Hospital valuation in emerging countries

By

Tsuyoshi Segawa

BA in Economics
Kyoto University, 2007

SUBMITTED TO THE MIT SLOAN SCHOOL OF MANAGEMENT
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF

MASTER OF BUSINESS ADMINISTRATION
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

JUNE 2013

Signature of Author: _____
MIT Sloan School of Management
May 10, 2013

Certified By: _____
Anjali Sastry
Senior Lecturer
Thesis Supervisor

Accepted By: _____
Maura Herson
Director, MBA Program
MIT Sloan School of Management

[Page intentionally left blank]

Hospital valuation in emerging countries

By

Tsuyoshi Segawa

Submitted to the MIT Sloan School of Management on May 10, 2013 in partial fulfillment of the requirements for the degree of Master of Business Administration

ABSTRACT

Private health players in emerging countries have increased their presence and contributed to global health issues, but have been undervalued in financing. A variety of health players have evolved and hospitals have played a pivotal role. However, hospitals in developing countries face significant challenges in getting the financing they need to expand their operations by adding additional facilities and equipment partly due to under valuation. The objective of the thesis is to understand the fundamental values of those hospitals in emerging countries and to learn why under valuation happens by conducting the case valuation of Life Healthcare.

This thesis is primarily intended to serve as an investment guide for potential investors and financers, such as commercial banks, investment funds, microfinance institutions, leasing companies, and other types of financial institutions. It discusses how the enterprise value should be assessed. The secondary audience is hospital management teams who want to understand the source of hospital value and key potential drivers for improvement. The thesis conducts the sensitivity analysis to identify how the key drivers affect the enterprise value. Accordingly, management teams can identify where to improve to maximize corporate values and satisfy customer needs. For these purposes, the thesis will be structured as follows. Summarizing recent trends of private healthcare industries in emerging countries, it starts with explanation of hospital business models and survey results of the financial issues in Romania. After examining two different valuation approaches, the paper will conduct valuation with the discounted cash flow model, taking the example of Life Healthcare Group, a private healthcare player in South Africa. The valuation results with third-party estimations identify the different assumptions, especially in terms of market growth and the weighted average cost of capital. Finally, the paper will explore other valuation issues and improvement ideas based on valuation results and comparative analysis.

Thesis Supervisor: Anjali Sastry
Title: Senior Lecturer

Table of contents

1. Introduction

The chapter briefly covers the context, the private healthcare sector trend in emerging countries. Smith (2003) reports the fundamental roles of private healthcare players and IFC (2011) categorizes the industry. After reviewing major types of private healthcare business, the paper explains the structure in following chapters.

1-1. Healthcare issues in emerging countries

The private healthcare sector is growing rapidly in emerging market countries. Across the developing world, people are increasingly relying on private healthcare organizations to address their health needs. This trend will continue due to the fundamentals that drive demand, namely, population growth, increasing life expectancy, growing disease burdens, and patient demand for treatment. As a result, the private healthcare sector in emerging markets can offer attractive returns to investors from both commercial and social perspectives. The sector is not without its challenges. Consequently, financial institutions, which are often unfamiliar with its characteristics and dynamics, perceive it as risky. As a result, many private healthcare organizations in developing countries, particularly small- and medium-sized enterprises (SMEs), remain underfinanced and hindered from achieving their full potential.

The private healthcare sector is diverse, with financing needs ranging from small-scale to large capital investments. Investors need to be able to segment the market. A country's healthcare system consists of both public and private sectors, with the private sector increasingly complementing public services. While the size and responsibilities of the private sector varies by country, it is usually diverse, representing a broad range of for-profit businesses and not-for-profit organizations. The private healthcare sector includes various categories businesses. IFC (2011) categorized the sector. The first category is health service providers: primary care, hospitals, clinics, hospices, elderly and residential care, psychiatric care, occupational health, alternative medicine, traditional medicine, ambulances, diagnostic services, and telemedicine models. The second category is retailers and distributors: pharmacies, drug shops, and pharmaceutical distributors. The third category is medical education and training institutes: medical schools, nursing and paramedical schools, and eLearning platforms. The fourth category includes financing entities such as health management organizations (HMOs), medical plans, insurance companies, and other risk-pooling entities. Manufacturing is the last category; it includes manufacturers of pharmaceuticals, medical supplies, medical equipment, and

biosciences. The table below shows the current major players in the private healthcare industry. As shown, private players are pivotal in the healthcare sector.

Exhibit 1

Commercial Healthcare business in emerging countries

Types	Commercial companies	Location
General Hospital Groups	Netcare, Life Healthcare, and Mediclinic	South Africa
	Apollo Hospitals, Max India, and Fortis	India
	Acibadem and Medical Park	Turkey
	Saudi German Hospitals	Saudi Arabia, Egypt
	Rede D'Or	Brazil
	Columbia Asia	Malaysia, India
	United Family Hospitals and Clinics	China
	MedLife	Romania
	Hygeia Nigeria	Nigeria
Specialist Hospitals	Wuhan Asia Heart Hospital	China
	Andalusia Women and Child Hospitals	Egypt
	Nairobi Women's Hospital	Kenya
Polyclinics	Intergramedica	Chile
	Medicover	Poland, Romania
	MediClub	Azerbaijan, Georgia
Specialist clinics	Aier Eye Hospital	China
	Dunya Eye Hospitals	Turkey
	Magrabi Centers	Middle East
	Jiamei	China
	Euromedic Internationals	Eastern Europe
	Asia Renal Care	East Asia
Primary care clinics	Healthway Medical	Singapore
	Al Borg Laboratory	Egypt
	Fieury	Brazil

	Euromedic International	Eastern Europe
Telemedicine	Teleradiology Solutions	India
Distributors/Retailers	Aversi	Georgia
	Mercury Drug Corporation	Philippines
	Famacas Cruz Verde	Chile
Medical schools	University of Science and Tech	Yemen
	Batterjee Medical College	Saudi Arabia
Nursing schools	De La Salle Health Sciences Institute	Philippines
	Mayanja Memorial Training Institute	Uganda

Source: IFC, Bloomberg, author's analysis

While providing a brief overview of the healthcare sector, the scope of this thesis is on health service providers, which represent the largest area of healthcare spending. This paper will focus on hospital business evaluation in emerging counties. Hospitals are delivery channels for medical products and services. In emerging countries, the most common types of health service providers are individuals and SMEs. Hospitals offer significant job creation in a variety of professions. Medical professionals include physicians, dentists, nurses, midwives, pharmacists, and other clinical professionals, often collectively referred to as "clinicians." These may be individuals who are employed or those working as sole practitioners.

In the hospital business, IFC (2011) mentions three different types of retailers. The first is the clinic, which includes standalone primary care or outpatient facilities employing a small number of staff. Typically, medical professionals, either a sole practitioner or a small group or partnership, own these businesses, although they may be owned or managed by nonclinicians. The second is the general hospital. These are more sophisticated healthcare facilities that are capable of performing more advanced tests and procedures and admitting patients overnight. Most private hospitals in developing countries have fewer than 50 beds. Hospitals generally provide inpatient and outpatient care and surgery and may have diagnostic capabilities and a pharmacy on the premises. They may be physician owned but it is increasingly common to have non-physician owners of private hospitals, such as property developers, other types of entrepreneurs, and publicly traded company ownership. Finally, diagnostic facilities are often integrated within a hospital structure. It is also common for the private health sector to include standalone laboratories or other diagnostic facility business models.

