ISCTE Business School
Instituto Universitário de Lisboa

ASTRAZENECA AND PHARMACEUTICAL INDUSTRY: SECTOR OVERVIEW AND COMPANY VALUATION

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- Spine –

RESUMO

A presente projecto de Mestrado tem como objectivo a apresentação de uma descrição global da indústria farmacêutica e a avaliação da AstraZeneca. A avaliação da empresa será seguida de uma recomendação de investimento, baseada no cálculo do preço-alvo da acção.

A indústria farmacêutica tem um conjunto de características únicas, devido ao seu impacto na saúde pública. Essas características irão ser avaliadas através da análise da indústria a nível mundial e através da descrição de empresas europeias do sector farmacêutico.

A AstraZeneca é uma empresa multinacional inglesa, que opera no sector farmacêutico. A empresa é responsável por todo o processo de investigação, desenvolvimento, teste, produção, divulgação e venda de medicamentos próprios. Desenvolve investigação nas áreas de oncologia, cardiologia, gastrointestinal, infecção, neurociência, doenças respiratórias e inflamação. Entre os medicamentos mais vendidos destacam-se *Nexium*, *Crestor*, *Symbicort* e *Brilinta*.

A empresa está cotada na Bolsa de Londres, na Bolsa de Estocolmo e na Bolsa de Nova Iorque. É parte integrante dos índices FTSE 100 e do OMX 30.

A avaliação da empresa foi feita através do Método de Fluxo de Caixa Descontado e do método dos Múltiplos.

No sentido de avaliar a empresa, dados históricos entre 2009 e 2014, foram utilizados. A projecção dos resultados foi feita por um período de 5 anos, de 2015 até 2020.

Através da avaliação feita concluímos que a recomendação é MANTER, com um preço-alvo de £46.98.

Palavras-chave: AstraZeneca, Pharmaceutical industry, Discounted Cash Flow, Multiples

JEL classification: G30, G32

ABSTRACT

The present Master thesis aims to present a global description of the pharmaceutical industry and evaluate AstraZeneca. Company valuation is followed by a recommendation on the stock and a target price.

Pharmaceutical industry has several unique features, due to its impact on public health. Those features will be assessed by analyzing the industry worldwide and by describing European pharmaceutical companies.

AstraZeneca is a British multinational that operates in the pharmaceutical sector. The company is responsible for all the process of investigation, development, testing, production, advertising and selling of own medicines. The company develops its R&D activities in oncology, cardiology, gastrointestinal, infection, neuroscience, respiratory and inflammation. Among the medicines best sellers are *Nexium*, *Crestor*, *Symbicort* and *Brilinta*.

Company shares quote on London Stock Exchange, Stockholm Stock Exchange and on New York Stock Exchange. It integrates FTSE 100 and OMX 30 country indices.

Company valuation has been performed, using fundamental analysis, by the Discounted Cash Flow method and the Multiples method.

Regarding the valuation of the company, historical data publically published from 2009 until 2014 was used. The forecasting period is 5 years, from 2015 to 2020.

After evaluating the company, we conclude that the recommendation is HOLD, with a target price of £46.98.

Keywords: AstraZeneca, Pharmaceutical industry, Discounted Cash Flow, Multiples

JEL classification: G30, G32

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GLOSSARY

AZN – AstraZeneca Plc

BMS – Bristol-Myers Squibb

CAPM - Capital Asset Price Model

DCF – Discounted Cash Flow

CFDA - China Food and Drug Administration

EMA – European Medicines Authority

EPAR - European Public Assessment Report

EUR – Euro currency

EV – Enterprise Value

FDA – U.S. Food and Drugs Administration

GSK – GlaxoSmithKline Plc

PMDA - Japanese Pharmaceuticals and Medical Devices Agency

ROV – Real Options Valuation

R&D – Research and Development

SG&A – Selling, General and Administrative expense

USD – United States dollar currency

WACC – Weighted Average Cost of Capital

Yoy – Year on year

1 - INTRODUCTION

The present project is a case study and arises in the context of the Master in Finance. Its' goals are to describe the features of pharmaceutical industry worldwide, present large capitalization European pharmaceutical companies, analyze and evaluate AstraZeneca and make a recommendation on the stock based on the calculated price target.

Pharmaceutical industry is one of the most important and regulated industries in the world. Its' investments on Research and Development, patents, medical tests and production of medicines have a direct impact in our lives, affecting healthcare systems, economies, family budgets and human health. All these features are assessed in order to have a wide understanding of the industry framework.

AstraZeneca is a British pharmaceutical multinational, which researches, tests, develops and sells medicines. It is one of the major European players in this industry. The company dedicates its research to cardiovascular (38% of sales 2014), respiratory and inflammation (19% of sales 2014), oncology (12% of sales 2014), gastrointestinal (18% of sales 2014), oncology (12% of sales 2014), neuroscience (7% of sales 2014) and infection (6% of sales 2014). Its medicines are available worldwide, but its major market is the USA, which represents 40% of sales, followed by 29% of sales in Europe.

Regarding AstraZeneca valuation, two valuation methods are used; the Discounted Cash Flow method and Multiples. These methods are used to reach a recommendation and a price target for AstraZeneca shares as of 31/12/2015.

To evaluate the company and analyze its financial statement, public data from 2009 to 2014 is used and the estimation of several items was made until 2020.

A brief review of company valuation literature was also made, considering the two valuation methods used and the one mentioned by some authors as the most correct, the Real Options valuation method.

In the end, the recommendation is HOLD with a price target of £46.98. This recommendation reflects an upside of 3.12% comparing with £45.56 per share, as of 31/12/2014.

2 - REVIEW OF LITERATURE

2.1 – Overview of valuation methods

Company valuation literature provides a wide range of different methods and approaches that research analysts and investors can use. Fernandez (2013b) identifies six main models to evaluate a company, describing pros and cons about each one of them. Fernandez (2013b) considers balance sheet methods, income statement methods, mixed methods, cash flow discounting, value creation and options as the available methods to value companies. Between these six methods, Fernandez (2013b: 2) highlights that "*the methods that are becoming increasingly popular (and are conceptually 'correct') are those based on cash flow discounting*".

Discounted cash flow methods, "*… determine the company's value by estimating the cash flows it will generate in the future…* (Fernandez, 2013b: 9)". The key to use this method is to choose the correct rate to discount future cash flows, normally it is used the weighted average cost of capital.

Every industry requires a different valuation approach, in order to get the most accurate valuation results. The pharmaceutical industry, the mining industry and the telecommunication industry, are concrete examples of sectors that need special attention when choosing valuation methods. A great part of these companies assets value comes from Research and Development (R&D), which can lead to new technologies, patents and other intangible assets that can create value to the company or not. Also, a great part of these companies business is based on projects that can create future value for the company or not and the arrival of new information, at every stage of the project, can change its progress. For example, in the pharmaceutical industry, medicines have to be tested in different phases and can fail or succeed in each phase. Depending on the results on each phase the company can continue to invest, abandon or postpone the project. Each of these outcomes should account on the value of the company.

R&D and intangible assets, like patents or other types of intellectual property, are incorrectly valued using Discounted Cash Flow methods, because they only consider the cash flows generated in the future. These methods do not consider the possibility of active management of the company and the uncertainty and risk involved in R&D. Managers can decide whether to leave a project if it turns out bad or keep investing if the project turns out to be good.

Using DCF models, managers have to make decisions today based on expectations of future results, which will undervalue the project and the decisions made with the arrival of new information (Copeland, Koller and Murrin, 2000).

2.2 – Introduction to real options valuation

Considering the previous remarks, there is one valuation method that accounts for real management problems as flexibility, uncertainty and decision making stage by stage, the Real Options Valuation.

Most literature on ROV is applied to investment projects and the decisions managers face when investing in new technology, medicines or expensive project like, mining projects or oil fields. Yet, it can be used to value a company has a whole and make investment decisions on a company and not only on a single project.

Hull (2012) highlights the utility of ROV on the valuation of new companies, where earnings are negative for the first years, because of their efforts to expand and increase market share.

ROV assumes the same principles and rules of financial options valuation. Therefore, the fundamentals of financial options should be explained.

2.2.1 – Financial options

A financial option is a contract that gives the right, not the obligation, to buy or sell a predetermined amount of an asset, at a specific price and date. The amount is called contract size, the asset is the underlying, the specific price is called strike price and the date is the maturity/expiration date.

There are two basic types of options, call options and put options. A call option, gives the right, not the obligation, to buy a predetermined amount of an asset, at a specific price and date. A put option gives the right, not the obligation, to sell a predetermined amount of an asset, at a specific price and date.

Additionally, options have two exercising styles, the American-style and the European-style. When using an American-style option, the investor can exercise its right to buy or sell, at any moment until the maturity date. When using European-style options, the investor can only exercise it at the maturity date.

The payoff of a plain-vanilla call option is *max* $(S_T - K; 0)$, where S_T is the price of the underlying asset and K is the strike price. When $S_T \leq K$ the payoff is zero and when $S_T > K$, the payoff is $S_T - K$ for a long call and $K - S_T$ for a short call. The payoff of a plain-vanilla put option is *max* $(K - S_T; 0)$. When $S_T < K$ the payoff is $K - S_T$ for a long put and $S_T - K$ for a short put. When $S_T \geq K$, the payoff is zero for a long or short put.

2.2.2 – Options key elements

There are five key elements that affect option value, the market price of the underlying asset, volatility of the underlying asset, dividends, option strike price and time to maturity.

Since options are dependent of an underlying asset, the option price as to change when the market price of the underlying changes. When the price of the underlying asset goes up, call options value increases and put options value decreases, and vice-versa.

Considering volatility, the more volatile the price of the underlying asset is, the more valuable the call or put option is. This comes from the fact that the investor can only lose the price he paid for the option and so, if the underlying performs big price changes it can give a potential gains.

If the underlying asset pays dividends, its price will decrease in the same amount of the dividend paid. If there are any dividend payments during the life of the option, the call option owners will see their options lose value, the bigger the expected amount of the dividend, the lower the price of the call. On the contrary, the value of puts will increase, the bigger the dividend.

The strike price is a determinant feature of options because it defines at what price, the call owners will buy the asset and the put owners will sell the asset, if they exercise the options. Therefore, calls will lose value and put will increase value as the strike price increases.

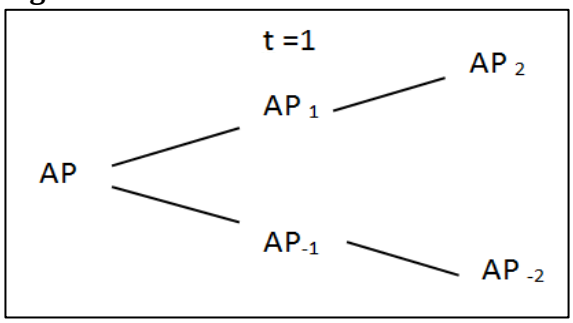
As the maturity of the option arrives, the opportunities for price changes will decrease. A longer time to expiration makes calls more valuable and puts less valuable.

2.2.3 – Option pricing

There are two ways to price an option, the Binomial model and the Black-Scholes model.

Using the Binomial model, the underlying asset price (AP) can only move for one of two possible prices at each moment of time (t), one at which the price goes up with a level of probability and one at which the price goes down with the opposite level of probability.

Figure 1- The Binomial model with two steps



Source: Author's scheme

To perform this valuation model, a replicating portfolio is created with the goal of studying the cash flows of the option being valued. To correctly perform this study the investor as to consider the asset spot price, the risk free rate, the option strike price, the time periods until maturity and the contract size.

Damodaran (1994: 328) refers that in the Binomial model *"the value of an option is not determined by the expected price of the asset but by its current price, which, of course, reflects expectations about the future"*.

The Black-Scholes Model allows an option valuation in which the price can change at any time and can assume any value, other than negative. It also uses a replicating portfolio to study the option cash flows. So it is a model that assumes continuous price change and it is lognormal distribution because of the only positive values assumption and, as Damodaran (1994: 329) says "*there are no price jumps*".

Damodaran (1994) defines the value of a call option using the Black-Scholes model as follows:

$$C = SN(d1) - Ke^{-rt}N(d2) \qquad (1)$$

where

$$d1 = \frac{\ln\left(\frac{S}{K}\right)+\left(r+\frac{\theta^2}{2}\right)t}{\theta\sqrt{t}} \quad (2)$$

and

$$d2 = d1 - \theta\sqrt{t} \quad (3)$$

S is the value of the underlying asset at moment 0; K is the option strike price, t is the time to maturity; r is the risk free rate and θ^2 is variance of the underlying asset.

To value put options we can use the previews equations to value a call option and then perform the Put-Call Parity.

$$C - P = S - Ke^{-rt} \quad (4)$$

where

C – call option
P – put option
S – strike price
Ke^{-rt} – present value of the strike price

2.2.4 - Moneyness

Financial options can be in-the-money, at-the-money and out-of-the –money. When an option is in-the-money, it means a positive payoff which in the case of call options is when the price of the underlying asset is above the strike price and; in put options, the underlying asset price is below the strike price. When an option is out-of-the-money, it means a negative payoff. In this case, the call option strike price is bigger than the underlying asset price and the contrary for put options. When an option is at-the-money, the strike price is equal to the underlying asset market price.

2.2.5 - Real Options Valuation

Copeland, Koller and Murrin (2000: 399) affirm that "*Option pricing methods ... explicity capture the value of flexibility*". We can use ROV to evaluate the asset side of the balance sheet, but also the liabilities and equity side.

A project has the option to continue or abandon has a bigger present value than one with no flexibility, because it allows the investor to decide whether to keep investing or to abandon a project step by step with the arrival of new information. This comparison only makes sense with American options, because of the early exercise option.

