.71
	Announced Bond rate	7.67%	18.76
Change Cost of Equity	Base case: BCH's Beta from SET	8.18%	16.44
	Cost of Debt of BCH + MRP	10.24%	10.44
	DDM	9.54%	12.04

Table 1.29 Sensitivity analysis – DCF

Pxd	18.11	WACC				
		5%	6%	7%	8%	9%
g	1%	26.3	20.0	15.8	13.3	10.6
Constant Growth	2%	34.4	24.5	18.5	15.3	11.8
	3%	50.4	31.9	22.7	18.11	13.5
	4%	98.6	46.8	29.6	22.4	15.9
	5%	195.0	61.8	35.2	25.5	17.5
Pxd	18.11	WACC				
		5%	6%	7%	8%	9%
g	10%	48.5	30.7	21.8	17.4	13.0
High Growth	11%	49.7	31.4	22.3	17.8	13.3
	12%	50.4	31.9	22.7	18.11	13.5
	13%	52.0	32.9	23.4	18.7	14.0
	14%	53.1	33.6	23.9	19.1	14.3
Pxd	18.11	WACC				
		5%	6%	7%	8%	9%
High Growth Period	0	50.4	31.9	22.7	18.11	13.5
	1	53.5	33.9	24.1	19.2	14.4
	2	56.6	35.8	25.5	20.4	15.3
	3	59.7	37.8	26.9	21.5	16.1
	4	62.8	39.8	28.3	22.6	17.0
Pxd	18.11	WACC				
		5%	6%	7%	8%	9%
Transition Period	8	48.9	30.9	22.0	17.5	13.1
	9	50.4	31.9	22.7	18.11	13.5
	10	52.0	32.9	23.4	18.7	14.0
	11	53.5	33.9	24.1	19.2	14.4
	12	55.1	34.9	24.8	19.8	14.8

1.9 Investment Risks and Downside Possibilities

We assessed the related risk which would generate downside possibilities for BCH as following;

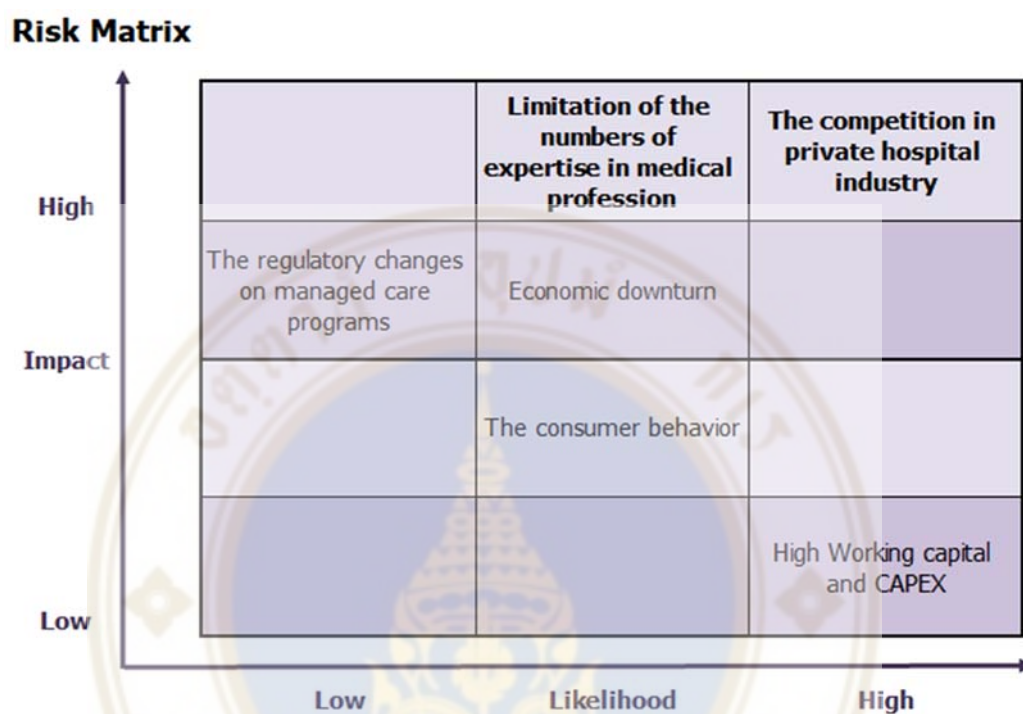


Figure 1.32 Risk Matrix

1.9.1 The competition in private hospital industry

The competition in private hospital continually increase over the years. For the KH and KV brand, BCH maintains their service rate to be competitive price. Moreover, the company provide full range of medical services as center of excellences to create uniqueness and increase competitiveness. As a chained hospital, the company take advantage from cost effective procurement through central procurement department to be competitive cost. In term of the business plan, the company will expand into strategic locations to serve new potential patients.