Exhibit 2

Private Hospitals (Listed on the stock market) Case Org

Name	HQ Location
Life healthcare group	South Africa
Mediclinic international	South Africa
Netcare	South Africa
Apollo Hospitals	India
Fortis Healthcare	India
IHH	Malaysia
KPJ Healthcare	Malaysia
Bangkok dusit medical services	Thailand
Bumrungrad hospital	Thailand
Ramsay Healthcare	Australia

Source: Bloomberg, Analyst reports, Company website

The table above is a list of commercial hospitals in emerging countries. They are listed on the stock market in local countries. In the hospital sector, commercial hospital organizations increased their presence by capturing the specific needs of medical tourism. Compared with hospitals in developed countries, the number of listed organizations is limited and their focuses are international medical tourism and high-end patients who can afford to pay. In emerging countries, hospitals offer high-quality operations at low cost and attract patients from advanced economies. As the economy has grown in emerging countries, private hospitals could then capture high-end customers since those segments are not satisfied with public services and they shift to the private sector to seek better quality healthcare services.

1-2. Thesis objective and structure

This thesis is primarily intended to serve as an investment guide for potential investors and financers, such as commercial banks, investment funds, microfinance institutions (MFIs), leasing companies, and other types of financial institutions. Reflecting the typical profile of the sector, the guide focuses mainly on hospitals in emerging countries. It aims to reveal potential market opportunities, to promote an understanding of the most common business models, and to assist investors in how to identify opportunities and evaluate potential targets. It also discusses the most common risks and barriers that face investors in the sector as well as ways to manage these risks and overcome barriers.

The secondary audience would be hospital management teams who want to understand the sources of hospital value and key potential drivers for improvement. This thesis also aims to offer the investors' view, namely, how they evaluate hospital organization value as equity investment assets. Accordingly, the management team can identify where to improve to maximize corporate values and satisfy customer needs.

The thesis will be structured as follows. First, to understand why the fair valuation in the emerging country is required, the thesis discusses the financial needs and challenges of hospitals in emerging countries, taking the example of Romania. There are a variety of financial needs but most of them are not yet fulfilled. Second, we will cover frameworks to understand the hospital business model to reflect on the case valuation of Life Healthcare. They are relevant to the valuation approach in later chapters. Next, the thesis will shift to a case study of Life Healthcare. This organization is one of the major hospital chains in South Africa that focuses on private health areas in the domestic market. Other big hospital chains in emerging countries target medical tourists from advanced economies with cheap operation fees. This chapter starts by examining the healthcare environment in South Africa and then explores its business model, financial analysis, key business drivers, and potential risks in the future. Based on historical analysis and future trend, the next chapter examines corporate values based on the discounted cash flow approach after discussing two commonly used methodologies. The thesis makes assumptions regarding business drivers and key financial ratios. After the evaluation, the paper covers sensitivity analysis and benchmark analysis with other valuations from investment banks. The final chapter explores key considerations in evaluating the hospital business and remaining issues.

2. Hospital business and financial challenges

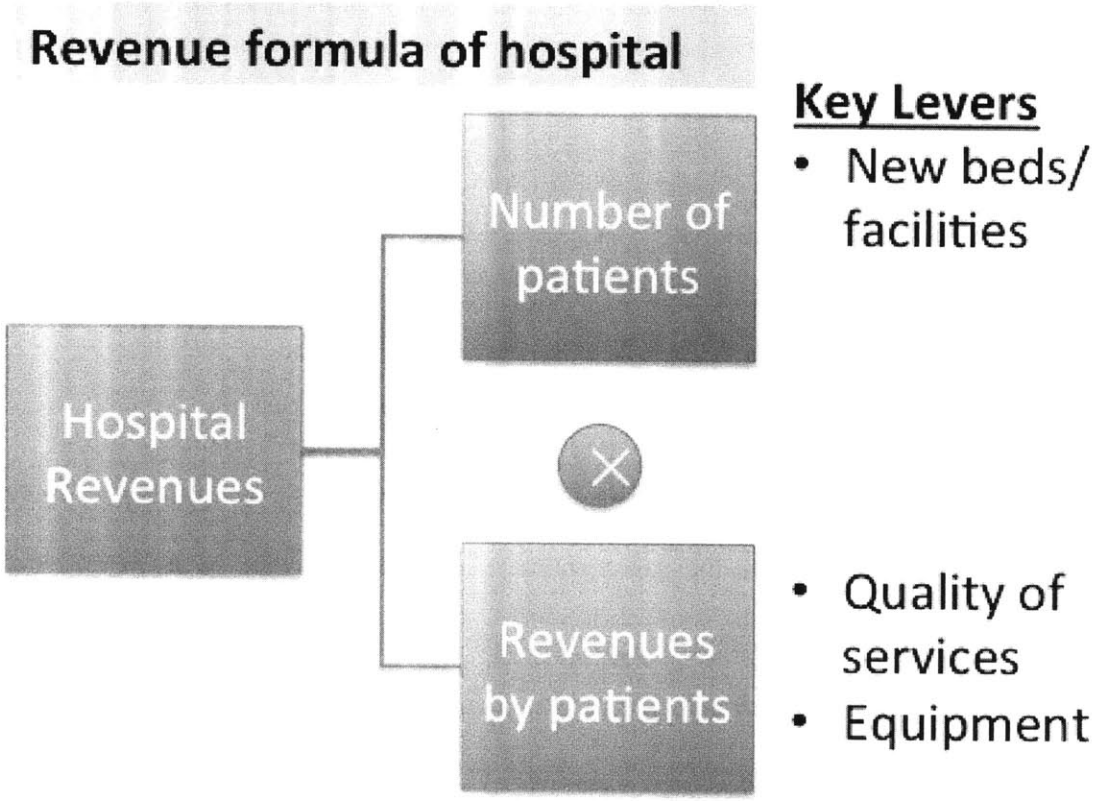
The chapter reviews a basic hospital revenue formula and assesses typical the financial needs and challenges in Romania from the hospital survey by USAID (2007). It also provides the objective why the fair valuation is important in emerging countries.

2-1. Hospital business models

Generally, the hospital business is divided into two revenue categories, the number of patients and the revenue per patient. The number of patients is driven by market size, brand image of hospitals, and the supply of services. The key actions are to add new beds and facilities to accept a large number of customers. The second revenue category is revenue by patient.

Increasing revenue by patient involves offering value-added services that customers can afford to pay. To attract affluent customers, hospitals need to arrange the necessary equipment and medical professionals. Then, hospitals can provide high-quality services, including challenging operations. Therefore, hospitals in emerging countries, where middle- and high-income customers are expected to increase in the future, must identify their financial needs.

Exhibit 3



2-2. Financial needs and challenges in emerging countries

USAID (2007, 2008, and 2009) conducted intensive research projects to understand hospital business and its financial needs in Romania, Zambia, and Nigeria. Due to similarity with South Africa which the paper will cover in the next chapter, the thesis examines Romania to examine financial needs in emerging countries. Research surveys on Zambia and Nigeria also report quite similar financial needs and challenges. According to the IMF and World Bank, the GDP per capita in Romania is USD 7,667 while that in South Africa is USD 6,090. Both

Romania and South Africa are categorized as middle-income countries where private hospitals can capture local healthcare needs.

The Romanian financial system is benefiting from a growing economy and the privatization of the banking system as part of the European Union accession process. The increase in capital and banking sophistication resulting from increased foreign ownership in the banking sector has led to major branch expansion programs for many of the larger banks to target retail customers in previously underserved areas.

Given the growth strategy of the larger banks, the private sector's access to credit is increasing rapidly, particularly in the consumer sector. The smaller banks, which remain locally owned with underdeveloped franchises, may be compelled by their decreasing market share in the traditional sectors to pursue growth opportunities in other segments, such as micro, small, and medium enterprises and the health sector. Larger banks have been keen to lend to new markets, such as family doctors, and to expand lending activities in markets already served, such as distributors and pharmacies. However, several factors have inhibited them, including the nature of the businesses, which have low levels of fixed assets to offer as collateral, and the lack of reliable market information for loan product development.