Copeland, Koller and Murrin (2000: 400) write that "… *options on the asset side are primarily related to flexibility*" and options on the liabilities side "… *affect the company's weighted average cost of capital* (Copeland, Koller and Murrin, 2000: 423)".

Damodaran (1994: 342) points the similarities between equity and call options, by stating that equity holders "*cannot lose more than their investment in the firm*". Yet, Damodaran (1994: 341) highlights there are aspects that have to be taken into account when valuing real options: the underlying asset cannot be traded; the price changes are continuous, this assumptions is violated when considering real options and the consequence is that the "*model will underestimate the value of deep out-of-the-money options*"; as in financial option pricing theory, the underlying asset variance is maintained over the valuation period and is well known; and the "*exercise is instantaneous*", this assumption is not real when taking into consideration that most projects do not appear form one instant to another, e.g. a medicine needs time to be approved by regulators and the exploration of an oil drill is not immediate.

According to Damodaran (1996: 377), the value of the company (V) can be seen as current price of the underlying asset and the debt of the company (D) as the strike price (K). He assumes that in case of default, the equity holders can only lose the amount invested in the company. On one hand, when the value of the firm is lower than the value of its debt ($V \leq D$) the payoff is zero. On the other hand, if $V > D$ the payoff of equity holders is V-D.

To identify the value of real options, we can use the exactly some methods of financial options valuation; the Black-Scholes model and the Binomial model with a decision tree.

However, Damodaran (1994) clears that some assumptions have to be made. We can only consider the existence of equity holders and debt holders; to treat debt as the strike price we have to consider only one issue of debt, with a zero coupon; the value and variance of the company have to be possible to estimate. Also, when valuing deep indebted companies, equity still has value like a deep out-of-the-money option, because until the expiration date, the value of equity can change and exceed the value of debt.

Copeland, Koller and Murrin (2000: 405), distinguish eight different kinds of options that are applied to investment projects. "*The abandonment option*", the "*option to defer development*", the "option to expand or contract", the "*option to extend or shorten*", the "*option to scope up or scope down*", "*switching options*", "*compound options*" and "*rainbow options*" consider all decisions the manager of a project/investor can deal with.

The options above, consider the flexibility that real investment projects have, such as the option to leave a project if the first outcomes reveal not good; the option to choose the right time to invest; the option to "*make follow-up investment*"; the option to lengthen an investment project beyond the forecasted period; or to consider different sources of uncertainty. All the options described by Copeland, Koller and Murrin (2000) are comparable with American call or put options, and in some cases, use both.

Dzyuma (2012: 62) identifies the need of "*complicated formulas*", "*the required mathematical knowledge and the adoption of rigid assumptions*" as some of real options valuations drawbacks.

2.3 – Multiples Valuation

Another valuation method is using Multiples. It is a simple valuation method that is used to compare the company with its industry peers. Mota and Custódio (2012) consider this model a support for DCF valuation. Using Multiples valuation, the investor calculates a range of values where the company we want to evaluate is supposed to be in, defining an industry standard and not a concrete value for a single company.

Unlike the previous models, we cannot assess the value of a single company using Multiples, but it is a good method to compare and conclude the reasonability of the results obtained using DCF or ROV models.

Mota and Custódio (2012: 248) claim that to perform a correct valuation by Multiples it is necessary to identify a peer group of companies with "*the same profile of future cash flows, same growth potential and the same level of company risk of the company we are valuing*". They recommend the use of a set of Multiples and not just one, as a way to not skew our analysis and have a range of results to compare with the company of interest.

To perform relative valuation, there are Equity Multiples and Enterprise Multiples. Equity multiples use the equity market price of a company and its fundamentals. The enterprise

multiples, use the enterprise value of a company, often seen as an alternative to market capitalization when assessing a company total value.

$$EV = Market\ Cap. + Market\ value\ of\ company\ debt + Minority\ interest - Cash\ \&\ Equivalents \quad (5)$$

Among the Equity Multiples, Damodaran (1994) highlights the price to earnings ratio (P/E), the price to book value (P/BV) and the price to sales ratio (P/S) as the most used multiples. Both are equity multiples, which compare the market stock price with company fundamentals, e.g. earnings per share and sales volume.

Considering general advantages, multiples valuation gives a simple approach; it is easy to understand; it gives a picture of the industry, defining a standard for the industry; no need to make assumptions like in the DCF valuation.

Among the general drawbacks, we can highlight the fact that it does not give the investor a price target; it only makes sense if compared with a benchmark or with peers average; it can be affected by how the market is pricing a sector, over or under valuating it; and the accounting measures can also skew valuation.

The P/E ratio is the market price of a company stock divided by its earnings per share. It is broadly used because of its simplicity and utility when comparing companies. High P/E ratios mean that investors expect an earnings increase in the future.

$$P/E = \frac{Company\ market\ share\ price}{Earnings\ per\ share} \quad (6)$$

In addition to the advantages and drawbacks mentioned early, Damodaran (1994) alerts the price to earnings ratio is not interpretable when valuing negative earnings. Also, we have to take into account the effects of earnings volatility on the ratio. An increase in volatility can make the P/E ratio results to suffer big changes when valuing more than one period. We also have to be careful with the capital structure of the companies, because different capital structures will affect P/E results.

The P/BV compares the current stock price with the stock book value. Damodaran (1994) considers that stocks trading below its book value can mean the stock is being undervalued by the market.

$$P/BV = \frac{Company\ market\ price\ per\ share}{Book\ value\ of\ Equity\ per\ share} \quad (7)$$

It overcomes the problem of evaluating companies with negative earnings and it is easily compared with the company market price. However, it is affected by accounting standards and it loses some of its meaning when valuing company with few fixed assets. Damodaran (1994), states that the ratio takes into account, the company expected growth rate, its payout ratio and risk, and differences on these features can lead to wrong comparisons and conclusions.

Also according to Damodaran (1994), the comparison between P/BV with the Return on Equity can show overvalued (higher P/BV than peers and lower ROE) or undervalued companies (lower P/BV than peers and higher ROE).

The price to sales ratio compares the market price of the company stock with its sales per share.

$$P/S = \frac{Company\ market\ price\ per\ share}{Company\ Revenues\ per\ share} \quad (8)$$

By considering company sales, this measure is not affected by accounting standards and it can be applied to all companies, even companies with negative earnings. Nevertheless, looking only for company sales, it does not take into account company margins and costs, which can overvalue a company with high fixed costs and low margins or the opposite.

Fernandez (2013a) selects the most relevant multiples by sector, and identifies the enterprise value to company sales (EV/S) and the enterprise value to EBITDA (EV/EBITDA) as the most relevant for the healthcare industry. Additionally, Mota and Custódio (2012) suggest the use of value per patent when evaluating pharmaceutical companies.

The EV/EBITDA is an enterprise valuation multiple that calculates a company's return on investment, the price (in this case the enterprise value including net debt) the investor as to pay to benefit from the company's cash flows. Unlike the P/E ratio, it is not affected by capital structure changes. It is a good measure for comparing companies with different levels of financial leverage and for evaluating companies with high depreciations and amortizations. However, it cannot be used in case of negative cash flows.

The EV/S compares the enterprise value of the company with its sales volume and it computes how much enterprise value is generated by one dollar of sales. Low results of EV/S

can mean that the company is undervalued, and its potential to increase in value attracts investors but it can also mean that investors are not confident with future sales generation. It is a useful measure when there are accounting differences or have negative cash flows among the companies of the peer group.

The previous multiples are recommended by Mota and Custódio (2012) as the correct ones when we need to compare companies from different countries that use different accounting rules. This is the particular case of the pharmaceutical industry, where competition is at a worldwide level and not in a country level.

To conclude our multiples valuation, we should take the mean of every multiple computed for the peer group to have a clear picture of the industry standards and a clear value to compare with the company with want to evaluate.

3 – PHARMACEUTICAL INDUSTRY

3.1 – Economic Environment

According to the International Monetary Fund[1], GDP growth in advanced economies will increase in the coming years, recovering from the most recent crisis. Estimations point to an average growth of 1.6% from 2015 until 2020.

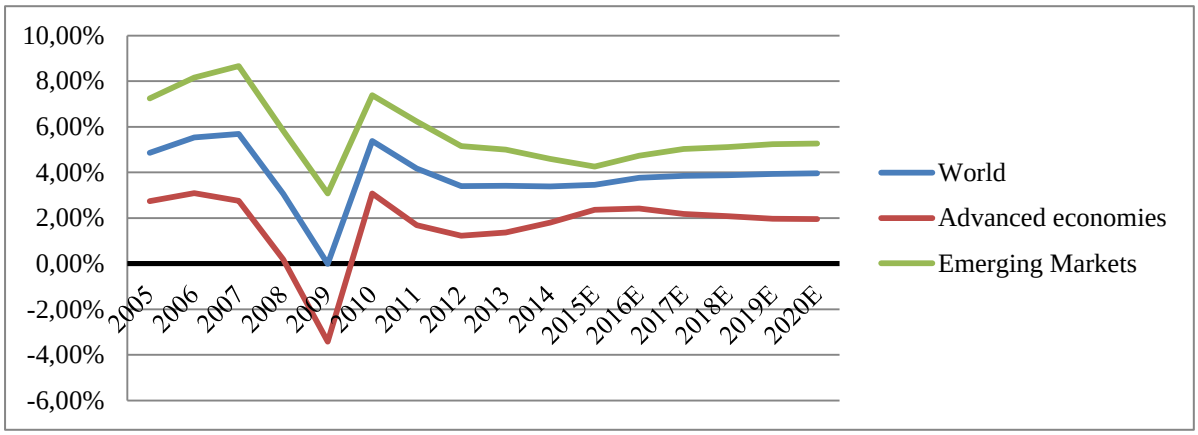
Low interest rates environment will persist during this period, together with fiscal sustainability issues and the need of structural reforms, mainly in the Eurozone. In 2015, the Eurozone is expected to grow a little more than 2%, the highest rate of the next 5 years, and the US growth forecast points to a 3% rate.

Regarding the emerging markets, GDP growth is expected to achieve an average of 5.2% between 2015 and 2020. Russia, Brazil and China are amongst the countries with an expected decline in growth rates.

Thus, the IMF is targeting a World GDP growth of 4% in 2020.

[1] See Annexes 35, 36 and 37 to check further GDP and inflation estimates.

Figure 2 - GDP growth 2005 - 2020E



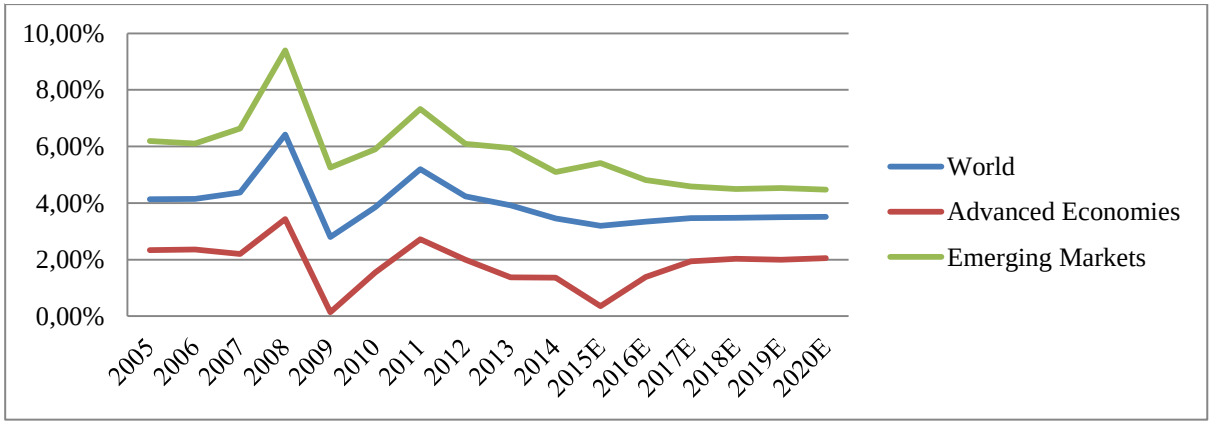
Source: International Monetary Fund, World Economic Outlook Database, April 2015

Inflation rates across the world show stabilization until 2020. Eurozone is expected to overcome recent deflation fears and return to ECBs' inflation target of 2% in the medium term, in line with the rest of advanced economies.

In the US, inflation rates are expected to return to the 2% target in 2015 and remain in that level for the coming years.

The emerging markets inflation rate estimates point to 4.5% in 2020.

Figure 3- Inflation rate 2005 - 2020E



Source: International Monetary Fund, World Economic Outlook Database, April 2015

Considering exchange rates[2], analysts believe that EUR/USD parity is a real possibility in the short term. Strong recovery of the US economy and the Fed intention to start rising interest

[2] See Annex 13 for EUR/USD daily spot exchange rate evolution 31/12/2004 – 22/06/2015

rates in September 2015 are some of the reasons mentioned. Also the Eurozone weak economic recovery and the Greek crisis, can depreciate the EUR.

For the European pharmaceuticals, the weak EUR is a good factor to promote sales. Most of them are highly exposed to the US economy in terms of sales, but they produce their medicines in Euros. This allows companies to benefit from a financial gain. Like the European pharmaceutical industry, some other industries are benefiting from the current exchange rate levels, for example the oil companies, carmakers and paper production companies.

All in all, a weak Euro currency is good for the European economies because exports become cheaper and imports more expensive.

3.2 – Pharmaceutical sector

Pharmaceutical industry is composed by companies that produce and sell medicines, vaccines, consumer care products and other related products. This sector has two different types of companies: the ones that cover every step of medicine life cycle and the ones that only produce and market medicines.

Companies that cover every step of medicine life cycle are the ones that research, develop, test, produce and sell their own medicines. These companies work together with regulatory authorities to test and approve new medicines to be marketed. Also, these companies commit themselves to closely track their approved medicines, in search of further knowledge about their effects on the human body.