1.9.2 Limitation of the numbers of expertise in medical profession

The number of medical profession are widely recognized are insufficient to serve the increasing demand. So each private hospitals competes with the high rate for

remuneration that make the costs of human resource to be even higher. As the below figure, the healthcare supply in Thailand in 2016 shown that there are 5 doctors, 24 nurses and 22 beds per 10,000 population in Thailand. Nowadays, the cost of human is considered to be one of the key considerations for private hospital. BCH provide competitive remuneration package as employee's welfare program and training course to retain the physicians and staffs. Moreover, their employees can participate in management discussions so they can be a part of the business growth. Therefore the doctor fee and personal expenses would be increase as we presented in scenario analysis for cost of hospital.

Healthcare Supply in Thailand (2016)		
<i>(Number per 10,000 population)</i>	Thailand	Global*
Doctor	5	14
Nurse	24	30
Bed	22	26

* Data as of 2014
Source: WHO, NESDB and NSO

Figure 1.33 Healthcare Supply in Thailand (2016)

Source: WHO, NESDB and NSO

1.9.3 The regulatory changes on managed care programs

BCH had the revenue from Social Security Scheme about 37% of the total revenue in 2017. Therefore, regulatory changes could affect the business operations. However, the management always monitors the changes and actively engages in the policy setting discussion as well as providing the necessary information to the Government Agencies Committee. In addition the company has the policy to control its expenditures and always evaluate the change of aforementioned managed care program to decrease the downside possibilities which will be effect the company's performance.

1.9.4 Economic downturn

According to GDP of quarter 3 of 3.3% from NESDB which slightly decrease from previous quarter of 4.6%. From the economic outlook of NESDB, it tends to slightly grow to 4.2% in 2019 and 4.5% in 2020. The government announced the new election in 2019 so the possibility that the economic would be downturn is quite low. If it occurs, it would impact to private hospital as lower revenue because the people would tend to choose the public hospital to apply the 30 Baht Health Care Scheme. However, BCH secures their revenue by Social Security Scheme about 37% of total revenue.

1.9.5 The consumer behavior

Normally, the patients tend to choose the hospital with experiences of an individual physician and expertise. Therefore, the new established hospitals would take longer time to generate their reputation for quality of service. BCH has a plan to generate the strong brands for each type of patients such as WMC for high end and international patients and KH and KV for medium and social security scheme patients. The new hospitals also create strong brands for specific types of customers for example Kasemrad Hospital Prachinburi which located near Rojana industrial estate intend to serve social security scheme patients.

1.9.6 High Working capital and CAPEX

The mainly item for working capital of BCH is trade account receivable of BCH which are quite high of 1,054 MB or 8% of total assets that mainly comes from Social Security Office and National Health Security Office with 78% less than 3 months. However, in 2017, BCH already has submitted the letter to Social Security Office which was during the process to follow up the collectability of the remaining that certain subsidiaries had partial receipt. Moreover Social Security Office and National Health Security Office are credibility to pay back.

In term of CAPEX, the projects for new hospital require huge investment in land, building, human resources, medical equipment, medicine, medicine supplies and consumables. The company plan to establish the 5 new hospitals which they finance from debt by issuing company bonds and long-term borrowings from financial

institutions with quite low interest rate. However, current ratio and quick ratio of BCH are quite high because they has higher current assets and BCH's CCC is also high. Moreover, BCH has high ICR as 11.2 that shows the higher ability to pay back their interest expenses.