Developments in inflation and interest rates reinforce the push for new lending sectors. Following years of hyperinflation, the authorities are finally succeeding in subduing inflationary pressures. With narrowing interest margins between loans and deposits, banks are seeking new sectors for lending where interest margins may be more rewarding.

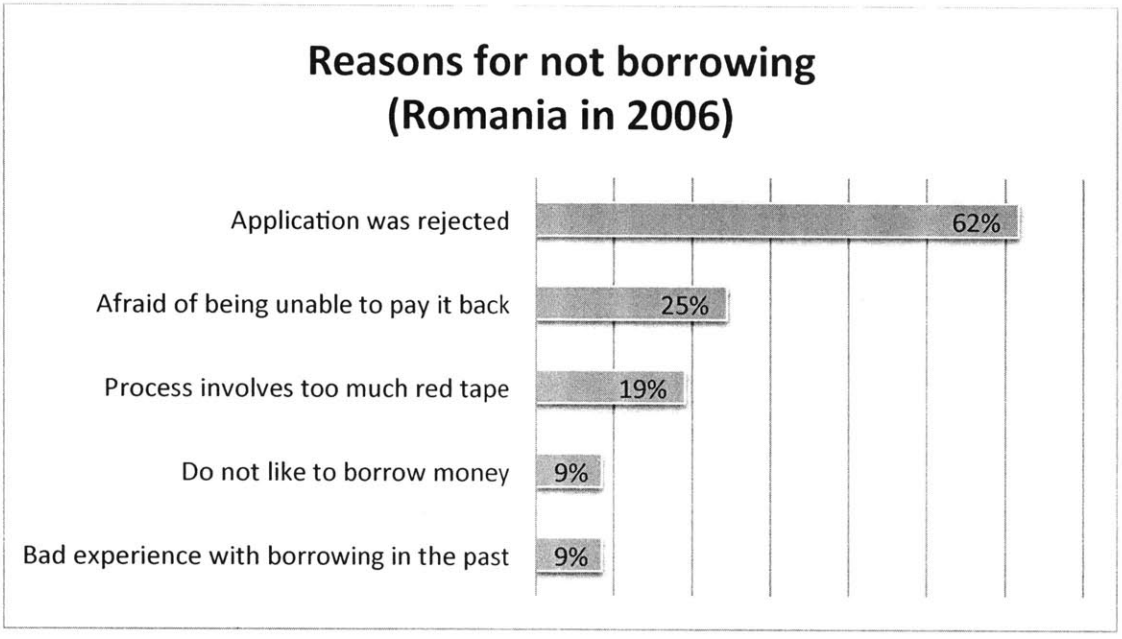
In Romania, loans for micro, small, and medium enterprises are accessed mainly from commercial banks and donor-funded multi-financial institutions (MFIs). The Romanian banking system is highly concentrated, with the five largest banks controlling 60% of the market. Interest rates continue to be high for micro, small, and medium enterprises, and collateral is generally required for loans longer than six months and greater than $7,000.

From USAID (2007), there are 14 MFIs in Romania. Many of them are clustered in the Transylvania region and Bucharest. Their types and sizes vary, with the five largest ones having a combined market share of less than 25% of the aggregate MFI loan portfolio. 14 Although some MFIs have collateral requirements, most are open to cash-flow-based lending for short-term loans. The largest MFIs in Romania include the Center for Economic Development; Cooperative Housing Foundation -Express Finance; Creditar, Asisenta, si Pregatire pentru Afaceri Foundation/World Vision; and Opportunity Microcredit Romania.

The leasing market in Romania is in a rapid stage of development, primarily for large industrial equipment and cars. Some medical equipment–leasing firms exist, and some medical equipment suppliers will sell on credit. Pharmaceutical distributors also offer credit to their customers.

In the research survey done by USAID (2007), among the 94 family doctors who tried to borrow but were not successful in doing so, the primary reason is that the loan application was rejected—this was the reason given by almost two-thirds of the respondents (61.7%). It is possible that the respondents who claim they attempted to borrow but do not cite their application as being rejected, consider "attempted to borrow" to mean "researched the possibility of borrowing" or "began but didn't finish the loan application." These interpretations would explain the following answers. A quarter (24.5%) of respondents mention the fear of being unable to repay the loan, and almost two-fifths (19.1%) feel that the process of obtaining a loan involves too much red tape. As in other emerging countries, limited capabilities prevent potential organizations from financing for future growth.

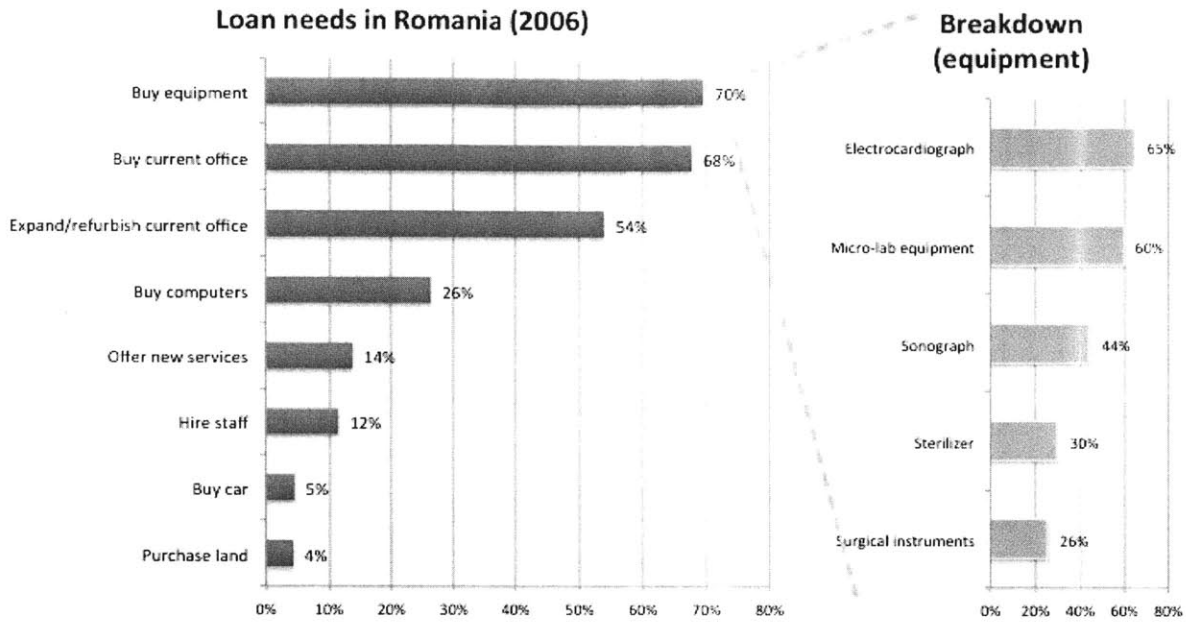
Exhibit 4



The USAID (2007) survey also identified hospital needs for growth. As shown in Exhibit 5, 70% of those who would like to borrow in the future would use the loan to purchase medical equipment, and 68% said that they would like to buy their current office. Over half (53.9%) would use the loan to refurbish or expand their private practice. More than a quarter of the respondents (26.3%) would buy computers with the loan. A smaller percentage would provide other services (13.8%) or hire staff (11.5%). Multiple answers were allowed. Since the surveyed hospitals are small, their financial needs relate to expenditure within the existing hospitals, rather than the addition of new hospitals.

Exhibit 5

Financial needs in Romania



Source: USAID Research Report

USAID (2007) and Smith (2003) indicate the underlying reasons that investors cannot evaluate the fundamental value of hospital business. Therefore, they offer limited amount of finance based on a collateral value especially the land and the large equipment. As a result, many hospitals in emerging countries have suffered from financing from banks.