To promote research and protect intellectual property, the large majority of countries protect the new discoveries by a patent policy, giving companies exclusivity to produce and sell the medicine for a limited period, usually 20 years.

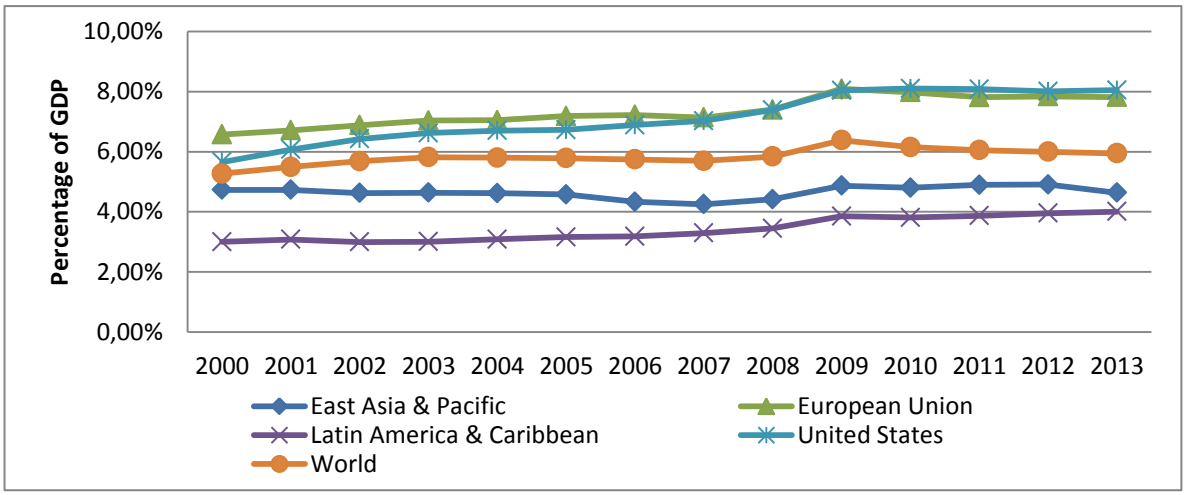
Generic companies do not have R&D expenses and have less regulatory and clinical testing expenses, focusing on production and marketing costs. These companies take advantage of patent expiration, inefficiencies in IP protection laws and patent validity challenges. When a patent expires or is lost, the company which created the new medicine no longer as the exclusivity to produce and sell the medicine. Therefore, other companies start to produce similar medicines at lower, more competitive, prices. These are called generic medicines.

Other feature of the pharmaceutical sector is the companies' profile. Every company has its own profile, meaning that the areas of research change from company to company and the specialization area is also different.

This sector is one of the most regulated. Every new medicine has to pass through a series of tests and clinical trials to possibly be approved by national regulators. These regulatory bodies do not have the same criteria and testing phases, so a new medicine can have marketing authorization in the United States and not in Europe. Although every region has its own health safety regulator, the most closely followed by is the US Food and Drugs Administration.

3.3 – Healthcare expenditure

Figure 4 – Government health expenditure as % of GDP by world region 2000 - 2013



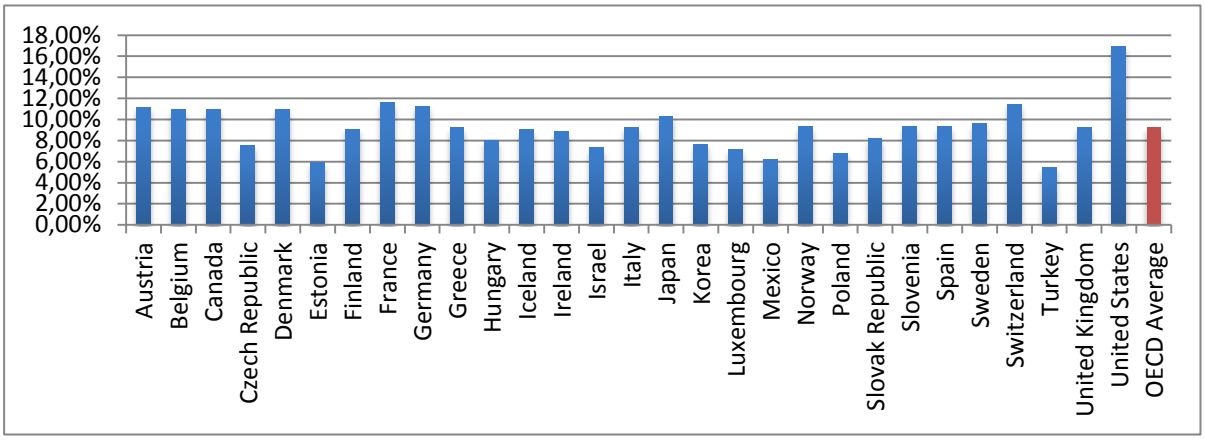
Source: The World Bank, World Health Organization Global Health Expenditure database

The above chart shows the general government health expenditure by world region as a percent of its GDP. United States and the European Union are the regions where government spending is higher, justifying why pharmaceutical companies are so exposed to these markets. Since 2009, both regions maintained around 8% of GDP spent on health stopping the upward trend since the beginning of 2000's.

Health expenditure represents 6% of the World GDP.

The region with the smallest amount spent in health care is Latin America & Caribbean. It grew 1% in a decade but only represents 4% of the region GDP.

Figure 5 - Total health spending by country as a % of GDP 2012



Source: OECD health statistics

Figure 5 shows both public and private health spending by OECD country. The OECD average was 9.23% of GDP spent on health.

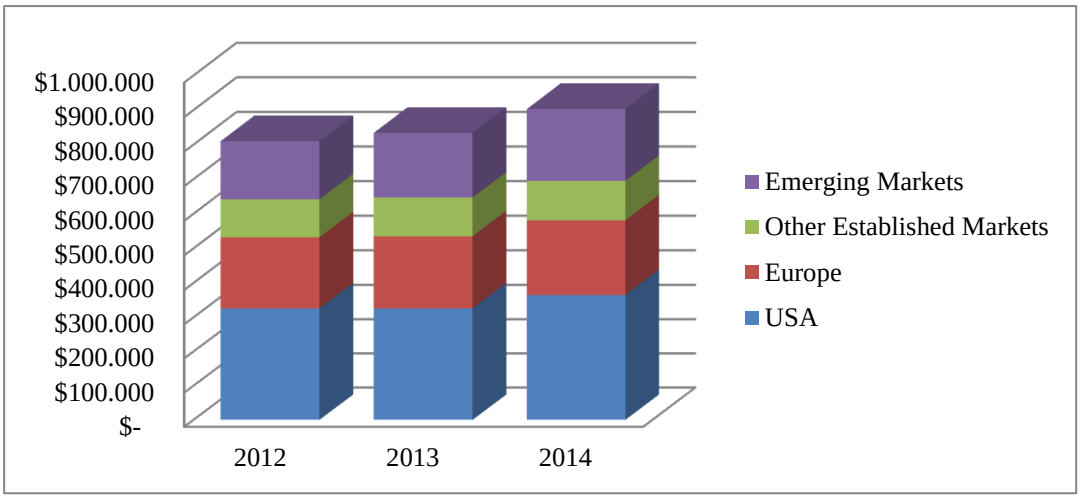
The United States stands out as the country with the biggest percentage of GDP spent on health related costs, around 17%. This fact is explained by the features of the American health system. In the US the health system is mainly private, meaning that people have to pay private insurance to guarantee access to health care. Public expenditure in health care is related with the fact that it is the government that ensures access to health care to the public sector employees.

In Europe, there are public healthcare systems provided by the national government budget, which means most of the total health spending as a percentage of GDP it is made the general government. Therefore, populations have total access to health care without the need of health insurance, reducing the total expenses on health. The European average expenditure on health is 9.25%, meaning that private spending is around 1.25%.

3.4 – Industry sales by world region

In the recent years, top industry sales were $903 billion in 2014, which represent a growth of 8.3% comparing with 2013.

Figure 6 - World industry sales by geographic region



Source: AstraZeneca 2014 annual report

Has Figure 6 shows, the US market was responsible for $365 000 million of 2014 industry sales, which represents 40% of total sales. This is the result of the worlds' biggest public and private expenditure on health related goods and services has already mentioned.

The second biggest market is Europe, which represented 24% of industry sales.

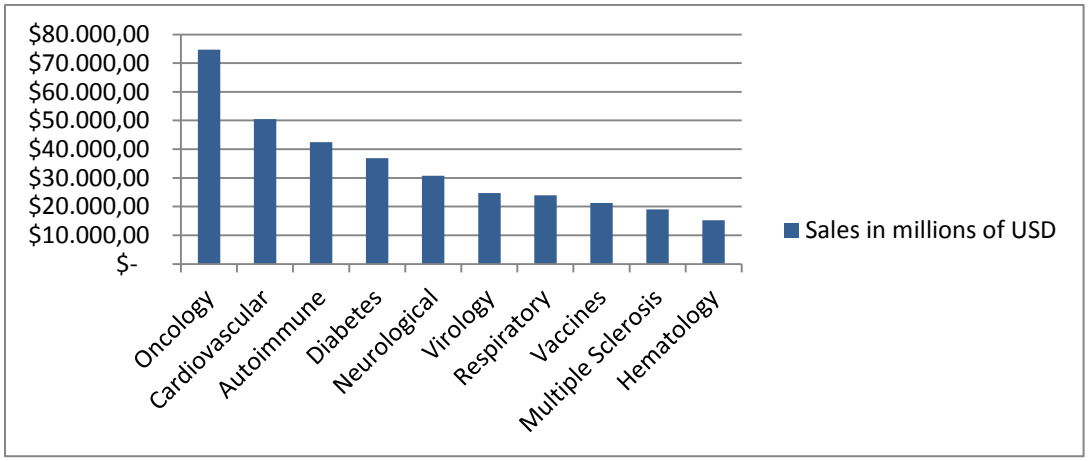
Also important to refer are the demographic trends of the majors markets. According to the World Bank, 14% of the US population is over 65 years. In Europe in 2014, according to the Eurostat, 18.5% of population was over 65%. A high percentage of elderly population translates in more healthcare expenses.

The Emerging markets growth in industry sales, comes from the fact that recent development and economic growth, in several of these countries, brought populations conditions to pay health care and allowed governments to provide better health care conditions. Industry sales, in the emerging markets, grew from $168 000 million to $208 000 million, the biggest sales growth of every geographic region.

Although the Emerging markets are seen as the region with the biggest growth potential, the USA, Europe and other established markets still account for 77% of industry sales.

3.5 – World sales by therapeutic area

Figure 7 - Top 10 therapeutic areas by sales in 2014



Source: Bloomberg

Therapy areas are the fields where companies do their research and development, in order to produce medicines to fight the main diseases affecting world populations. The top 10 diseases with higher levels of revenue, account for 84% of total industry sales and are the ones included in the graphic above[3].

Oncology is the area that deals with tumours and cancer. Cancer is one of the diseases with the highest number of mortality cases. According to the World Health Organization, in 2012, there were 14 million new cases (7.4 million men and 6.7 women) and 8.2 million deaths by cancer. The most common types of cancer are lung cancer, breast cancer, stomach cancer and colorectal cancer. It is expected that the number of new cases raises by 70% in the next 2 decades, to 22 million. The oncology field is the new leading therapeutic area by sales, growing $12 783 million from 2010 to 2014. Last year achieved $74 734 million in global sales.

The second biggest therapeutic area is Cardiovascular, which is related with heart diseases. In 2012, it caused the death of 17.5 million people worldwide, of which, 7.4 million due to coronary heart disease and 6.7 million due to stroke. In the future, scientists expect a rise in cardiovascular deaths of 23.3 million by 2030. It was the leading area, representing $83 579 million in global sales in 2010. 2014 was the worst year, accounting for $50 475 million in global sales. This downward trend is due to patents expirations in most big pharmaceutical companies and the consequent appearance of generic versions.

[3] Absolute values available in Annex 12

Autoimmune diseases occur when the body's immune system attacks healthy cells rather than bad cells, affecting the body own tissues. There are more than 80 different known types of autoimmune diseases and can affect every part of the body. Since 2004, this therapeutic area sees constant growth and from 2010 to 2014 doubled its global sales. Last year, it posted $42 478 million in global sales, a record high.

Diabetes is a condition associated with high levels of blood sugar and can damage eyes, kidneys, nerves and heart. There are over 347 million people and it is expected to be the 7th cause of death by 2030. Diabetes numbers are growing every year, in number of patients and in global sales. In 2014, accounted for $36.917 million of the total industry sales and analysts expect $55.300 million by 2017. Obesity, physical inactivity and a promising pipeline of new drugs are amongst the reasons that support this growth.

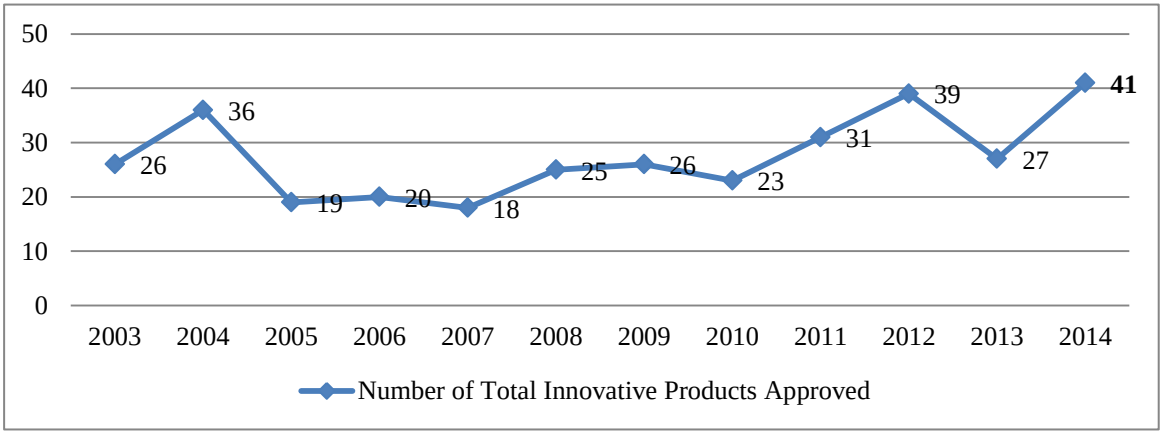
3.6 – Regulatory Entities

The US Food and Drug Administration, founded in 1906, is the American regulatory entity responsible for securing public health. With this goal, it is the authority that ensures the safeness, effectiveness and approves all the medicines sold in the United States.