1.9.7 Scenario analysis

We perform the Scenario analysis to evaluate the mainly 2 risks that would impact the value of BCH. Firstly, the competition in private hospital industry is high likelihood because it is the current situation in private hospital industry and generate high impact to sales of BCH. The second one is the limitation of the numbers of expertise in medical profession which also high impact to cost of BCH and tends to be medium likelihood because BCH provide competitive remuneration package as employee's welfare program and training course to retain the physicians and staffs. Therefore, we identify the driver of sales and costs variables which mainly affect to the target price as the sensitivity spider chart. Refer to the chart, the key variables are growth rate of utilization rate of OPD and IPD for KH and KV and price for all categories excepted WMC's OPD price for Thai patients and cost of three types because they are quite steeply slope due to high range in price gap. With the scenario analysis, the expected share price is THB 18.11.

In term of scenarios analysis, we divide into two scenarios by changing variables of revenues and cost as below figures.

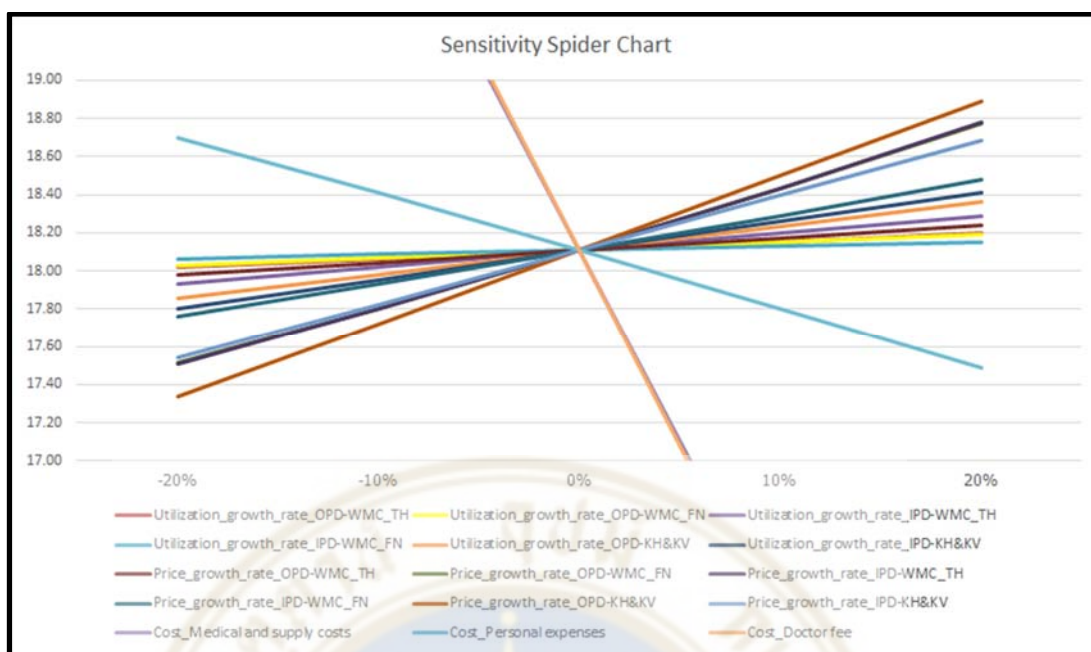


Figure 1.34 Sensitivity Spider Chart

Table 1.30 Sensitivity Spider Chart

% Change from Base	Utilization_growth_rate_OPD-WMC_TH	Utilization_growth_rate_OPD-WMC_FN	Utilization_growth_rate_IPD-WMC_TH	Utilization_growth_rate_IPD-WMC_FN	Utilization_growth_rate_IPD-KH&KV	Utilization_growth_rate_IPD-KH&KV	Price_growth_rate_OPD-WMC_TH	Price_growth_rate_OPD-WMC_FN	Price_growth_rate_IPD-WMC_TH	Price_growth_rate_IPD-WMC_FN	Price_growth_rate_OPD-KH&KV	Price_growth_rate_IPD-KH&KV	Cost_Medical and supply costs	Cost_Personal expenses	Cost_Doctor fee
-20%	18.018	18.026	17.931	18.066	17.854	17.802	17.977	17.517	17.507	17.759	17.337	17.542	22.110	18.702	22.210
-10%	18.063	18.067	18.020	18.087	17.981	17.955	18.042	17.804	17.799	17.931	17.721	17.824	20.109	18.408	20.159
0%	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108	18.108
10%	18.153	18.149	18.196	18.129	18.235	18.261	18.175	18.430	18.434	18.291	18.499	18.395	16.107	17.802	16.057
20%	18.198	18.190	18.285	18.150	18.361	18.414	18.243	18.772	18.778	18.481	18.893	18.685	14.106	17.490	14.006
Range	0.1801	0.1636	0.3533	0.0847	0.5069	0.6126	0.2659	1.2582	1.2708	0.7219	1.5560	1.1424	8.0041	1.2117	8.2047