3. Case: Life Healthcare in South Africa

The chapter plays a transition role toward the case valuation of Life Healthcare. It covers fundamental healthcare landscape that significantly affects modeling assumptions and historical business performance of Life Healthcare that is a basis of forecasting. Then, the thesis discusses the key business issues and risks to set up appropriate assumptions of valuation.

3-1. Healthcare environment in South Africa

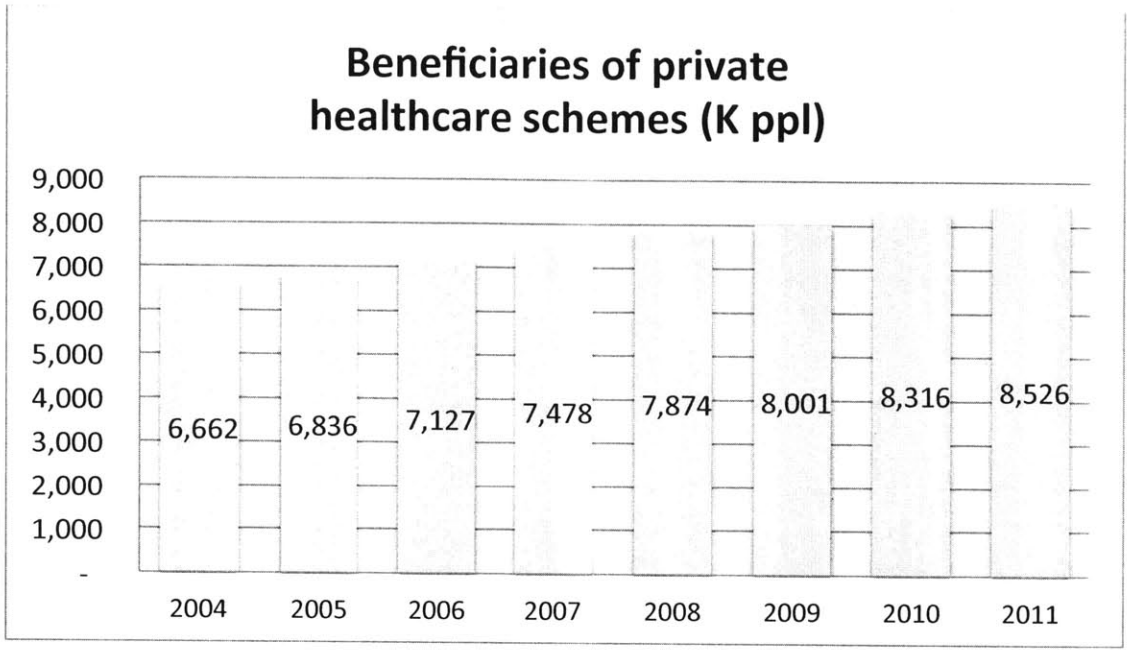
In South Africa's hospital industry, we can observe a significant shift from the public sector to the private sector. Historically, the most basic primary healthcare was offered free by

the state. As the economy has grown, healthcare services became specialized. However, Brand South Africa (2013) reports that the public sector is stretched and under-resourced in places even though the public sector contributes approximately 40% of all expenditures on health. The public health sector is under pressure to deliver health services to approximately 80% of the population in South Africa. While access to health has improved, the quality has fallen. This is partly due to poor management and underfunding. On the other hand, the private sector is run largely on commercial lines and caters to middle- and high-income customers who tend to be members of private medical schemes plans. Also, the better labor environment attracted healthcare professionals, especially doctors. In 2011, the total spent on health was R 248.6 billion, 8.5% of the GDP, significantly above the 5% recommended by the World Health Organization. Of the total spending on health, 49.2% was for the public sector, covering 84% of the population, or 42 million people. In the private sector, total spending was 48.5%, covering only 16.2% of the population.

In addition to poor public health services, the issue of doctor shortages should be mentioned in Brand South Africa (2013). As of March 2012, 38,236 doctors were registered. The doctor-to-population ratio is estimated to be 0.77 per 1,000, which (even globally) is very low. Looking at the supply side, approximately 1,200 medical students graduate annually. To deal with this issue, the government signed a co-operation agreement with Cuba, Tunisia, and Iran. The government also made it easier for other international doctors to register in South Africa. This issue may affect the growth of private hospitals as it may hinder them from recruiting a sufficient number of good doctors.

As shown below, the number of people demanding private healthcare continues to rise as more South Africans joined the middle-class in terms of financial assets. As a result, medical plan membership grew 2.5% during 2011 to 8.5 million members, with a 22% increase since 2004. Historically, hospital utilization was mainly driven by the high burden of disease. As more and more people in South Africa change their lifestyle to a Western one, non-communicable diseases such as heart disease, cancer, and diabetes have become more common. A high incidence of communicable diseases such as tuberculosis and pneumonia has also increased hospital utilization, along with an aging population and fast-changing medical technology. Recent economic development has allowed an increasing number of people to pay for private insurance as a result of the significant job creation.

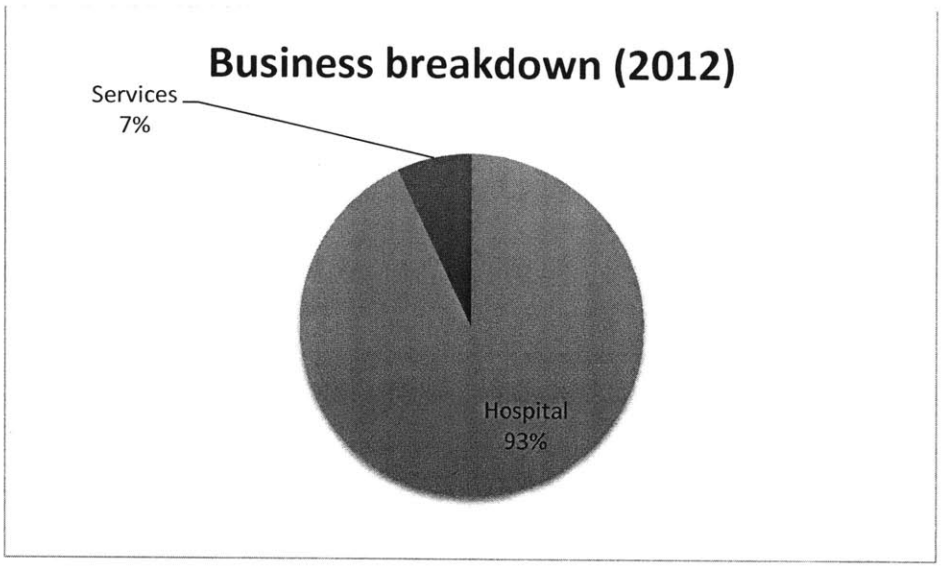
Exhibit 6



3-2. Business model of Life Healthcare

Life Healthcare's core business is acute private hospital care. The group's head office is situated in Johannesburg. Its acute care hospitals are complemented by mental health, acute rehabilitation, renal dialysis, and occupational health business. Life's diversified healthcare business is organized into three divisions.

Exhibit 7



The annual report in 2012 says that the hospital division represents 93% of the Group's revenue for the year, comprising the core acute care hospital business and services for acute physical rehabilitation, acute mental healthcare, and renal dialysis in South Africa and Botswana. The healthcare services division represents 7% of the Group's revenue for the year, comprising acute and long-term hospitalization services to public sector patients provided by Life Esidimeni (meaning "place of dignity"), as well as contracted occupational healthcare provided by Life Occupational Health to private and public employers. The international division comprises the Group's 26% interest in Max Healthcare, an acute care hospital business in India.