As mentioned earlier, the United States are the major geographic market of this sector, which makes the number of FDA approvals a key industry indicator.

Last year, FDA achieved the highest number of medicine approvals since 2000 after a slump in 2013, result of the exploration of new product areas, more specific than the traditional ones.

Figure 8 - FDA approvals 2003 - 2014



Source: Bloomberg

In European Union, the regulatory system is more complex than in the US and it is not centralized in one entity. European Commission, regulatory authorities of the European Economic Area members and the European Medicines Agency operate jointly to ensure medicine safeness.

There are different ways a company can use to make its medicines approved for marketing in the EU.

For innovative medicines, it must be used the centralized way. The pharmaceutical company submits a market authorization application to the European Medicines Authority, which starts clinical trials and scientific processes to conclude about the safeness and efficiency of the new medicine. After testing, EMA gives its opinion on whether the medicine should be authorized or not to be marketed in the EU. If authorized by the European Commission, the medicine is available to be sold in all EU members.

When a company wants to sell a new medicine in more than one EU country it can follow two paths.

Using the decentralised procedure, the company seeks approval to sell the medicine in several EU member states without the compulsory steps of the centralized way. This path is only for medicines which do not have authorization to be marketed in any EU country.

For medicines which have been already approved in one member state, the company uses the mutual recognition procedure. In this procedure, the company applies for the extension of the authorization to the other EU member states. Countries rely on the scientific assessment of local regulatory authorities.

All EU member states regulatory authorities follow the same rules and procedures to evaluate medicines. Every human or veterinary medicine approved or rejected is presented in a European Public Assessment Report (EPAR), after being analysed by EMA.

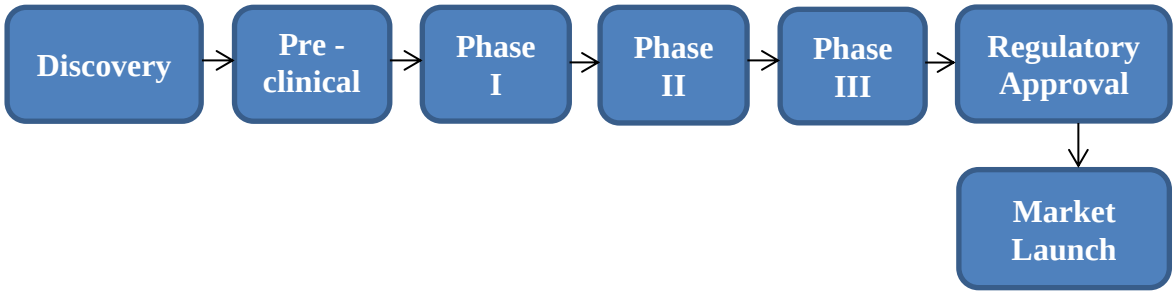
After marketing approval, each member state considers the potential use of the medicine by the national health system and concludes about the pricing and refund.

Additionally, there are the Pharmaceuticals and Medical Devices Agency in Japan and the State Food and Drug Administration in China, which have their own criterion and clinical test requirements.

3.7 – Medicine development process

The development process of a new medicine is costly, complex and implies risk with no guarantees of success. It takes several years from the first investments in R&D until the launch of the new medicine in the market. In order to clarify the creation process of a new medicine, the following explanation is based on the US Food and Drug Administration process and regulations, because it is the most closely followed by the analysts.

Figure 9 - From discovery to market launch by FDA criterion



Source: U.S. Food and Drug Administration

The path begins with laboratory research, when scientists discover a potential unmet medical need. This step takes, on average, 2 to 5 years to complete.

Next, the new finding starts to be tested using animals and *in vitro* laboratory experiments. This stage is called pre-clinical testing and takes, on average, 1 year. Researchers will try to assess, for the first time, if the new discovery is safe for human health, in what quantities it should be used, disease healing efficiency and potential side effects. During pre-clinical tests, company starts seeking for patent protection for the intellectual property.

The development period begins with FDA's Phase I. In this stage, the new medicine is tested on a small group (20 to 80) of healthy human volunteers. The goal is to find the risk/benefit profile by studying how the human body reacts and processes the medicine; clarify safe dosage; and side effects. Also, the manufacturing process starts to be developed, to reduce costs and ensure high production levels. Phase I clinical testing takes 1 year.

Next stage of development is FDA's Phase II, where the medicine is used by a group of 100 to 300 patients, over 2 years. In this phase the company can calculate the effectiveness and body tolerability of the new medicine on humans affected by the disease. During this process, starts the preparation of FDA's Phase III to insure that all the data required for the medicine's approval, is available. Additionally, the company prepares the medicine pricing and looks for

external advisory to find ways to prove the differentiating elements of the new medicine from existing medicines.

Concluding Phase II with success allows the medicine to enter FDA's Phase III and be tested in a larger group of patients (around 1 000 patients). With these clinical trials, the dangers and the benefits of using the new drug are assessed more broadly, as the larger group helps to improve knowledge on how the medicines provides an effective treatment for the disease is trying to fight. The information obtained will be used to define the medicines risk/benefit profile. On the commercial side, the medicine brand is created to prepare its market launch. It takes about 3 to 4 years to conclude Phase III.

If the new medicine passes successfully these three Phases, the company looks for regulatory approval to start producing and launch the medicine in the market. It must deliver to the regulatory authority every piece of clinical data obtained in the three phases of the process to prove the efficiency and security of the new medicine. The regulatory authority has to decide if the medicine needs further testing or if it can be approved.

After about 10 years of research and regulatory processes, the new medicine is launched in the market and prescribed to patients. Although the new medicine is already available in the market, the company needs to constantly monitor it for possibly new side effects found, to the extent of updating the side effects warning.

During the medicines' life-cycle the company has to continuously search for more knowledge about disease healing efficiency and possibility extent of patient population it can be prescribed.

Recently, companies are investing in biologic medicines, which extend product life by being more difficult to be substituted by generics.

3.8 – Intellectual Property

Intellectual property is the biggest asset of “pure” pharmaceutical company, so the industry needs a clear and fair patent system.

A patent is an incentive to innovation. It gives companies a safe guard for their discoveries and allows them to recover the huge investments needed in R&D and regulatory requirements.

Patent policy is different in every territory and it has limited duration. In most countries, after 20 years the patent expires and the company loses the right to exclusively produce and market the medicine. When this happens, generic versions start to be sold in the market. Patent expiration is usually associated with a negative impact on pharmaceutical companies' sales.

Considering that most part of the protected years are spent in clinical tests and regulatory requirements, some of the major markets have Patent Term Extensions. This extension varies from zero to five years depending on the market and on the medicine in question.

The data submitted in every step of the regulatory procedures is also considered intellectual property and is subject to intellectual property protection. It is called "data exclusivity" or "regulatory data protection" and protects the clinical information of the testing phases from being used by competitors. The "regulatory data protection" period begins when the new medicine is approved for sale.

The regulatory data protection differs in duration and rules from country to country. The EU grants a period of 8 years plus 2 years for the right to be the exclusive seller. The US grants 12 years data exclusivity for new biologic components.

3.9 – European Pharmaceutical Large Cap

3.9.1 – Bayer AG (Price: €113[4])

Figure 10 - Bayer AG results overview 2009 – 2014

Bayer (BAYN GY)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 43 461,8	$ 46 548,2	$ 50 861,9	$ 51 102,0	$ 53 341,1	$ 56 114,0
yoy	-	7,10%	9,27%	0,47%	4,38%	5,20%
EBITDA	$ 10 730,2	$ 11 806,9	$ 12 480,2	$ 11 225,7	$ 10 251,9	$ 11 115,5
EBITDA margin	24,69%	25,36%	24,54%	21,97%	19,22%	19,81%
EBIT	$ 6 813,2	$ 7 089,4	$ 8 624,6	$ 7 383,5	$ 6 405,1	$ 7 215,0
R&D Expenses	$ 3 829,1	$ 4 050,10	$ 4 082,50	$ 3 874,30	$ 4 524,20	$ 4 748,00
Net Income	$ 1 895,00	$ 1 725,90	$ 3 439,20	$ 3 090,00	$ 4 236,00	$ 4 551,40
Market Cap	$ 66 355,20	$ 60 652,00	$ 52 943,20	$ 78 603,80	$ 116 344,10	$ 113 601,20
EPS	$ 2,37	$ 2,08	$ 4,16	$ 3,74	$ 5,13	$ 5,50
DPS	$ 1,95	$ 1,99	$ 2,30	$ 2,44	$ 2,79	$ 2,99
Dividend Yield	2,50%	2,71%	3,34%	2,64%	2,06%	1,99%

Source: Bloomberg and Bayer 2014 annual report

[4] Daily last price as of 30/12/2014

Bayer AG is a German company, based in Leverkusen, Germany. It quotes in Euros in the Deutsche Bourse. It was founded in 1863 and is the creator of several well-known medicines and medical substances, such as aspirin and heroin.

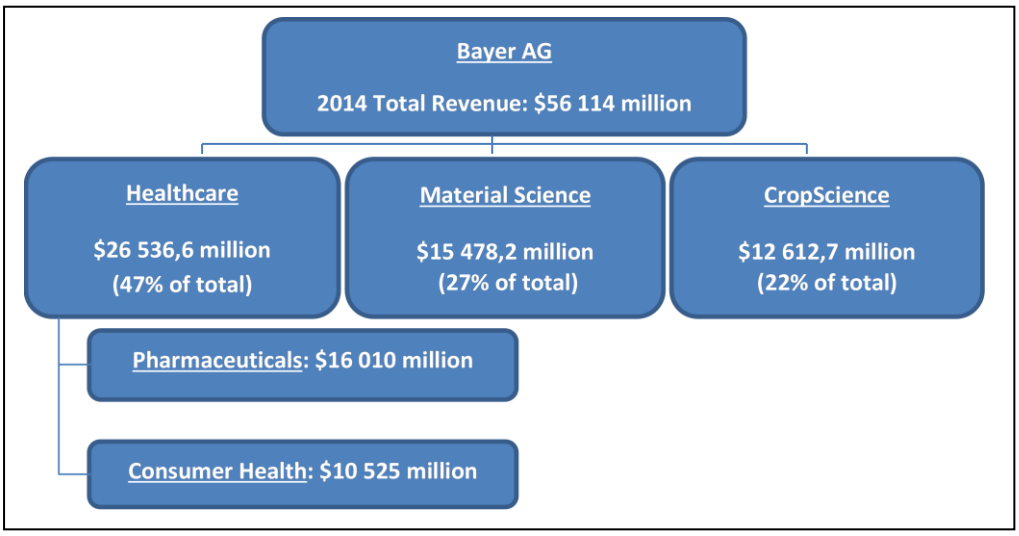
The company is divided in three business areas, HealthCare, CropScience and Material Science. Bayer HealthCare unit deals with animal health, consumer care, medical care and pharmaceuticals.

CropScience is the environmental science unit, which does research and commercializes insecticides, herbicides and other agricultural products.

MaterialScience is responsible for polycarbonates, polyurethanes and other high tech polymer materials.

Bayer pharmaceutical unit focuses on 5 therapeutic areas[5]: cardiology, oncology, ophthalmology, hematology and gynecology.

Figure 11 - Bayer organizational structure and contribution sales in 2014



Source: Bloomberg and Bayer 2014 annual report

Bayer major markets are Europe, USA and Asia Pacific. Unlike most pharmaceutical companies, the US is not Bayer main market, accounting for 24.26% of 2014 sales. Europe is the biggest geographic market representing 37.42% of 2014 total sales.

[5] Bayer sales by therapy in Annex 29

In 2015, is expected some newsflow from medicines in testing phases. *Finerenone*, a medicine for heart failure, is expected to succeed in FDA Phase II and became a long term growth driver. *Xarelto* sales are expected to raise a compound annual growth rate of 16%[6], driving the operating margin up. Also important will be the integration in Bayer of Merck & Co's consumer business.

3.9.2 – GlaxoSmithKline Plc (Price: £13.76[7])

Figure 12 - GSK results overview 2009 – 2014

GlaxoSmithKline (GSK LN)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 44 421,90	$ 43 885,40	$ 43 925,50	$ 41 895,50	$ 41 474,60	$ 37 899,50
yoy	-	-1,21%	0,09%	-4,62%	-1,00%	-8,62%
EBITDA	$ 17 408,30	$ 10 714,80	$ 16 047,80	$ 13 861,60	$ 15 350,50	$ 12 381,70
EBITDA margin	39,19%	24,42%	36,53%	33,09%	37,01%	32,67%
EBIT	$ 14 962,40	$ 8 119,60	$ 13 725,50	$ 11 571,10	$ 11 685,80	$ 10 004,50
R&D Expenses	$ 6 186,90	$ 6 127,10	$ 6 430,00	$ 6 307,10	$ 6 138,60	$ 5 683,40
Net Income	$ 8 661,10	$ 2 525,70	$ 8 438,00	$ 7 131,30	$ 8 506,20	$ 4 540,20
Market Cap	$110 604,00	$ 100 458,00	$ 115 226,00	$ 106 304,00	$129 603,00	$ 104 267,20
EPS	$ 1,71	$ 0,50	$ 1,68	$ 1,47	$ 1,76	$ 0,94
DPS	$ 0,96	$ 1,00	$ 1,12	$ 1,17	$ 1,22	$ 1,32
Dividend Yield	4,62%	5,24%	4,76%	5,54%	4,84%	5,81%

Source: Bloomberg and GSK 2014 annual report

GlaxoSmithKline Plc is a British company, headquartered in Brentford, United Kingdom. The company was founded in 2000 by the merger between Glaxo Wellcome and SmithKline Beecham. Its stock is listed in the London Stock Exchange and in NYSE.