Table 1.31 Scenario analysis for Revenue

	BUY Upside 77%	BUY Upside 51%	BUY Upside 27%	HOLD Upside 3%	SELL Downside -18%	SELL Downside -40%	SELL Downside -53%
Scenario Summary	Current Values: Best case 3% Best case 2% Best case 1% Base case Worse case 1% Worse case 2% Worse case 3%						
Changing Cells:							
Price_growth_rate_OPD_TH	5%	8%	7%	6%	5%	4%	2%
Price_growth_rate_OPD_FN	17%	20%	19%	18%	17%	16%	14%
Price_growth_rate_IPD_TH	16%	19%	18%	17%	16%	15%	13%
Price_growth_rate_IPD_FN	9%	12%	11%	10%	9%	8%	6%
Utilization_growth_rate_OPD	3.92%	7.00%	6.00%	5.00%	3.92%	3.00%	1.00%
Utilization_growth_rate_IPD	6.64%	10.00%	9.00%	8.00%	6.64%	6.00%	4.00%
Price_growth_rate_KH_OPD	2.50%	5.50%	4.50%	3.50%	2.50%	1.50%	0.00%
Price_growth_rate_KH_IPD	2.50%	5.50%	4.50%	3.50%	2.50%	1.50%	0.00%
Result Cells:							
Share_price	18.11	30.93	26.48	22.23	18.11	14.28	8.20

Table 1.32 Scenario analysis for Cost

	BUY Upside 35%	BUY Upside 26%	BUY Upside 17%	HOLD Upside 3%	HOLD Downside -7%	SELL Downside -16%	SELL Downside -26%
Scenario Summary	Current Values: Best case 3% Best case 2% Best case 1% Base case Worse case 1% Worse case 2% Worse case 3%						
Changing Cells:							
Personal_expenses	5.50%	2.50%	3.50%	4.50%	5.50%	6.50%	8.50%
Medical_and_supply_costs	19%	16%	17%	18%	19%	20%	22%
Doctor_fee	19.744%	16.000%	17.000%	18.000%	19.744%	21.000%	23.000%
Result Cells:							
Share_price	18.11	23.56	22.02	20.46	18.11	16.24	12.98

Based on above scenarios analysis in the above figures, we found that revenue variables seem to be a very critical variable to target price as only small change by 1% affect the rating recommendation. The decreasing revenues by 1%, the target price decrease from THB 18.11 to THB 14.28 as well as changing the recommendation from HOLD to SELL. Therefore it presented that revenues is the key variables to determine the competitiveness in the industry. However, cost of hospital which highly impact to target price are doctor fee, medical and supply cost and personal expenses. The increasing cost of hospital by 1%, the target price decrease from THB 18.11 to THB 16.24 but not changing the recommendation from HOLD. Therefore costs of hospital are less affect when compare with the revenues. In conclusion, decreasing in the drivers of revenue would tend to create downside possibility to share price of BCH.



CHAPTER II

DATA

2.1 Financial statement analysis

2.1.1 Trend Analysis

Table 2.1 Trend Analysis

Income Statement (Million Baht)	2017 CMS	CAGR	2017	2016	2015	2014	2013	Base year 2012
Revenues								
Revenues from hospital operations	100%	9%	162%	146%	129%	119%	105%	100%
Other incomes	1%	2%	163%	150%	131%	123%	145%	100%
Total Revenues	101%	9%	162%	146%	129%	119%	106%	100%
Expenses								
Cost of hospital operations	67%	9%	180%	165%	147%	135%	117%	100%
Distribution costs	2%	29%	628%	457%	337%	385%	176%	100%
Administrative expenses	12%	8%	189%	169%	178%	146%	128%	100%
Total expenses	80%	9%	184%	167%	152%	138%	119%	100%
Share of profit of investment in associate	0.01%	0.00%	0%	0%	0%	0%	0%	0%
Profit (loss) before finance costs and income tax expenses	21%	0%	113%	96%	75%	73%	74%	100%
Finance costs	2%	0%	2163%	2578%	2596%	2546%	1688%	100%
Profit (loss) before income tax expenses	19%	9%	103%	85%	63%	62%	67%	100%
Income tax expense	4%	5%	88%	67%	56%	51%	57%	100%
Net profit (loss)	15%	9%	108%	90%	65%	65%	70%	100%