In operation, it has 50 acute care hospitals with 7,608 registered beds and approximately 2,700 healthcare specialists in urban parts of South Africa from the government website. It also has seven rehabilitation facilities, six mental health centers, and seven renal dialysis facilities. They have admitted over 600,000 patients, mainly from the private medically insured market. In addition to facilities, its group acquired a 26% shareholding in Max Healthcare Institute (MHC), an Indian hospital group. MHC has nine hospitals with 1,943 beds in Delhi and the surrounding regions. The Group's strategy is to become a pre-eminent hospital operator in selected offshore emerging markets with a particular focus on India and specific countries on the African continent.

Looking at its operational performance, Life Healthcare has been on a good track. The company has achieved a 70%-plus occupancy rate in past years while the industry average is typically between 65 and 70%. Also, the quality metrics score has been very high. Patient survey revealed a 98.3% (the average score between 2011 and 2012) satisfaction rate. The net promoter score (based on the fundamental perspective that every company's customers can be divided into three categories: Promoters, Passives, and Detractors) is around 95.0%.

Exhibit 8

Life Healthcare Financial

	(R million)							%
Income statement	2006	2007	2008	2009	2010	2011	2012	CAGR (06-12)
Revenue	5,452	6,146	6,943	7,930	8,786	9,812	10,937	12%
Operating profit	788	1,008	1,546	1,555	1,867	2,173	2,542	22%
% of rev	14%	16%	22%	20%	21%	22%	23%	
Profit after tax	334	505	964	937	835	1,492	1,743	32%
% of rev	6%	8%	14%	12%	10%	15%	16%	
Balance sheet								
Total assets	6,561	7,032	6,939	6,887	7,872	8,468	9,256	6%
Total Liabilities	5,637	5,573	4,589	3,957	4,357	4,084	4,378	-4%
Total equity	924	1,459	2,350	2,930	3,515	4,384	4,878	32%
DuPont analysis								
ROA	12%	14%	22%	23%	24%	26%	27%	
OP margin	14%	16%	22%	20%	21%	22%	23%	
D/D+E ratio	86%	79%	66%	57%	55%	48%	47%	
Operation								
Number of beds	6543	6705	7021	7190	7669	7916	8227	4%
Rev per beds (R mil)	0.83	0.92	0.99	1.10	1.15	1.24	1.33	
Paid patient days (K)	1502	1614	1694	1762	1807	1904	2021	5%

Source: Annual report

Its overall performance has been great in the last seven years. Revenue grew with a compounded annual growth rate (CAGR) of 12% and profit after tax increased by 32% CAGR. This significant growth came from both an increase in the number of beds and revenue per beds. In particular, the revenue per bed went up as paid patient days increased. This implies that the hospital was able to deal with challenging operations and sickness and that more and more patients could afford good medical insurance. Therefore, its asset turnover, such as ROA and operational profitability, has improved in past years. Looking at the wealth distribution analysis below, apart from employee salary, the company did not allocate a lot into capital investment, such as the addition of new hospital facilities and mergers and acquisitions. As a result, the debt ratio has decreased since the organization has reserved cash as equity.

Exhibit 9

Wealth distribution analysis (2012)

Items	%
Employees	53%
Provides of equity	15%
Reinvestment	11%
Government	11%
Capital maintenance	7%
Provides of funding	3%

Source: Annual Report

The future strategy at Life Healthcare is to focus on growth by developing the breadth and depth of their existing southern African hospital network and expanding the coverage and penetration of the southern African market. It plans to expand facilities within existing hospitals by adding additional beds, wards, and operating theatres. Also, Life Healthcare intends to introduce new services and disciplines at selected hospitals where there is an opportunity to create niches. In particular, the new lines of business will focus on mental healthcare acute rehabilitation and renal dialysis. Furthermore, it plans to increase the geographical coverage within southern Africa to meet the increasing demand for private healthcare. The approach will involve the acquisition of select facilities that complement its existing geographic spread of hospitals and to build new facilities where there is no existing coverage. Accordingly, the future capital expenditure plan is to set up additional beds and potential mergers and acquisitions. In the annual report, Life Healthcare puts forth that the demand for hospital services will increase continuously due to the high incidence of disease together with a growing medical aid population, the impact of aging, and preferred network arrangements.

3-3. Key business drivers

The greatest upside potential for private hospitals in South Africa lies in the ability of the South African economy to create a meaningful number of new jobs. Job creation in the formal sector results in more people with access to private medical insurance and therefore a greater amount of private healthcare spending. However, some equity research teams have expressed concerns that job creation in South Africa will continue to be hindered by dogmatic unions, globally uncompetitive wages, poor productivity, and an inflexible employment equity charter. Nevertheless, job growth should see some cyclical pickup as the global economy heals itself. Moreover, the African National Congress (ANC) remains under pressure to generate jobs.

Whilst JP Morgan (2011) expects subdued job growth into 2012, it should nevertheless pick up and job growth is forecast to recovering to ~300,000 annually by 2015. This should help drive the increased medical plan membership, as outlined below.

Life's growth should continue to outstrip its rivals domestically, given its focus on the lower end and Government Employee Medical Scheme (GEMS). It is now mandatory for all new government employees to be placed on the GEMS scheme. This has resulted in the number of GEMS beneficiaries growing by 36% in 2010 to 1.6 million. In addition, the preferred supplier agreement has with Discovery's healthcare medical scheme, where it has a 45% share (313,112 total beneficiaries), continues to provide Life with strong volume growth. Approximately 41% of Life's turnover is now generated from GEMS (~15%) and Discovery (26%). Life's Alternative Reimbursement Models (ARMs), which cover ~65% of revenue, offer greater proportions of fixed-fee work, which encourages efficiency on the hospital side and has won significant favor with funders.

Greater job growth or reform of the prescribed minimum benefits could accelerate medical scheme membership. Moreover, any great leaps forward in demand would come up against the shortage of doctors and nurses relatively quickly—any government reforms will have to carefully factor in potential skill shortages.

Exhibit 10

South African Job Growth (K ppl)

	2011	2012	2013	2014	2015	(CAGR)
Jobs creation	175	200	226	250	300	14%
Public sector jobs (GEMS*)	100	90	90	80	80	-5%
Private Sector Jobs	75	110	136	170	220	31%
Private Sector Conversion	40%	40%	40%	40%	40%	0%
Private Sector Health Insurance Take-Up	30	44	54	68	88	31%
Total New Medical Scheme Members	130	134	144	148	168	7%

* GEMS (Government Employee Medical Scheme)

Source: J.P. Morgan estimates

The second key driver is the aging trend in South Africa. The African Development Bank (2011) reported aging in South Africa due to the decreased fertility rate and improved life expectancy at birth. The U.S. Bureau (1997) also shared their estimated ratio of the 60+ population in South Africa: 6.8% in 1997, 8.6% in 2010, and 10.8% in 2015. The core insured South African population continues to age and healthcare spending increases dramatically as an individual ages. As individuals age, the number of hospital visits rises and the procedures performed become more specialized, resulting in higher income per bed day. Netcare, a large

hospital chain in South Africa, reported in the annual report that average hospital costs are 67% higher for those aged over 50 than those below 50. Couple the impact of aging on the core insured market to the higher burden of disease typically present in the lower income scheme membership and it is easy to see why Life's utilization rates are rising.

3-4. Risks and considerations

The biggest risk is the regulatory environment. The healthcare industry in South Africa is subject to government regulations relating to licenses, conduct of operations, and security of medical records, quality standards, and certain categories of pricing. Furthermore, the labor Relations Act and the Employment Services Bill may affect employment cost in life healthcare.