The company research, develops, produces and sells pharmaceuticals, consumer healthcare products and vaccines. Considering the pharmaceutical unit, GSK produces medicines for respiratory diseases, oncology, cardiovascular, metabolic and urology diseases, immune-inflammation and HIV.

[6] According to JP Morgan Cazenove European Pharmaceutical published on 5 January 2015
[7] Daily last price as of 31/12/2014

Figure 13 - GSK sales by therapeutic area in 2014

GlaxoSmithKline (GSK LN)		
In millions of USD	**2014**	**% of Total Sales**
Respiratory	$ 10 182,40	26,87%
Oncology	$ 1 980,00	5,22%
Cardiovascular & Metabolism	$ 1 589,70	4,19%
Immuno-inflammation	$ 352,50	0,93%
ViiV Healthcare (HIV)	$ 2 467,80	6,51%
Others	$ 8 925,40	23,55%
Other sources of Revenue	$ 12 401,70	32,72%
TOTAL Pharmaceuticals	**$ 25 497,80**	**67,28%**

Source: Bloomberg and GSK 2014 annual report

These therapeutic areas represent 67.28% of company revenue. The most important area is Respiratory, in which the company is a global leader. It accounts for 26.87% of the total sales. Oncology is a recent business but already weighs 5.22% in company sales.

Geographically, the major market is the US accounting for 29% of total revenues, followed by Emerging Markets with 18.5% and Europe with 17.5%.

Sales evolution in recent years have not been good, sales were down 8.62% in 2014. EPS also saw a sharp fall last year to $0.94. Although 2014 was a good year for Oncology and HIV units, Respiratory and Cardiovascular units pushed sales down.

Considering geographic markets, sales were down in US, Europe and Japan. Emerging Markets reported year on year growth but not enough to compensate the $1745 million fall in US sales.

Nevertheless, the company shows an attractive dividend yield with growing dividend per share, compared with peers.

In 2015, is not expected great news from its medicine pipeline and there is no medicine looking to become a long term growth driver. Some good news can come from chronic obstructive pulmonary disease medicines. The differentiation of its medicine *Breo* from Novartis *Advair*, is a key element for GSK growth.

3.9.3 – Novartis AG (Price: CHF 92.35[8])

Figure 14 - Novartis results overview 2009 - 2014

Novartis (NOVN VX)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 44 267,00	$ 50 624,00	$ 58 566,00	$ 56 673,00	$ 52 090,00	$ 52 419,00
yoy	-	14,36%	15,69%	-3,23%	-8,09%	0,63%
EBITDA	$ 12 283,00	$ 14 945,00	$ 16 786,00	$ 16 113,00	$ 15 388,00	$ 15 771,00
EBITDA margin	27,75%	29,52%	28,66%	28,43%	29,54%	30,09%
EBIT	$ 9 982,00	$ 11 526,00	$ 10 998,00	$ 11 193,00	$ 10 983,00	$ 11 089,00
R&D Expenses	$ 7 469,00	$ 9 070,00	$ 9 583,00	$ 9 332,00	$ 9 071,00	$ 9 086,00
Net Income	$ 8 400,00	$ 9 794,00	$ 9 113,00	$ 9 270,00	$ 9 175,00	$ 10 210,00
Market Cap	$143 791,70	$154 698,90	$ 157 068,20	$ 170 285,60	$217 105,30	$ 252 671,00
EPS	$ 3,70	$ 4,28	$ 3,83	$ 3,83	$ 3,76	$ 4,21
DPS	$ 2,04	$ 2,34	$ 2,25	$ 2,51	$ 2,74	$ 2,61
Dividend Yield	3,74%	3,99%	3,93%	3,99%	3,42%	2,80%

Source: Bloomberg and Novartis 2014 annual report

Novartis is a Swiss company, based in Basel, Switzerland. The company is the result of a merger between two Swiss companies, Ciba-Geigy and Sandoz Laboratories in 1996.

It is quoted in the Swiss Exchange, in the NYSE and is one of the components of Stoxx 600 index.

Company business is divided in 5 areas, but Pharmaceuticals, Alcon and Sandoz represent 99% of company sales. The company pipeline counts with 135 projects in development.

Pharmaceutical is the division responsible for development, testing, production and selling of innovative medicines. The company operates in Oncology, Cardiovascular, Neuroscience, Ophthalmology and Infectious diseases. Novartis pharmaceutical unit accounts for 61% of its sales, being the largest unit of the company.

Figure 15 - Novartis sales by therapeutic area in 2014

Novartis (NOVN VX)		
In millions of USD	**2014**	**% of Total Sales**
Oncology	$ 11 703,00	22,33%
Cardiovascular & Metabolism	$ 7 961,00	15,19%
Neuroscience	$ 4 509,00	8,60%
Ophtalmology	$ 2 504,00	4,78%
Infectious Diseases	$ 3 112,00	5,94%
Others	$ 2 002,00	3,82%
TOTAL Pharmaceuticals	**$ 31 791,00**	**61,25%**

Source: Bloomberg

[8] Daily last price as of 30/12/2014

Alcon is the second largest division of Novartis. It develops, produces and commercializes eye care medicines and devices. It is the global leader in this field accounting for 20% ($10.827 million in 2014) of Novartis sales.

Sandoz is the generic division of Novartis, which means it produces and markets medicines that lost their patents and can now be produced by any company. In 2014, Sandoz revenue was $9.562 million, weighting 18% in Novartis total sales.

Novartis operates in 150 countries worldwide. The major market is Europe, 36.72% of sales, and the United States are the second accounting for 32.40% of total sales. Asia, Africa and Australasia (Oceania) represent 21%.

In 2015, is expected the launch of *LCZ696*, a cardiovascular medicine. The promising results obtained in the testing phase anticipate strong demand when the medicine reaches the market. Also promising is Novartis pipeline, in particular medicines to fight breast cancer and geographic atrophy which are due to report latest discoveries in 2015.

3.9.4 – Novo Nordisk A/S (Price: DKK 260.30[9])

Figure 16 - Novo Nordisk results overview 2009 – 2014

Novo Nordisk (NOVOB DC)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 9 565,80	$ 10 826,50	$ 12 398,80	$ 13 478,50	$ 14 884,60	$ 15 824,90
yoy	-	13,18%	14,52%	8,71%	10,43%	6,32%
EBITDA	$ 3 274,40	$ 3 804,70	$ 4 646,60	$ 5 535,90	$ 6 107,60	$ 6 758,50
EBITDA margin	34,23%	35,14%	37,48%	41,07%	41,03%	42,71%
EBIT	$ 2 796,60	$ 3 365,20	$ 4 181,30	$ 5 091,50	$ 5 609,10	$ 6 146,30
R&D Expenses	$ 1 472,80	$ 1 710,50	$ 1 799,30	$ 1 882,40	$ 2 089,70	$ 2 452,30
Net Income	$ 2 016,60	$ 2 565,70	$ 3 195,10	$ 3 702,20	$ 4 485,40	$ 4 718,80
Market Cap	$ 39 665,50	$ 67 143,50	$ 66 741,10	$ 90 964,50	$ 101 141,50	$ 112 619,60
EPS	$ 0,67	$ 0,88	$ 1,13	$ 1,35	$ 1,67	$ 1,80
DPS	$ 0,28	$ 0,36	$ 0,52	$ 0,62	$ 0,80	$ 0,89
Dividend Yield	2,26%	1,59%	2,12%	1,96%	2,26%	1,92%

Source: Bloomberg

Novo Nordisk is a Danish pharmaceutical company, based in Bagsvaerd, Denmark. It quotes in the Copenhagen Exchange and is included in the Stoxx 600 index.

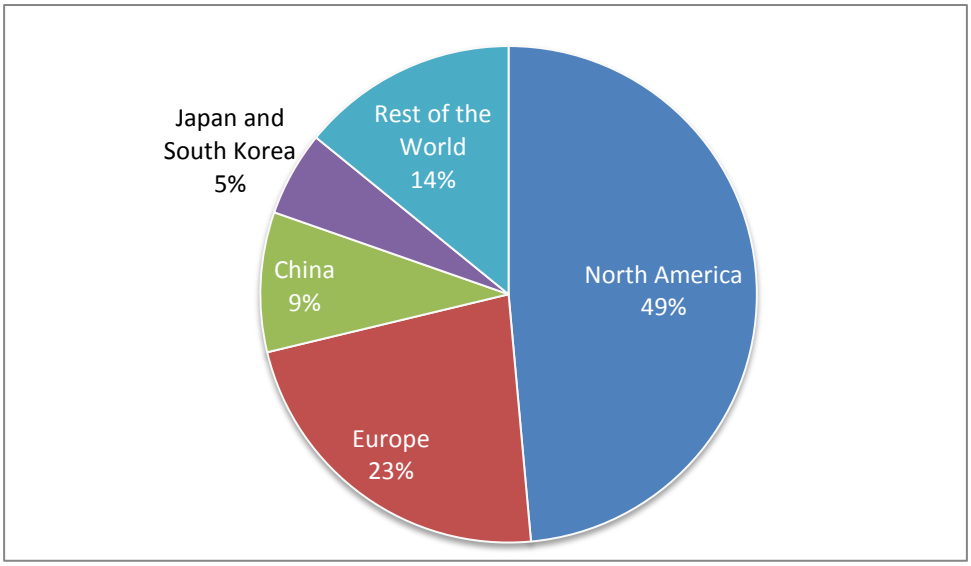
[9] Last daily price as of 30/12/2014

The company is the result of a merger, in 1989, of two Danish companies, Nordisk Insulinlaboratorium, founded in 1923, and Novo Terapeutisk, founded in 1925. Both companies focused on the production of insulin and development of medical products to fight diabetes.

Today it has 4 therapeutic areas, diabetes, haemostasis management, growth hormone therapy and hormone replacement. These last 3 areas are included in the biopharmaceutical unit which represents 46% of total sales.

The key area of Novo Nordisk is diabetes, in which the company researches, developments and markets several medicines and devices. Diabetes represents 78.8% of Novo Nordisk total sales.

Figure 17 - Novo Nordisk sales of 2014 by geography



Source: Bloomberg

The Danish company is very exposed to the US market, which represents almost half of its total sales, followed by Europe with 23% of contribution to sales.

Novo Nordisk presents constant sales growth since 2009 and at a good pace, achieving 10.59% CAGR. EBITDA margins are also very good, 42.71% in 2014, which is 10% better than peers. Net Income doubled in 5 years, from $2 016 million to $4 718 million.

In 2015, the company expects “high single digit” sales growth. Good news are expected from the testing of *Semaglitude*, a new diabetes treatment, *FIAps*, a new version of insulin and *oral GLP-1*, a medicine that stimulates the release of insulin when blood sugar is low.

3.9.5 – Roche AG (Price: CHF 269.90[10])

Figure 18 - Roche AG results overview 2009 – 2014

Roche (ROG VX)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 45 310,40	$ 45 671,90	$ 48 153,50	$ 48 543,90	$ 50 495,60	$ 51 906,40
yoy	-	0,80%	5,43%	0,81%	4,02%	2,79%
EBITDA	$ 17 491,90	$ 17 661,50	$ 20 259,50	$ 20 205,40	$ 20 711,00	$ 18 278,00
EBITDA margin	38,60%	38,67%	42,07%	41,62%	41,02%	35,21%
EBIT	$ 15 004,30	$ 15 206,30	$ 17 578,80	$ 17 622,40	$ 18 140,80	$ 15 409,40
R&D Expenses	$ 9 121,00	$ 9 645,60	$ 9 426,70	$ 10 191,20	$ 10 006,30	$ 10 920,00
Net Income	$ 7 190,40	$ 8 337,20	$ 10 578,10	$ 10 057,90	$ 12 050,70	$ 10 205,90
Market Cap	$147 115,50	$127 120,40	$147 120,40	$147 548,70	$174 343,40	$ 241 873,00
EPS	$ 8,38	$ 9,76	$ 12,47	$ 11,86	$ 14,21	$ 12,02
DPS	$ 5,54	$ 6,35	$ 7,70	$ 7,84	$ 8,42	$ 8,75
Dividend Yield	3,41%	4,82%	4,27%	3,99%	3,13%	2,96%

Source: Bloomberg and Roche annual report 2014

Roche Holding AG is a Swiss based pharmaceutical company. Founded in 1896 by Fritz Hoffman-La Roche, is headquartered in Basel, Switzerland. The company first started to produce vitamins and related products. It was the first company to mass produce synthetic vitamin C, in 1934 and discovered the first antidepressant, in 1956.

Nowadays, Roche has two main sources of revenues, pharmaceuticals and diagnosis. Pharmaceuticals account for 77.32% of Roche sales and is divided into Oncology, Immunology, Infectious diseases, Ophthalmology, Neuroscience and other therapeutic areas.