Balance Sheet (Million Baht)	2017 CMS	CAGR	2017	2016	2015	2014	2013	Base year 2012
Assets								
Cash and Marketable Securities	16%	10%	235%	77%	92%	69%	149%	100%
Accounts Receivable	8%	7%	130%	124%	134%	135%	95%	100%
Inventories	2%	5%	145%	138%	134%	126%	116%	100%
Other Current Assets	0%	-8%	171%	1018%	1011%	791%	254%	100%
Total Current Assets	27%	8%	181%	104%	115%	104%	122%	100%
Restricted deposits	0%	-54%	2%	2%	51%	104%	102%	100%
Property, Plant, and equipment, Net	61%	1%	156%	148%	144%	138%	149%	100%
Goodwill	3%	10%	211%	211%	211%	129%	129%	100%
Intangible assets	1%	17%	249%	248%	212%	152%	116%	100%
Deferred tax assets	0%	4%	150%	148%	195%	173%	121%	100%
Other non-current assets	0%	12%	342%	365%	365%	727%	192%	100%
Total Non-Current Assets	73%	4%	177%	164%	161%	153%	148%	100%
Total Assets	100%	5%	178%	148%	149%	140%	141%	100%

Table 2.1 Trend Analysis (cont.)

Liabilities and Shareholders' Equity	2017 CMS	CAGR	2017	2016	2015	2014	2013	Base year 2012
Short-term borrowings from financial institutions	1%	-25%	31%	17%	237%	145%	129%	100%
Trade accounts payable	4%	3%	165%	149%	128%	122%	144%	100%
Payables for hospital equipment and medical instruments	1%	-5%	83%	37%	46%	52%	105%	100%
Current portion of long-term loans from financial institutions	0%	-100%	0%	0%	7%	7%	9%	100%
Current portion of finance lease liabilities	0%	-100%	0%	129%	621%	672%	724%	100%
Current income tax payable	1%	13%	87%	48%	46%	45%	48%	100%
Accrued expenses	3%	2%	166%	171%	175%	162%	154%	100%
Deferred income	0%	-19%	35%	103%	110%	101%	104%	100%
Other current liabilities	0%	-12%	127%	147%	214%	330%	239%	100%
Total Current Liabilities	18%	5%	148%	170%	198%	117%	118%	100%
Long-term debt	34%	103%	317%	182%	183%	243%	244%	100%
Finance lease liabilities	0%	-100%	0%	0%	67%	398%	721%	100%
Non-current provision for employee benefit	1%	8%	162%	138%	132%	115%	112%	100%
Other non-current liabilities	0%	-19%	49%	27%	26%	40%	143%	100%
Total Non-Current Liabilities	35%	4%	296%	172%	174%	232%	242%	100%
Total Liabilities	53%	4%	221%	171%	186%	174%	180%	100%
Paid-In Capital	20%	0%	125%	125%	125%	125%	125%	100%
Premium on share capital	5%	0%	100%	100%	100%	100%	100%	100%
Retained Earnings		0%						
Appropriated – legal reserve	2%	2%	125%	125%	125%	125%	115%	100%
Unappropriated	14%	25%	229%	173%	123%	95%	75%	100%
Other components of equity		0%						
Total Shareholders' Equity	41%	6%	143%	131%	120%	114%	109%	100%
Non-controlling interests	6%	4%	169%	136%	133%	125%	137%	100%
Total Liabilities and Shareholders' Equity	100%	5%	145%	131%	121%	115%	112%	100%