Second, the national health insurance trend is a key consideration. The government released a green paper on national health insurance in August 2011. The green paper provided a high-level strategic direction for national health insurance but did not provide sufficient detail regarding how it would be implemented. The funding proposal is expected to be made known later in 2013. Life Healthcare can be expected to face pricing issues. The competition commission is considering an inquiry into private healthcare industry prices. The terms of the inquiry have not yet been released, but it is expected to last at least two years and cover the major cost drivers in the industry and benchmark its costs internationally.

Third, Life Healthcare may suffer from a shortage of recruits, namely, doctors and skilled people in hospitals in emerging countries. In general, not enough doctors are being trained to address the health needs of, and general shortage in, the country. Since several major hospital chains are expanding their operations and are competing to hire great doctors, Life Healthcare may not be able to hire enough. South Africa also has an increasing shortage of nurses, pharmacists, and other healthcare professionals. It was recently reported that the effects of HIV/Aids on staff are becoming significant by Brand South Africa (2013)

4. Valuation

In valuation analysis, there are two common approaches to evaluate business. The first is multiple analysis and the second is discounted cash flow analysis. In the chapter, the thesis touches upon two valuation methodologies including concepts, calculation steps, and implications by reviewing the financial literature. Then, the paper reaches out the conclusion that

discount cash flow model is more appropriate to understand the key drivers and conduct sensitivity analysis rather than multiples.

4-1. Multiples

Multiple analysis is a common methodology that is used for valuing a target company since it gives a market benchmark that is comparable with competitors. Typically, comparable company analysis has a broad range of applications, most notably for mergers and acquisitions, initial public offerings, restructurings, and investment decisions. The biggest assumption in multiple analysis is that similar companies can provide a highly relevant reference value point for valuing a given target due to the fact that they share key business and financial characteristics, key business drivers, and downside considerations. As a result, practitioners can establish valuation parameters for the target by deciding its relative positioning among benchmarks. The key of the analysis includes selecting a universe of comparable organizations for the valuation target. These peers are benchmarked against one another and the target based on various financial statistics and ratios. Typically, the valuation range is estimated by using several multiples with market price and some revenue or profit figures. The selection of valuation metrics can vary by sector, based on type of asset composition, profitability, and cash flow turnover. Example multiples are enterprise value to earnings before interest, taxes, depreciation, and amortization (EV/EBITDA) and price to earnings (P/E). While P/E is the most broadly recognized in the investment banking industry, bankers also use multiples based on enterprise value because they are independent of capital structure and other factors unrelated to business operations, such as differences in tax regimes. One important problem is that multiple analysis with peers is designed to reflect current (not fundamental) valuation based on prevailing stock market conditions and sentiment. For example, market conditions are subject to irrational investor sentiments that skew valuation either too high or too low.

From Rosenbaum, Pearl, and Perella (2009), a famous practice guidebook for investment banking, a multiple analysis has four steps. The first is to define the universal scope of comparable companies. Preferably, comparable companies conduct similar operations in the same location. Even competitors focus on different customer segments. If the target is pure-play, then comparable should be a pure-play company. If the target is a large portfolio company such as General Electronics, then we should give a detailed comparison. In that case, we need to select the most similar companies. The second step is to gather the necessary financial information. Once the initial comparable universe is defined, we need to analyze all figures to identify their performance. The sources of this information are company's SEC filings, consensus research estimates, equity research reports, press releases, and financial information services.

The third step is to spread key statistics, ratios, and trading multiples for the comparable. This step involves calculating market valuation, such as enterprise value and equity value. A variety of ratios and other metrics measuring profitability, sales growth, and credit strength are also calculated at this stage. This analysis provides the basis for establishing relative ranking as well as determining which companies are most appropriate for framing its valuation. Finally, we need to benchmark comparable companies and determine valuation as a relative value. Benchmarking plays an important role in determining the relative strength of comparable companies versus one another and the target. After calculating multiples, we can get the appropriate valuation range. The selected range is then applied to the target's relevant financial figures to produce an implied valuation range. As this process involves as much art as science, senior investment bankers are usually consulted for guidance on the final investment decision.

4-2. Discounted cash flow

Rosenbaum, Pearl, and Perella (2009) states that a discounted cash flow analysis is a fundamental valuation methodology that is broadly used by investment bankers, corporate officers, university professors, investors, and other finance professionals. It is premised on the principle that the value of a company, division, business, or collection of assets can be determined from the present value of its projected free cash flow. A company's projected free cash flow comes from a variety of assumptions and judgments about its forecasted financial performance, including sales growth rates, profit margins, capital expenditures, and net working capital requirements. Discounted cash flow analysis has a wide range of applications for valuations for M&A, IPOs, corporate restructurings, and decision making of investments. Financial professionals call this value the "intrinsic value." This is the opposite of the market value obtained by comparing benchmarked businesses or organizations. As a result, discounted cash flow analysis serves as a meaningful alternative approach to market-based valuation like multiples. This analysis is especially effective when evaluators can find limited pure-play, peer, or comparable businesses.

Practically, discounted cash flow is projected for the next five years based on information availability and estimation accuracy. Provided that the inherent difficulties in accurately estimating financial performance over an extended period of time are considered, a terminal value is used to capture the remaining value of the target beyond the projection period, which is equivalent to the "going concern" value.

The projected free cash flow and terminal value are discounted at the target's weighted average cost of capital (WACC). This cost is a discount rate that is commensurate with its business and financial risks. The present value of the free cash flow and terminal value are summed to define a corporate value. The assumptions of WACC and terminal value assumptions

typically affect the output. Therefore, a discounted cash flow output is viewed in terms of a valuation range based on a set of assumptions, rather than a single value. Then, we use sensitivity analysis to test the impact of these assumptions.

Typically, the discounted cash flow approach is composed of five steps to calculate the enterprise value. The first step is to examine the target and identify key drivers of performance. It is critical to have a holistic view of the target from the macro environment to micro operational issues. This involves finding key factors of sales growth, profitability, and free cash flow generation. The second step is to project free cash flow. This exercise helps us to estimate the cash generated by a company after paying all cash operating expenses and taxes, as well as the funding of capital expenditure and working capital, but prior to the payment of any interest expense. In most cases, practitioners conduct projections for a period of five years. However, this term may change depending on the sector, business model, stage of development, and predictability. The objective of predicting a free cash flow is to identify a point in the future when the target's financial performance is deemed to have reached a "steady state. The third step is to calculate the WACC. WACC is used to discount the target's projected free cash flow and terminal value to the present. This exercise requires calculating both the equity cost of capital and the debt cost of capital. In evaluating public companies, it is relatively easy to calculate the equity cost of capital from beta with benchmark organizations. In this case, the challenging part may be the cost of debt since it is not risk-free in emerging countries. Then, rating agencies such as Standard & Poor's provide a B-class rating to governmental bonds. Also, WACC is dependent on capital structure. The fourth step is to define the terminal value. The terminal value is based on the remaining value of the target after the projection period. We need to assume fundamental growth rates. The final step is to calculate the present value and to finalize valuation. This is not only to sum up the free cash flow and the terminal value—if some key drivers are influential and have high volatility. It is worth conducting a sensitivity analysis to see the different sets of value in different stories.

From Ross, Westerfield, and Jordan (2012) and Rosenbaum, Pearl, and Perella (2009), discounted cash flow assumptions have both strengths and weaknesses. On the positive side, the use of defensible assumptions helps shield the target valuation from market distortions that happen based on investor perspectives. Additionally, the discounted cash flow approach provides flexibility in analyzing the target's valuation under different scenarios by adjusting the underlying inputs and checking the resulting impacts. However, on the negative side, when we want to see market values in order to capture investment opportunities, especially in a short time frame, it may fail to adequately capture the realistic set of values.