Figure 19 - Roche sales of 2014 by therapeutic area

Roche (ROG VX)		
In millions of USD	**2014**	**% of Total Sales**
Oncology	$ 24 931,70	48,03%
Immunology	$ 5 563,30	10,72%
Infectious Diseases	$ 3 493,10	6,73%
Ophtalmology	$ 1 860,00	3,58%
Neuroscience	$ 794,00	1,53%
Others	$ 3 489,80	6,72%
TOTAL Pharmaceuticals	**$ 40 131,90**	**77,32%**

Source: Bloomberg

[10] Daily last price as of 30/12/2014

Oncology is Roche most important therapeutic area, weighting 48% of all revenues. Roche is one of the leading companies in oncology. Geographically, the US market accounts for 40% of total sales, followed by the European Union which weighs 30% on sales. In the last 4 years, the US market has been growing its importance on group sales.

In 2014, Roche grew its sales by 2.79% yoy, to $51 906 million. The oncology medicines portfolio had a great performance, mainly because of higher sales of a breast cancer medicine in every market and new cancer products. Immunology also had a good contribute for sales, growing in treatment of rheumatoid arthritis. In the US and UK, the flu epidemics also drove sales up.

In 2015, Roche is expected to provide some good data on its immune-oncology pipeline, with several medicines ending FDA Phase I and Phase II. Additionally, *Perjeta* sales are expected to increase in the near term, becoming a reference on the treatment of breast cancer. Also important is the impact of foreign exchange rates on Roche sales growth. Consensus assumes 3% benefit of FX on sales.

The company is quoted in the Swiss Exchange in Swiss francs and is one of the stocks included in the Stoxx 600 index.

3.9.6 – Sanofi (Price: 75.66[11])

Figure 20 - Sanofi results overview 2009 – 2014

Sanofi (SAN FP)						
In millions of USD	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	$ 40 865,40	$ 42 938,50	$ 46 491,10	$ 44 937,50	$ 44 240,80	$ 45 313,40
yoy	-	5,07%	8,27%	-3,34%	-1,55%	2,42%
EBITDA	$ 17 855,80	$ 15 473,60	$ 15 711,90	$ 12 637,60	$ 14 178,40	$ 13 690,10
EBITDA margin	43,69%	36,04%	33,80%	28,12%	32,05%	30,21%
EBIT	$ 10 901,70	$ 8 669,40	$ 7 979,90	$ 8 270,80	$ 6 781,00	$ 8 672,40
R&D Expenses	$ 6 390,70	$ 6 032,10	$ 6 698,90	$ 6 307,20	$ 6 336,10	$ 6 408,60
Net Income	$ 7 341,70	$ 7 252,60	$ 7 927,00	$ 6 286,60	$ 4 936,00	$ 5 832,10
Market Cap	$103 876,70	$ 83 844,80	$ 98 582,30	$ 124 767,10	$ 140 786,00	$ 120 812,60
EPS	$ 5,62	$ 5,56	$ 6,00	$ 4,77	$ 3,73	$ 4,44
DPS	$ 3,35	$ 3,32	$ 3,69	$ 3,56	$ 3,72	$ 3,79
Dividend Yield	4,36%	5,22%	4,67%	3,88%	3,63%	3,77%

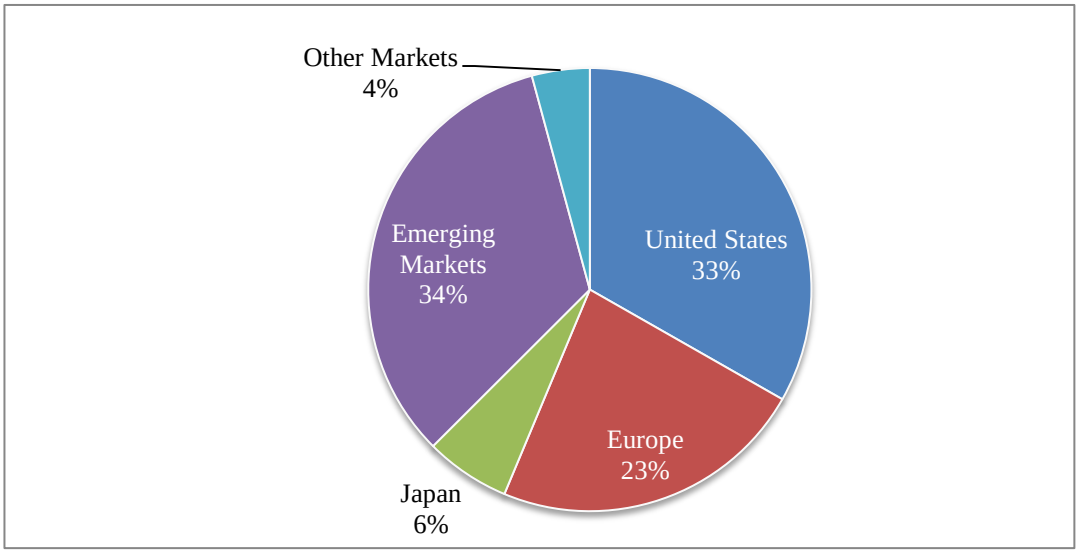
Source: Bloomberg

[11] Daily last price as of 30/12/2014

Sanofi is a French pharmaceutical multinational company, based in Paris, France. The company was founded in 2004, by the merger of Aventis and Sanofi-Synthélabo in a friendly takeover bid from Sanofi-Synthélabo to Aventis of €54.5 billion.

The company operates in three business areas, Pharmaceuticals, Vaccines and Animal Health. The Pharmaceutical unit accounts for 67% of total sales and is divided in diabetes, rare diseases, multiple sclerosis and cardiovascular.

Figure 21 - Sanofi sales of 2014 by geography



Source: Bloomberg

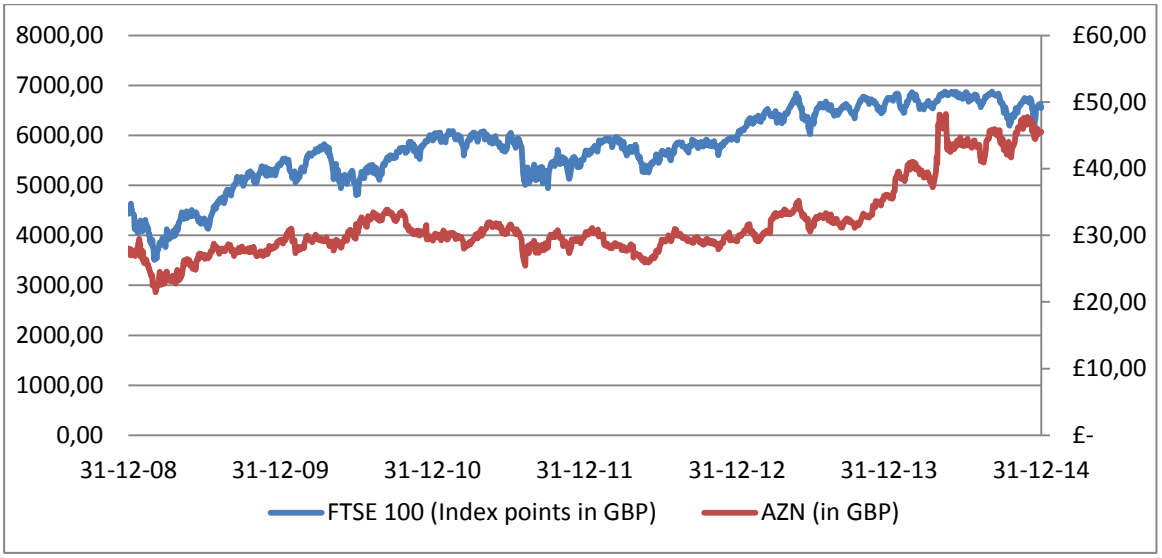
The French company operates worldwide but the Emerging Markets, especially China, other Asian countries and Latin America, are responsible for 34% of total sales. The US comes second, accounting for 33% of sales, followed by Europe with a 23% weigh on sales.

In 2014, sales reversed the downward trend of the last 2 years and grew 2.42% pushed by the increasing sales in China, Latin America and US. The EBITDA margin also recovered and stays at around 30%, in line with peers.

In 2015, is expected few pipeline newsflow, apart from the launch of *Toujeo,* a medicine for diabetes. In general, it is expected slow launch of new medicines, which is the case of *Lemtrada* and *Cerdelga* in the US market.

4 – ASTRAZENECA

Figure 22 - AstraZeneca share performance vs FTSE 100 from 2009 – 2014



Source: Bloomberg

4.1 – Company description

AstraZeneca is a British company, based in London, UK. It was founded in 1999 by the merger of the Swedish company, Astra AB and the British pharmaceutical Zeneca Group Plc.

Astra AB was founded in 1913 in Södertälje, Sweden. The company pipeline included the production of penicillin, anesthetics and cardiovascular medicines. By the time the merger happened, Astra was the leading seller of the world's best-selling prescription drug, the ulcer drug *Prilosec*.

UK-based Zeneca Group Plc was founded in 1993, by the spin-off of the pharmaceutical and the agrochemicals divisions of Imperial Chemical Industries. Until the merger with Astra AB, Zeneca therapeutic areas were oncology and cardiovascular. Zeneca was the creator and seller of the, by then, leading hypertension medicine *Zestril*.

In 1999, both companies needed a new deal to be able to face competition by Glaxo Wellcome and Merck. Additionally, the patents on their main drugs, *Zestril* and *Losec*, were about to expire and a big investment in R&D was needed to guarantee a competitive pipeline and good future perspectives. Investment that was impossible to be made if the companies remained separate.

The merger was an all-share deal, and it was one of Europe's biggest deals at the time. It created the world's fourth healthcare company, with a market capitalization of $67 billion, with combined sales of $14 billion. Astra AB shareholders received 46.5% of the new company and Zeneca Group shareholders received 53.5%. London was the chosen city for the company headquarters and the R&D headquarters are in Molndal, Sweden, with excellence centers in Cambridge, UK and Gaithersburg, USA.

AstraZeneca is one of the large capitalization pharmaceutical companies in the world, developing medicines in six different fields. It covers every step of medicine development, from research and development, testing, production and sell. In 2014, it was the sixth biggest pharmaceutical company in Europe, in terms of medicine revenues.

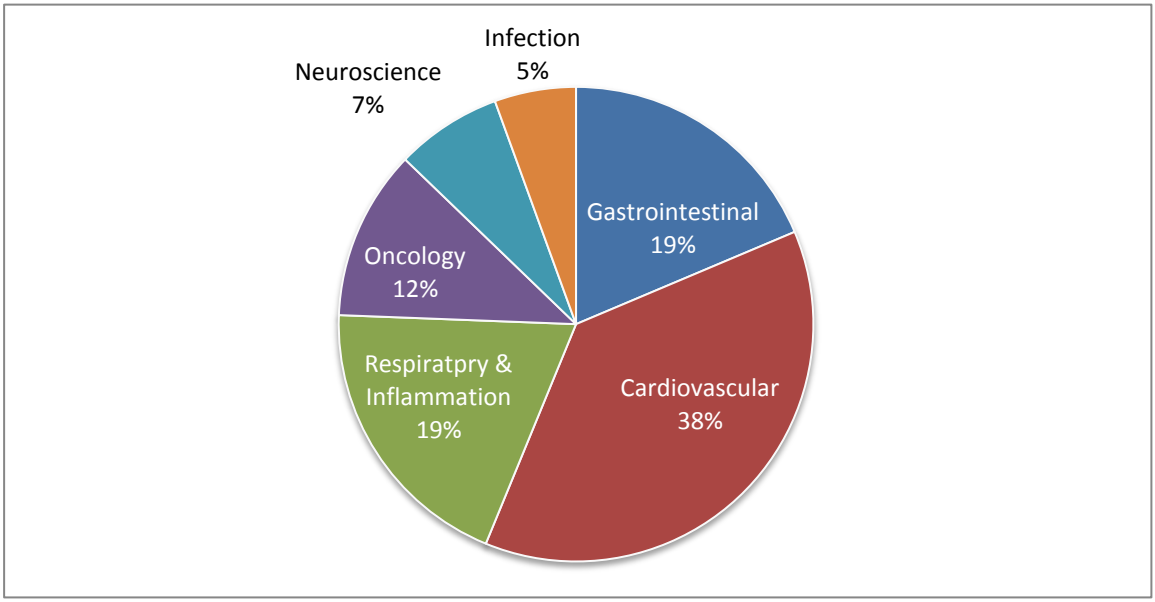
It has a key importance on British economy, representing 2.3% of British goods exports.

The company is listed in the London Stock Exchange, in the Stockholm Stock Exchange and in the New York Stock Exchange. AstraZeneca stocks take part in the British FTSE 100 index and in the Swedish OMX 30 index.

4.2 – Therapeutic Areas

AstraZeneca is a pure pharmaceutical company that operates in six major fields: Cardiology, Gastrointestinal, Respiratory and Inflammation, Oncology, Neuroscience and Infection.

Figure 23 - Therapeutic areas weight on 2014 total sales



Source: Bloomberg and AstraZeneca annual report 2014

Cardiovascular is the therapeutic area of AstraZeneca, weighting 37.56%, $9 802 million, on 2014 sales. *Crestor* is the top sales medicine and it fights "bad" cholesterol. It accounted for $5 512 million in 2014, which is 21% of total sales.

The second therapeutic area in terms of sales is Respiratory and Inflammation. This division accounted for $5 063 million in 2014. *Symbicort*, a medicine to treat asthma, represents 75% of Respiratory revenues.

Gastrointestinal is the third major source of revenue. In 2014, this therapeutic area achieved $4 865 million in sales. The most important medicine is *Nexium*, which represents 75%, $3655 million, of Gastrointestinal total sales.

AstraZeneca sales performance is highly dependent on the performance of these three medicines. All together they account for 50% of total sales.

Next is Oncology, which accounts for 11.60%, or $3 027 million, of company sales. The most important medicines of this therapeutic division are *Zoladex*, a drug used to treat prostate and breast cancer, and *Faslodex*, also to treat breast cancer. Both medicines represent 54% of oncology sales.