2.1.3 Growth analysis

Table 2.3 Growth analysis
Historical Financial Statement for BCH

Income Statement (Million Baht)	2017 CMS	CAGR	2017	2016	2015	2014	2013
Revenue							
Revenues from sales	100%	9%	11%	13%	9%	13%	5%
Other incomes	1%	2%	8%	15%	6%	-15%	45%
Total Revenues	101%	9%	11%	13%	9%	12%	6%
Expenses							
Cost of hospital operations	67%	9%	9%	12%	9%	15%	17%
Distribution costs	2%	29%	37%	36%	-12%	119%	76%
Administrative expenses	12%	8%	12%	-5%	22%	14%	28%
Total expenses	80%	9%	10%	10%	10%	16%	19%
Share of profit of investment in associate	0%	0%	-30%	-54%	0%	0%	0%
Profit (loss) before finance costs and income tax expenses	21%	0%	-30%	-54%	0%	0%	0%
Finance costs	2%	0%	-16%	-1%	2%	33%	62%
Profit (loss) before income tax expenses	19%	9%	17%	29%	2%	-1%	-26%
Income tax expense	4%	5%	30%	20%	9%	-10%	-43%
Net profit (loss)	15%	9%	20%	39%	0%	-7%	-30%

Historical Financial Statement for BCH

Balance Sheet (Million Baht)	2017 CMS	CAGR	2017	2016	2015	2014	2013
Assets							
Cash and Marketable Securities	16%	10%	204%	-16%	32%	-53%	49%
Accounts Receivable	8%	7%	6%	-7%	-2%	45%	-5%
Inventories	2%	5%	5%	3%	6%	9%	16%
Other Current Assets	0%	-8%	-83%	1%	28%	212%	154%
Total Current Assets	27%	8%	74%	-9%	11%	-15%	22%
Restricted deposits	0%	-54%	1%	-96%	-51%	2%	2%
Investment in associate	0%	0%	-2%	4%	170%	0%	0%
Investment in subsidiaries	0%	0%	0%	0%	0%	0%	0%
Other long-term investments	0%	79%	11%	2%	-22%	1973%	0%
Long-term loan to related party	0%	0%	-100%	-50%	0%	0%	0%
Investment properties	8%	0%	46%	0%	0%	0%	0%
Property, Plant, and equipment, Net	61%	1%	5%	3%	4%	-7%	49%
Goodwill	3%	10%	0%	0%	63%	0%	29%
Intangible assets	1%	17%	0%	17%	39%	31%	16%
Deferred tax assets	0%	4%	1%	-24%	13%	43%	21%
Other non-current assets	0%	12%	-6%	0%	-50%	279%	92%
Total Non-Current Assets	73%	4%	8%	2%	5%	4%	48%
	0%	0%	0%	0%	0%	0%	0%
Total Assets	100%	5%	20%	0%	6%	0%	41%

Table 2.3 Growth analysis (cont.)

Liabilities and Shareholders' Equity	2017 CMS	CAGR	2017	2016	2015	2014	2013
Short-term borrowings from financial institutions	1%	-25%	88%	-93%	64%	12%	29%
Trade accounts payable	4%	3%	11%	16%	5%	-15%	44%
Payables for hospital equipment and medical instruments	1%	-5%	123%	-18%	-12%	-51%	5%
Other payables	0%	0%	0%	0%	0%	0%	0%
Short-term borrowing from related party	0%	0%	0%	0%	0%	0%	0%
Current portion of long-term loans from financial institutions	0%	-100%	0%	-100%	9%	-22%	-91%
Current portion of debentures	8%	0%	-33%	88%	0%	0%	0%
Current portion of finance lease liabilities	0%	-100%	-100%	-79%	-8%	-7%	624%
Current income tax payable	1%	13%	83%	4%	3%	-6%	-52%
Accrued expenses	3%	2%	-3%	-2%	8%	5%	54%
Deferred income	0%	-19%	-66%	-6%	8%	-3%	4%
Other current liabilities	0%	-12%	-14%	-31%	-35%	38%	139%
Total Current Liabilities	18%	5%	-13%	-14%	69%	-1%	18%
Long-term borrowings from financial institutions	15%	108%	0%	-100%	-58%	-48%	-97%
Debentures	20%	-5%	0%	0%	-24%	0%	0%
Finance lease liabilities	0%	-100%	0%	-100%	-83%	-45%	621%
Non-current provision for employee benefit	1%	8%	18%	5%	14%	3%	12%
Other non-current liabilities	0%	-19%	83%	2%	-35%	-72%	43%
Total Non-Current Liabilities	35%	4%	72%	-1%	-25%	-4%	142%
Total Liabilities	53%	4%	29%	-8%	7%	-3%	80%
Paid-In Capital	20%	0%	0%	0%	0%	0%	25%
Premium on share capital	5%	0%	0%	0%	0%	0%	0%
Retained Earnings	0%	0%	0%	0%	0%	0%	0%
Appropriated – legal reserve	2%	2%	0%	0%	0%	9%	15%
Unappropriated	14%	25%	32%	41%	30%	27%	-25%
Other components of equity	0%	0%	118%	-4%	75%	0%	0%
Total Shareholders' Equity	41%	6%	9%	9%	5%	4%	9%
Non-controlling interests	6%	4%	25%	2%	6%	-9%	37%
Total Liabilities and Shareholders' Equity	100%	5%	11%	8%	5%	3%	12%