In this thesis, the objective is to identify fair value based on business potential and also to understand what the key drivers are to increase enterprise value in emerging countries. Forecasting the market price is not a primary objective. Rosenbaum, Pearl, and Perella (2009) suggests that a discount cash flow model is usually an effective approach to reflect business

potential due to flexible assumptions. Accordingly, we adopt a discounted cash flow model to evaluate Life Healthcare Group.

4-3. Valuation of Life Healthcare

In this thesis, the major objective is to gain perspective in valuation, rather than to identify the fundamental market value. To compare the valuation result with other valuations conducted by equity research analysts, this thesis considers the FY2011 dataset as the baseline and forecast figures from 2012. The big picture of the discounted cash flow valuation approach for Life Healthcare Group will be shown. Key assumptions to predict future cash flow and terminal value will be defined. Enterprise value will be calculated as the sum of the present value of future cash flow and terminal value.

In this case, we forecasted figures in the nearest five years as free cash flow and then calculated the terminal value by assuming a long-term growth ratio.

4-4. Key assumption

The table below shows the major assumptions in each financial statement. First, Life Healthcare Group has achieved 12% sales growth over the past five years. On the other hand, it is reasonable to consider that the growth rate will converge with the long-term economic growth rate since healthcare is a domestic and stable industry. In advanced economies, growth of the healthcare industry is close to the overall economic growth rate. Therefore, this thesis assumes that the current strong growth will not last long, even with the aging society and the increase in private insurance members. For profitability, a forecasted margin was created on the basis of the historical average because the EBIT margin has been stable in the past. Additionally, due to the shortage of doctors, personnel costs will soar. The profitability has therefore been adjusted to 20%.

Exhibit 11

Major items	Assumption
Income Statement	
Sales growth	Starting from historical average and go down to long-term growth rate
EBIT Margin	20% (Historical average was 20+%)
Balance Sheet	
Accounts Receivable	Historical average of ratio (AR/Sales)
D/E ratio	Maintain 2011 figure
Net Debt	Calculation
Net Working Capital	Calculation
Cash flow	
Tax rate	Historical average (28%)
D&A	Historical average (D&A/PPE)
Dividends	Historical average (Payout ratio)
Others	
WACC	Government bond rate (6.5%) + risk premium (1.5%)

In the balance sheet, inventory figures, such as accounts receivable, are assumed to be a ratio of sales. The debt to equity (D/E) ratio is important. As we learned in the previous chapter, because of its high profitability and abundant cash, Life Healthcare is holding a decreased D/E ratio with an increased number of hospital beds at a moderate pace. Assuming that the future D/E ratio is strong, then Life Healthcare will coordinate the debt to invest in additional facilities as capital expenditure, which will allow it to balance the D/E ratio.

Finally, WACC was set at 8%. The rational for this is that the corporate rate can include an additional country rate and industry risk premium. In South Africa, the government can arrange its finances, paying interest of 6.5%. In developed countries, the healthcare industry premium is 1 to 2% on average.

4-5. Valuation results

This subchapter reviews the valuation result and discusses the difference from valuation from other financial players, such as Deutsche Bank (2011), Morgan Stanley (2012), and J.P. Morgan (2011). The table below shows a summary of the valuation. Based on the assumptions, the five-year cash flow from 2012 to 2016 is calculated to be 7,069 in R million. The net present value of the terminal value with an 8% growth rate is estimated to be 38,432 in R million. After adjusting the net debt value, the equity value is 43,301. At the end of FY 2011, the number of shares was 1,042 million. Thus, the estimated valuation per stock is 41.6.

Exhibit 12

Life Healthcare DCF Valuation - Summary

(R million)		2011	2012(E)	2013(E)	2014(E)	2015(E)	2016(E)
EBIT		2,173	2,198	2,429	2,647	2,846	3,017
D&A		474	432	465	507	521	532
Wcap		(5)	(29)	(19)	(23)	(27)	(32)
Ops CF		2,642	2,601	2,875	3,131	3,340	3,517
Tax		(608)	(615)	(680)	(741)	(797)	(845)
Capex		(630)	(713)	(819)	(923)	(1,032)	(1,155)
FCF		1,404	1,272	1,376	1,467	1,511	1,517
Terminal Value	56,470						
NPV(TV)	38,432						
NPV(2011-16)	7,069						
Net dept	(2,200)						
Equity	43,301						
Number of shares	1,042						
Value per share	41.6	(ZAR)					
WACC	8%						
ST growth			12%	11%	9%	8%	6%
LT growth	4%						

However, 41.6 is just the base price. We need to look at valuation ranges with changes in key influential factors such as the weighted average cost of the capital and the long-term growth rate in sales. The following table shows sensitivity analysis results. When we change WACC from 7 to 9% and the long-term growth rate from 3 to 5%, then the analysis identified the

valuation range as between 27.8 and 82.8 in ZAR. The second table, "Difference from Base," shows how much the value will change in each case. It was found that the weighted average cost of capital is more influential for the valuation price than the long-term growth rate.

Exhibit 13

Sensitivity analysis Base

Valuation (ZAR)

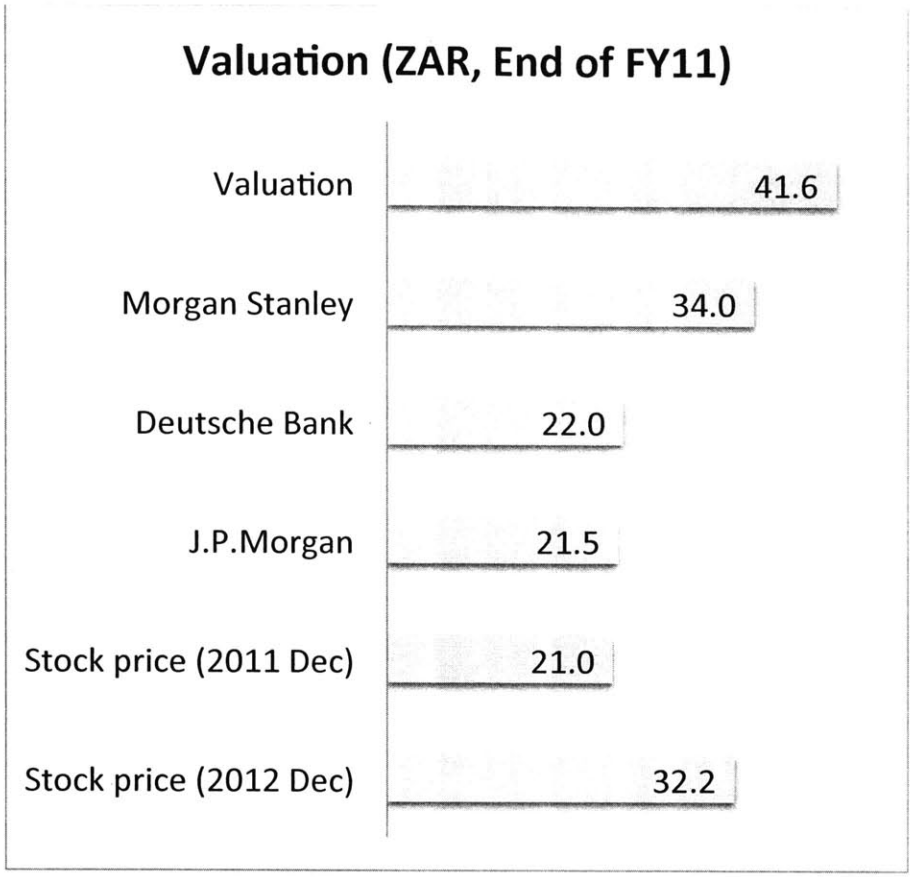
WACC \ LT Growth	3.0%	3.5%	4.0%	4.5%	5.0%
7.0%	43.1	48.8	56.3	66.9	82.8
7.5%	38.0	42.3	47.9	55.3	65.7
8.0%	33.9	37.3	41.6	47.0	54.3
8.5%	30.6	33.3	36.6	40.8	46.2
9.0%	27.8	30.0	32.7	36.0	40.1