Neuroscience and Infection are the therapeutic areas with smaller impact on AstraZeneca sales. Neuroscience accounts for 7%, mainly due to *Seroquel*, a medicine for schizophrenia, bipolar disorder and major depressive disorder. Infection weights 5% on sales. The most important medicine is *Synagis*, used to help prevent a serious lung disease caused by respiratory syncytial virus.

4.3 – Geographic presence

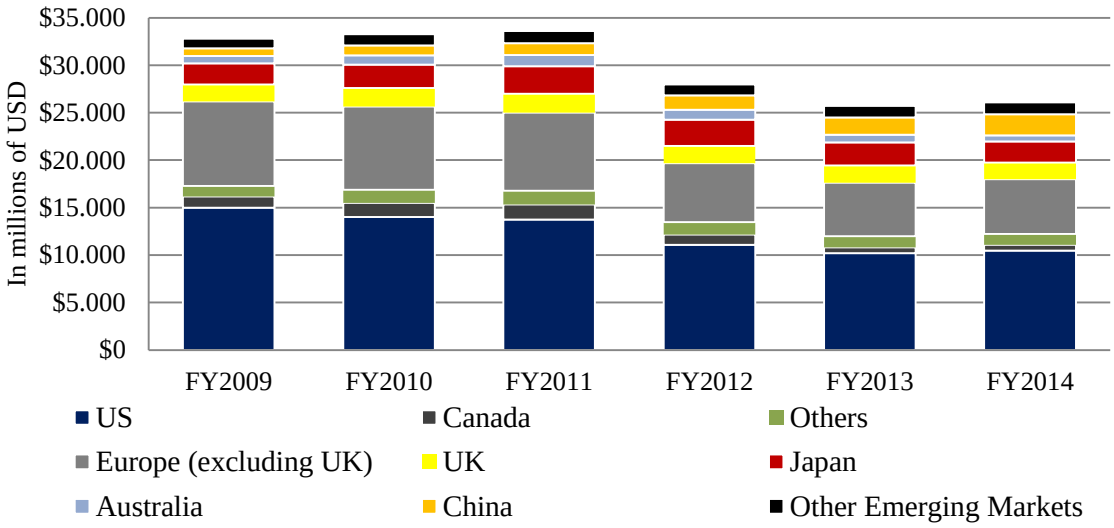
Regarding the geographic markets, the company is present in more than 100 countries and as manufacture centers in 16 countries.

The United States are AstraZeneca major market, accounting for 40% of total sales. In 2014, sales were up 3% year on year. Sales recovered, not only from the down trend since 2009 but also, from the worst yearly performance of 2013.

Europe is the second biggest market, weighting 12% on total sales. Including UK sales of $1,764 million, Europe weights 29% on total sales. Similarly to the US market, sales in

Europe (including UK) have been slowing down, hitting the bottom in 2013. Last year sales recovered, achieving $5,757 million ($7,521 million including the UK).

Figure 24 - Sales by geographic region 2009 – 2014



Source: AstraZeneca annual reports 2009 - 2014 and Bloomberg

Sales in the UK are decreasing every year since 2012. Nevertheless, AstraZeneca home country still represents 7% of the company sales.

One of the most important national markets is Japan, representing more than 8% of AstraZeneca sales. In 2014, sales were down 8% comparing with 2013, achieving $2,202 million. Since the sales peak in 2011, sales are reducing.

In 2014, China became the second major national market after the US. Unlike the downward trend felt in other geographic regions, China is growing every year and last year sales jumped 21% year on year. The country now represents almost 9% of AstraZeneca sales and it is expected to continue its upward trend. In absolute terms, China contributed with $2,228 million in sales in 2014 from $1,836 million in 2013.

4.4 – Business strategy

AstraZeneca business strategy relies on two main goals, achieve scientific leadership and return to growth.

Scientific leadership will be achieved by investing in the most important R&D projects and accelerating pipeline, in order for the medicines to reach the market in the short term. The

company wants to invest in new forms of medicines such as immune-therapy combination and by focusing in the three main therapy areas.

Returning to growth means focusing on growth platforms. The company considers the new cardiovascular medicine *Brilinta*; diabetes portfolio; respiratory pipeline with improvements in asthma and chronic pulmonary disease; new oncology medicines expected in 2020; biologic medicines; the upgrade of oncology and diabetes area in Japan; and the faster expansion to Emerging Markets the main sources of revenue growth.

Additionally, AstraZeneca commits to grow or maintain its dividend per share policy, target a strong balance sheet and investment-grade credit rating. The target for the dividend per share is $2.80.

4.5 – Shareholder structure

The top 10 major shareholders hold 44% of AstraZeneca capital.

Figure 25 - Major shareholders and percentage free float

Major Shareholders	
Name	**Ownership %**
BlackRock, Inc	8,52%
BlackRock Inv. Management UK Ltd	5,63%
Wellington Management Group Llp	5,14%
Invesco Ltd	4,99%
Vanguard Group Inc	4,78%
Investor AB	4,08%
Legal & General Group Plc	3,44%
State Street Corp	2,80%
Capital Group Companies Inc	2,41%
Aberdeen	2,38%
% Free Float	**87,28%**

Source: Bloomberg

AstraZeneca has 87.28% of its capital spread on free float.

The biggest shareholder is BlackRock Inc. with 8.52% of capital, followed by BlackRock Investment Management UK with 5.63% of capital.

Has mentioned before, the company shares quote in the London Stock Exchange trading in pounds, in the Stockholm Stock Exchange trading in Swedish kronas and in the New York Stock Exchanges trading in US dollars. In the NYSE, the company trades as an American

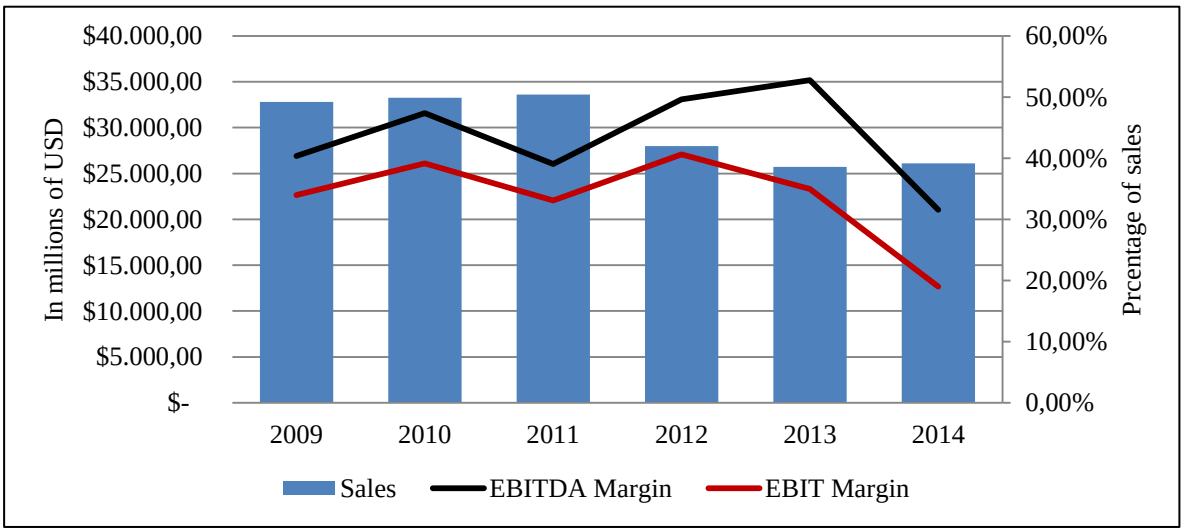
Depository Receipt where one receipt is worth 0.5 shares of AstraZeneca trading in the London Stock Exchange.

5 – FINANCIAL STATEMENT ANALYSIS

5.1 – Sales and margins

The period of analysis is from 2009 to 2014, in which two different trends can be identified[12]. From 2009 to 2011, sales grew and, since then, sales have been decreasing. Sales peaked in 2011, when the company registered $33 591 million. Last year there was a recovery from the 2013 worst sales result, growing 1.49% to $26 095 million. Sales CAGR in the analyzed period is -4.47%, showing the down trend the company is going through in recent years.

Figure 26 - AstraZeneca sales and margins 2009 - 2014



Source: Bloomberg and AstraZeneca annual reports 2009 - 2014

In 2011, the record sales on the period were achieved. *Crestor* registered its record sale of $6.622 million, growing 13% yoy. *Symbicort* and *Seroquel IR* and *XR* also posted a good sales performance by growing 11%, 3% and 27% yoy, respectively. *Nexium* and *Faslodex* were approved for sale in Japan and *Brilinta* was approved in US and Canada. Sales in the Emerging Markets grew 10%.

Also important was the sale of AstraZeneca dental and healthcare division, Astra Tech for $1 800 million in cash.

[12] Sales by medicine from 2009 until 2014 are available on Annex 5.

In 2012 sales fell 15% year on year, consequence of regional exclusivity loss of *Seroquel IR*, *Atacand*, *Nexium* and *Crestor*. This factor penalized sales in over $4 000 million. Sales in US decreased by 21%, in Europe by 19% and increased by 4% in Emerging Markets.

From 2012 to 2013 sales declined by almost 17% due to the expiration of *Arimidex* and the continuous decline of *Crestor*, *Atacand*, *Nexium* and *Seroquel IR* sales.

In 2014, the recovery was driven by the 21% growth in China and also, by the 3.89% growth in Other Emerging Markets[13]. Good performance of sales in China was, mainly, due to the growth of Cardiovascular and Respiratory areas. *Crestor* and *Pulmicort* were the main growth drivers.

In the USA, sales grew by 2.81% in 2014. In terms of medicines, *Brilinta* and *Symbicort* pushed sales up, offsetting the decrease felt in *Nexium*, *Synagis* and *Seroquel IR*. *Brilinta* sales more than doubled to $146 million and *Symbicort* sales grew 23% to $1 511 million. Also positive, was the conclusion of the acquisition of Bristol Myers Squibb share of the Global Diabetes Alliance[14], which strengthens AstraZeneca diabetes portfolio with medicines like *Onglyza*, *Byetta* and *Bydureon*. The worst performer was *Synagis* that was down almost 50% due to the restriction of patient treatment with this medicine by the American Academy of Pediatrics. Additionally, *Crestor* saw a decrease of 4% in prescription.

In Europe, sales decreased by 1%. Generic competition was the main reason for this result. Among the medicines that lost exclusivity are *Atacand* and *Seroquel*. *Symbicort* also contributed negatively to European sales, because of pricing pressure due to new competition on the market result of the launch of a new similar medicine. *Brilinta* sales growth avoided a bigger fall in general European sales.

Sales in Japan disappointed by decreasing 8% to $ 2 202 million, the worst performance since 2009. Sales were affected by the increase use of generics which compete with key AstraZeneca medicines and by the recall of *Nexium* due to packaging problems.

Considering global sales by medicine, the Cardiovascular division had the best contribute. In this therapeutic area, *Bydureon* grew 191% to $440 million driven by the increase of the number of prescriptions in every market; *Onglyza* sales increased 117% to $820 million; and

[13] Emerging markets excluding China: Russia, Latin America, Middle East and Africa
[14] Global Diabetes Allience is a joint venture with the purpose of investing in the research of new ways to fight diabetes.

Brilinta achieved $476 million in sales (+68%) reflecting the growth of US total prescriptions. The worst performers were the Infection, Neuroscience and Gastrointestinal divisions penalized by the 48% decrease in *Seroquel IR* sales and the 15% fall in *Synagis* sales.

EBITDA margin has been floating between 40% and 50% over the analyzed period, a good result considering industry standards. The average industry EBITDA margin is 30%. After the peak in 2013, EBITDA margin dropped 20% yoy to 31.57%. Fixed costs almost doubled in one year, driving the margin down.

EBIT result in 2014 was half the result of 2013, dragging down the margin to 18.99%. Until last year, AZN had a higher EBIT margin than the industry average.

The decrease on both margins is mainly due to an increase on R&D and SG&A expenses. In 2014, R&D costs grew 15% to $5 579 million and SG&A costs grew 6.5% to $13 000 million.

5.2 – Profitability Analysis

Considering economic profitability indicators and starting by Return on Assets, we see a decreasing trend since 2012. Comparing ROA results (>10%) with the asset turnover (<1) we can conclude that the company, as expected, operates in a capital intensive business.

Figure 27 - AstraZeneca economic profitability 2011 – 2014

Economic Profitability				
	FY2011	**FY2012**	**FY2013**	**FY2014**
ROA	15,46%	16,02%	12,34%	6,68%
ROS	24,32%	30,65%	26,82%	15,00%
Total Assets turnover	0,636	0,523	0,460	0,445
Fixed Assets/Sales	63,58%	52,25%	46,00%	44,53%
Invested Capital	$ 27 249	$ 32 008	$ 31 623	$ 36 556
ROIC	29,98%	26,79%	21,81%	10,71%

Source: Author's estimates

The Return on Sales is decreasing after the 30% peak on 2012, meaning that the company is being less efficient in turning sales into profit. In 2014, the company registered the worst return on sales due to 45% decrease yoy on EBIT.

Fixed Assets as a percentage of sales show a positive evolution, due to the great evolution on fixed assets during the period result of several acquisitions.

The Return on Invested Capital was 14.99% in 2014, the worst result since 2011. AstraZeneca is decreasing its ability to invest its capital and generate return.

Figure 28 - Financial Profitability 2011 – 2014

Financial Profitability (Product factor model)				
	FY2011	**FY2012**	**FY2013**	**FY2014**
Contribution Margin (%)	82,22%	82,37%	81,98%	78,58%
Invested Capital turnover	123,27%	87,39%	81,30%	71,38%
Equity Turnover	116,09%	133,63%	136,00%	186,07%
ROE	42,67%	26,18%	11,06%	6,29%
ROCE	29,97%	28,66%	22,55%	12,01%

Source: Author's estimates

The contribution margin has been decreasing and reached a record low in 2014, due to the reduction on sales and the increase on the cost of sales. Although, the 2014 contribution margin has decreased, 78.58% still is one of the best margins in the industry, if compared with its direct competition.