2.2 Information

2.2.1 Business Structure

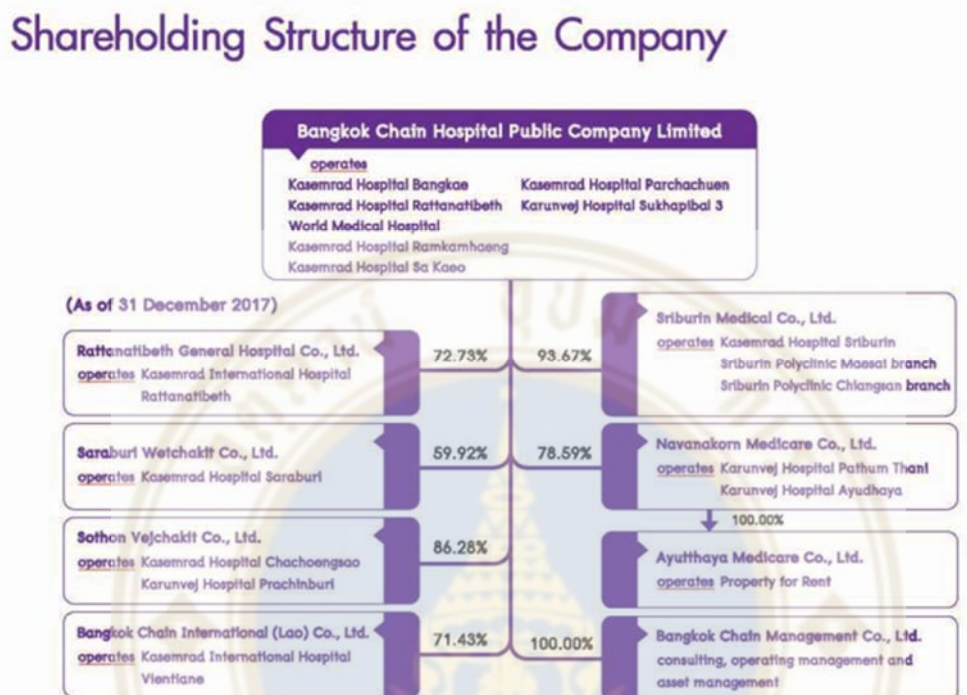


Figure 2.1 Shareholding Structure of the company
Source: Annual report BCH 2017

2.2.2 Major shareholders

Shareholders

Ten major shareholders as at 31 August 2017*

List of the Company's major shareholders and proportion of shareholding from paid-up capital shown in Book of shareholders' registration as follows;

Rank	Name of Shareholders	Number of Shares	Percentage
1	Mr.Chalerm Hamphanich	813,750,000	32.63
2	Mrs.Somporn Hamphanich	183,750,000	7.37
3	SOCIAL SECURITY OFFICE	143,472,000	5.75
4	THAI NVDR CO., LTD.	112,700,769	4.52
5	THE BANK OF NEW YORK MELLON	90,000,000	3.61
6	Mr.Kantaporn Hamphanich	83,000,000	3.33
7	Ms.Pornluck Hamphanich	83,000,000	3.33
8	Ms.Pornsuda Hamphanich	83,000,000	3.33
9	Mr.Pai boon Seriwattana	26,653,700	1.07
10	N.C.B.TRUST LIMITED-NORGES BANK 11	22,959,700	0.92
	Total	1,642,286,169	65.86