Difference from Base

WACC \ LT Growth	3.0%	3.5%	4.0%	4.5%	5.0%
7.0%	1.5	7.2	14.7	25.3	41.2
7.5%	-3.6	0.7	6.3	13.7	24.1
8.0%	-7.7	-4.3	0.0	5.4	12.7
8.5%	-11.0	-8.3	-5.0	-0.8	4.6
9.0%	-13.8	-11.6	-8.9	-5.6	-1.5

Finally, when we look at comparisons with other valuations, our valuation has the highest value. Deutsche Bank (2011) and J.P. Morgan (2011) made a very conservative assumption on profitability and sales growth. Their judgments of valuation were neutral and their valuation prices were very close to the price at the timing of valuation. Morgan Stanley (2012) assumed a very positive perspective of the private healthcare market in South Africa. After the valuation timing at the end of 2011, the stock price increased by 50%, reaching 32.2. The source of the difference may be optimistic profitability and future sales growth. Other investors may see the 20% EBIT margin as too high, even in the regulated hospital industry. It is challenging to find the right number for long-term growth. Typically, forecasters put the fundamental GDP growth rate as the long-term growth rate. Based on the valuation comparison below, investors would be a bit conservative by setting the long-term growth rate low.

Exhibit 14



5. Lessons and next steps

Based on valuation results and considerations, this chapter reviews key lessons of valuation in emerging countries and leaves several ideas to improve quality of valuation work for financial practitioners.

5-1. Lessons

Through the valuation exercise, numerous lessons and challenges were identified. First, the perspective of growth is critical. When calculating business value in emerging countries, setting the right growth rate is always debatable, partly because the figures look much higher than those in advanced economies. Sometimes people cannot believe that a 10+% growth rate would be sustainable. This thesis followed a common assumption that the long-term market

growth rate will finally converge to the country's economic growth rate. We need to assess the market carefully to make more reasonable assumptions. In the hospital industry of South Africa, some industry experts predict a high growth rate of at least 10 to 12% for the next ten years because of the high demand for private healthcare services and the increasing number of affluent people who can afford to join private insurance schemes. To figure out how the growth rate should be set in the future, additional microanalysis on a detailed level is needed. That level of detailed analysis allows investors to capture the value of the long-term growth.

Understanding the business model is always important. In emerging countries, business models are not the same as those of developed countries because labor and transaction costs are totally different and sales sometimes depend on governmental actions and regulations. In the healthcare domain in particular, the service delivery model evolved differently. We can observe an integrated value-chain in specific areas such as eye care. This perspective is critical when investors conduct comparable analysis with multiples and try to set up profitability assumptions based on competitors across countries. Profitability varies based on specific business domains, from general hospitals, specialized hospitals, clinics, and diagnosis facilities.

The impact of changes in regulation is large. The private health market is affected by improvements in public healthcare services, which many affluent domestic customers complained about. If the South African government changes the scope and quality of health services in a positive way, then potential customers in the middle class may stay at public facilities and not shift to private schemes. Additionally, it is said that the low quality of doctors is a big issue. If the government creates additional educational requirements for medical students by extending their study time period, private hospitals including Life Healthcare will be affected.

Sustainable service delivery is key. Resources are not always ready. Especially in terms of talent, unlike advanced economies, the number of doctors and nurses is not sufficient. Even in the future, the supply of healthcare workers will be limited. As such, it is expected that it will cost more to hire and retain good doctors. This will affect the growth strategy of private hospitals. They may need to decrease the speed of facility expansion by adding new beds in existing hospitals or by adding new hospitals in South Africa. Equipment and medicine are also not available all the time. In terms of investment evaluation, financial practitioners can establish two different scenarios.

Estimating the capital cost for both the short and long term is very challenging. First, capital cost in emerging countries is not stable over time. As the economy develops, the risk of governmental bonds decreases. It may then be required to set a different level of interest rates every ten years. Second, even though the risk-free interest rate in emerging countries is high, currency volatility is a key consideration for international financial investors.

5-2. Next steps

This thesis examined private healthcare business development, financial needs, valuation, looking at Romania issues and case example of Life Healthcare in South Africa. The need for good-quality healthcare is substantial, but the supply side, especially in emerging countries, is not yet able to satisfy all of the needs. Private organizations try to expand their operations by adding new facilities and equipment. Accordingly, they have significant financial needs from financial institutions. However, many loan applications are declined in developing countries, partly due to a lack of capability in evaluating the private hospital business. This thesis assessed the business potential by examining the market growth, risk profile, and weighted average cost of capital with discounted cash flow valuation model to examine fair value of Life Healthcare in South Africa. The valuation in this thesis had a similar enterprise value as the current stock price. It also shows that evaluating the market potential in a detailed way can identify the underestimated long-term growth. It may give investors the incentive to assess the market potential carefully and policy makers the motivation to fill the information gap.

It is of note that some assumptions are critically examined. Specifically, the market growth and cost of capital needs to be examined on a more detailed level. Governmental actions and regulations can be considered with scenario analysis. In terms of the discount factor, it should be set on the basis of investor positioning. International investors may want to establish a higher risk premium based on currency volatility and political risks. Country risk changes as countries develop.

Acknowledgements:

First and foremost, I would like to express the sincere gratitude to my thesis supervisor Anjali Sastry for her continuous support, encouragement, guidance, and patience throughout the thesis-writing period. Through lots of discussion and her lecture, I could set up key issues in the private health industry of emerging countries.

I am also grateful to McKinsey & Company, who sponsored my degree for two years. The original motivation to write thesis derived from my five years project experiences at McKinsey. Many brilliant colleagues have influenced my personal and professional development. I also thank International Finance Corporation for giving me the summer internship opportunity focusing on the healthcare industry.

Lastly, I would like to thank my wife Hitomi. She helped me to get through even in the difficult times during the two years of the MBA. Without their continuous support and encouragement, I could not have completed the degree and the thesis.

Bibliography:

Alice Nabalamba and Mulle Chikoko. African Development Bank. 2011 November. Aging Population Challenges in Africa

International Financial Corporation. 2011. "Guide for Investors in Private Health Care in Emerging Markets"

Mimi James and Timothy M. Koller. 2000. Valuation in emerging markets. McKinsey on finance

Kevin Kinsella and Monica Ferreira. U.S. Department of Commerce. 1997 August. Aging Trends: South Africa

USAID. 2007 September. "Financing and training needs of small-scale private health care providers and distributors in Romania"

USAID. 2009 August. "Financing and business development needs of private health care providers in Zambia"

USAID. 2009 September. "Financing and business development needs of private health care providers in Nigeria"

Meaghan Smith. 2003 November. "Access to financing: A constraint to private health sector development"

Stephen Ross, Randolph Westerfield and Bradford Jordan. 2012 January. "Fundamentals of Corporate Finance"

Joshua Rosenbaum, Joshua Pearl and Joseph R. Perella. 2009 May. "Investment Banking: Valuation, Leveraged Buyouts, and Mergers and Acquisitions"

Life Healthcare Group. 2013. "2012 Life Healthcare Annual Report"

J.P. Morgan. 2012 January. Life Healthcare "A little bit further to run"

Morgan Stanley. 2012 May. Life Healthcare Group "Why foreign owners will drive valuation re-rating"

Deutsche Securities. 2011 November. Life Healthcare "FY2011 Results"

Brand South Africa (2013). "South Africa Info". http://www.southafrica.info/. (Visited on March 10th, 2013)