Figure 2.2 Shareholders
Source: Annual report BCH 2017

2.2.3 Management and organizational chart

Organizational Structure

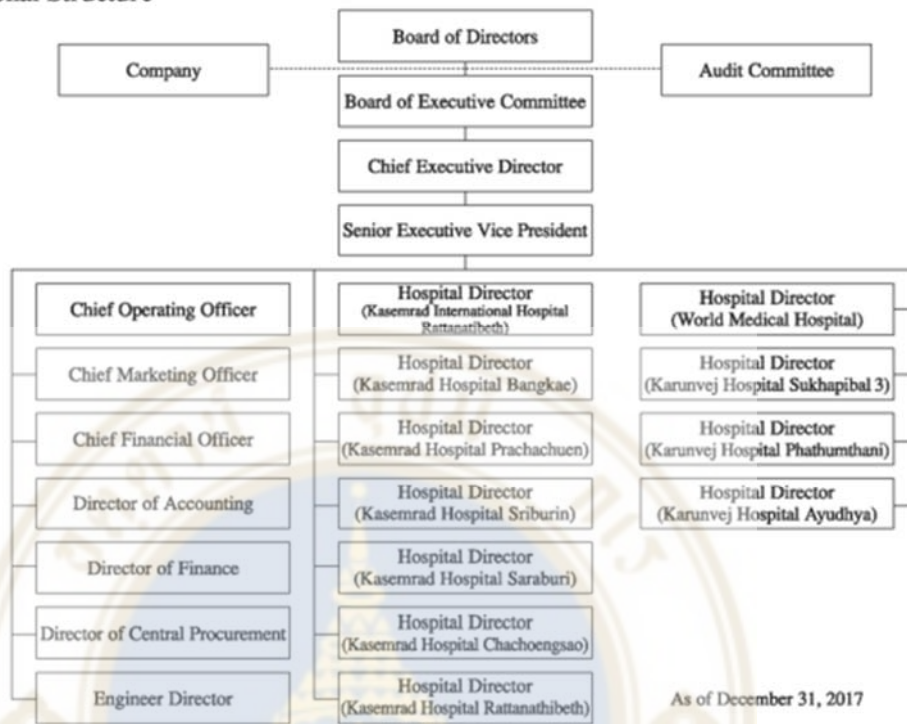
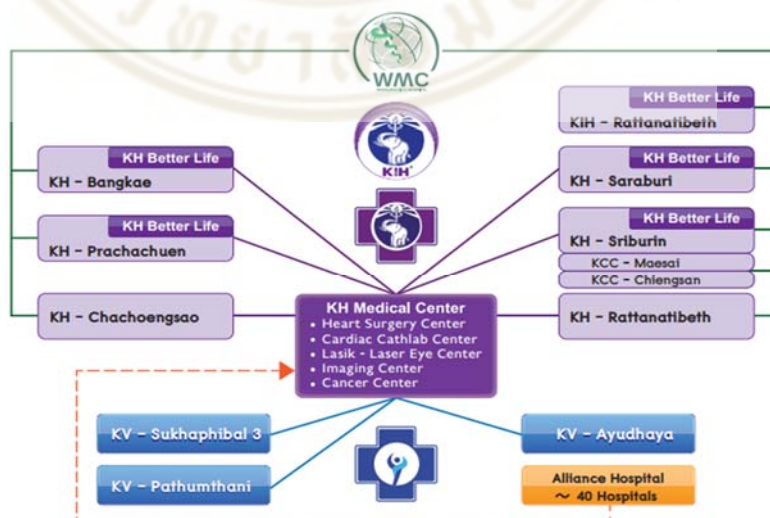


Figure 2.3 Organization chart
Source: Annual report BCH 2017

2.2.4 Patients referral network

Illustration of Patients referral network among our hospital in the group



Annual Report 2017

Figure 2.4 Patients referral network
Source: Annual report BCH 2017

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<http://investor.bumrungrad.com/slides.html>
<http://economists-pick-research.hktdc.com/business-news/article/Research-Articles/ASEAN-in-Focus-The-Thai-ConsumerMarket/rp/en/1/1X000000/1X0A8YMK.htm>
www.willistowerswatson.com/en-TH/industries