The invested capital is the result of Non-Operating Working Capital Needs plus Non-current assets. AstraZeneca has negative NWCN during the whole period. This value changed from -$2 738 million in 2012 to -$5 342 million in 2014. Considering the non-current assets, there was a $10 000 million growth since 2009. In 2014, the increment on intangible assets due to the acquisition of BMS share of Diabetes Alliance, the acquisition of Almirall respiratory franchises and the acquisition of Definiens boosted non-current assets. Therefore, the invested capital has been increasing and reached $36 556 million in 2014.

In 2014, ROE was 6.29%, representing a fall of 36% since 2011. This fall is the result of an increment on the fixed costs, in the equity turnover and in the tax effect, mixed with the 10% decrease in the invested capital turnover and in the D&A effect. Concluding, in 2014, investors got 6 cents per dollar invested in AstraZeneca.

ROCE is also decreasing. It fell more than 10% in 4 years, confirming that the company is reducing its efficacy in the application of capital and the in the value generated to shareholders.

Figure 29 - Operating Profitability 2011 – 2014

Operating Profitability				
	FY2011	**FY2012**	**FY2013**	**FY2014**
D&A	$ 1 997,00	$ 2 518,00	$4 583,00	$3 282,00
SG&A/Sales	33,23%	35,17%	47,47%	49,82%
R&D/Sales	16,44%	18,74%	18,75%	21,38%
EBIT Margin	33,09%	40,60%	34,95%	26,58%
Cash Flow Margin	39,03%	49,60%	52,77%	39,16%

Source: Author's estimates

Considering the operating profitability, two important indicators for the industry are the R&D weight on sales and the Selling, General and Administrative expenses (SG&A). Both costs show an increasing trend. The SG&A expenses represent almost 50% of AstraZeneca sales in 2014. Of which 76% was associated with sales and marketing management. Driving these costs were the integration of diabetes division, the launch of *Farxiga* in the US, Europe and some Emerging Markets, the launch of *Bydureon* in the US and the preparation of *Lynparza* and *Movantik*. High SG&A costs are a feature of the pharmaceutical industry. These expenses are associated with three factors: highly qualified employees; marketing costs; and costs related to regulatory procedures. Highly qualified professionals mean high payrolls. The marketing costs are associated with the promotion and the advertising of the most recently approved medicines to boost their sales. The costs of regulation are also significant because every medicine is submitted to several testing phases and clinical trials.

R&D plays also a central role in AstraZeneca activity. In 2014, it represented 21.38% of sales. They were associated with the progression of research on immuno-oncology and small molecules and an increase in *Brilinta* costs. 53% of total R&D expenditure was spent on medicines in the late stage of development and 47% on discovery and early stage development medicines.

Last year, the cash flow margin registered the same value of 2011. This result can be misleading since both sales and EBITDA in 2014 are worse than in 2011. Nevertheless, a 39% cash flow margin is a good result comparing with 30% of industry average.

5.3 - Dividend analysis

Figure 30 - AstraZeneca dividend analysis 2011 - 2014

Dividend Analysis				
	FY2011	**FY2012**	**FY2013**	**FY2014**
Dividend Payout	34,94%	56,86%	137,48%	286,79%
DPS	$ 2,70	$ 2,85	$ 2,80	$ 2,80
EPS	$ 7,73	$ 5,01	$ 2,04	$ 0,98
PER	$ 5,97	$ 9,43	$ 29,08	$ 72,70
Market Capitalization	$ 59 599,96	$ 58 838,70	$ 74 321,10	$ 89 640,64
Total Shareholder Return (TSR)	4,79%	5,01%	28,73%	26,12%
Dividend Yield	5,79%	5,97%	5,81%	4,79%

Source: Authors' calculations

Dividend payout ratio divides the dividends per share by the earnings per share and reflects how much of its earnings the company distributed to shareholders and how much the company kept for other operating costs.

Since 2013, the dividend payout ratio is over 100% which means that dividends per share are higher than the earnings per share. As it can be seen in the figure 30 above, AZN dividend per share maintain almost unchanged since 2011, yet the earnings per share have been decreasing. In 2014, dividends distributed to shareholders were more than twice the company net income, achieving a 286% ratio. This can be interpreted as compensation to shareholders of the slowdown on company results along with forecast of the improvement on future results. However, the company needs to increase its net income, in order to maintain this dividend level, without losing its sustainability.

AstraZeneca price-to-earnings ratio saw a huge increase since 2011. In 2011, an investor needed to pay $5.97 per $1 dollar of AZN earnings. Since then, the ratio deteriorated and for the same $1 of AZN earnings, investors now have to pay $72.70.

Considering market cap, we see a positive evolution of the company value. After a slump in 2011 and 2012, AZN market cap increase due to the appreciation on the stock price.

Finally, AstraZeneca dividend yield was 4.79% last year, the lowest in the period.

5.4 – Capital structure and debt coverage

Figure 31 - Capital structure and debt coverage 2011 – 2014

Capital Structure and Debt Coverage				
	FY2011	FY2012	FY2013	FY2014
Total Equity/Total Assets	44,43%	44,74%	41,60%	33,53%
Total Liabilities / Total Assets	55,57%	55,26%	58,40%	66,47%
Debt / Total Assets	17,66%	19,26%	18,56%	18,50%
Liabilities Structure	0,54	0,47	0,49	0,44
Net Debt/EBITDA	0,13	0,19	0,09	0,54
Leverage Ratio (D/E)	1,25	1,24	1,40	1,98
Solvency Ratio	0,80	0,81	0,71	0,50

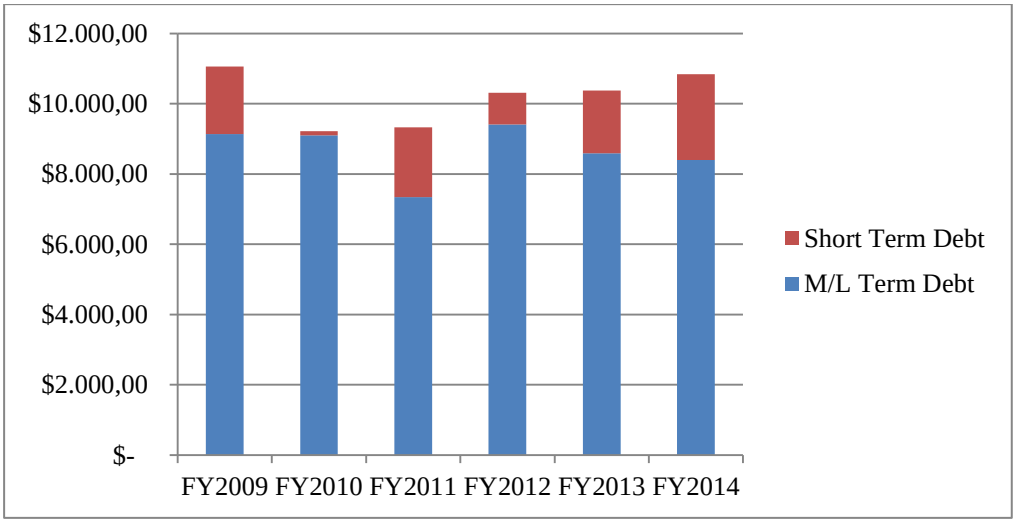
Source: Author's estimates

The great increase in intangible assets is also proved when analyzing the total equity per total assets ratio. The ratio has been decreasing since 2011, because of the increase in the asset side and the decrease on equity. Equity slides 15% in 2014 due to a decrease on retained earnings.

Net debt to EBITDA is often used to understand if the company is able to pay its debt obligations. Being lower than 1, means that AstraZeneca as low levels of debt. Although, the ratio increased to 0,54x EBITDA, the level is in line with industry standards.

Considering the solvency ratio and the leverage ratio, AstraZeneca show good financial health by having a high leverage ratio and, as a consequence, low solvency ratio. Debt increased to 0.55x equity.

Figure 32 - Debt breakdown 2009 - 2014



Source: AstraZeneca annual report 2009 - 2014

AstraZeneca total debt increased in the last 2 years[15]. Although long term debt has been decreasing, short term debt increased due to an issue of commercial paper due in 1 year.

Until 2020, the company has two bonds expiring. In 2017 a $1 750 million principal payment is due, followed by a $1 000 million principal payment in 2019.

In 2014, long term debt decrease from 82% to 77% of total debt, which was compensated with an equal increase in short term debt. Short term debt currently represents 22% of total debt.

Figure 33 - Liquidity ratios 2011 - 2014

Liquidity Ratios				
	FY2011	**FY2012**	**FY2013**	**FY2014**
Total Liquidity Ratio	0,56	0,55	0,58	0,66
Current Ratio	1,48	1,35	1,25	0,96
Quick Ratio	1,36	1,20	1,13	0,85

Source: Author's estimates

The current ratio shows that the company is able to pay its short term debt. Until 2014, AstraZeneca maintained its current ratio close to the optimal level of 1.5, but an increase in the short term debt and the decrease of current assets, lowered the ratio. In 2014 the ratio is below 1, which can translate in difficulties in paying short term obligations.

Regarding the quick ratio, we can conclude that the net working capital was, until last year, higher than the inventories and better than the ideal value of 1. The ratio decreased because of the increase on inventories and the consequence is that the AstraZeneca most liquid assets are not enough to cover its short term debt. In 2014, the company had £0.85 to pay each £1 of debt.

[15] AstraZeneca credit rating and outlook is available on Annex 25

5.5 – Risk analysis

Figure 34 - Degrees of leverage 2011 - 2014

Risk Analysis				
	FY2011	**FY2012**	**FY2013**	**FY2014**
DOL (Ex-Ante)	2,49	2,03	2,35	4,14
DOL (Ex-Post)	-0,13	2,58	-30,03	-
DFL (Ex-ante)	0,90	1,49	2,75	3,98
DFL (Ex-post)	-17,11	2,82	1,16	-
DCL (Ex-ante)	2,23	3,01	6,45	16,46
DCL (Ex-post)	2,24	7,30	-34,79	-

Source: Author's estimates

The degree of operating leverage divides gross profit by EBIT and shows the impact of sales performance on EBIT. The ratio is affected by the fixed costs profile of the company. The higher the ratio is, the higher the risk of the company. In the case of AstraZeneca we see that the EBIT maintains its level of around 2x the gross profit result, but in 2014 the ratio doubled due to an increase in the fixed costs.

The degree of financial leverage calculates the sensitivity of net income to changes in EBIT. The ex-ante measure has been increasing, meaning more risk. In 2014, changes on EBIT impacted 3.98x on net income.

The degree of combined leverage summarizes the previous ratios and translates how changes on sales affect net income. The DCL also increases, meaning increasing operational and financial risks. In 2014 a change in sales results in a 16,46x change in net income.

The risk analysis shows that AstraZeneca risk increased substantially in 2014. Also important is the fact that de ex-ante and ex-post calculation do not match, meaning that the breakeven assumption do not hold. This fact can be confirmed by analyzing the contribution margin that is not flat but remains stable at around 80% in the observed historical period, as well as the operating fixed charges that are also stable but not flat.

5.6 – Company events

In 2014, AstraZeneca made three strategic acquisitions, in order to strengthen its respiratory and diabetes portfolios.

In early 2014, the company acquired Bristol - Myers Squibb share on Global Diabetes Alliance, a joint venture created by both companies. The deal reached $4 300 million, which includes $2 700 million already payed, $1 400 million for if future regulatory approvals are achieved and $225 million conditioned to the transfer of additional assets.

Reaching a deal with BMS gives AstraZeneca full ownership of all rights to develop, produce and sell in medicines like *Onglyza, Forxiga, Byetta and Bydureon.*

The second acquisition of the year was Almirall respiratory business. AstraZeneca payed $875 million and it can pay more $1 220 million in sales goals. The deal includes *Sofotec* inhalation device and medicines like *Eklira* and *Duaklir Genuair.*

The third acquisition of AstraZeneca was the German based Definiens, a company that produces imaging and data analysis technology for cell by cell readouts. AZN payed $150 million and can pay more $150 million if it reaches development milestones.

AZN was also the target of a takeover bid by Pfizer. The American pharmaceutical giant made two attempts to acquire AZN. The first bid was cash and shares deal in which Pfizer proposed the payment of £46.61 per share, valuing the company at £58.8 million. Considering AZN share price at the time, the bid represented a 30% premium. The second offer was of £55 per share, valuing the company at £69 million. The deal combined £24.76 in cash and 1 747 shares in the new company.

AZN rejected both offers arguing that the price was too low (the company suggested £53.50 per share), that AZN alone was creating more value to shareholders and that the deal had a big execution risk.

In the US, rumors pointed that Pfizer intention was to move its tax domicile to the UK, which meant paying a 20% tax instead of 35% in the US. If the takeover was successful, it would be the worlds' largest pharma merger and would create the biggest pharmaceutical company.

6 – COMPANY VALUATION

Valuing a pharmaceutical company requires deep knowledge about the company areas of research, the medicines the company produces and about the industry features; such as regulatory criteria and historical approvals.

Valuation by individual medicine sales is commonly used to estimate global company sales. This implies a close monitor of probability of success during the test phases, knowing the number of people affected by the disease and which part of that population is going to have access to the medicine, similar products produced by competitors, forecasting government expenditure on health and how much a company loses when a patent expires and generic medicines become available for sale at lower prices.

The complexity of the industry, the limited access to that information and the lack of scientific knowledge, led to the use of consensus estimates for sales and gross profit margins. Opting for these two items is due to the fact that both are connected with the evolution on medicine sales. The tax rate was assumed to remain at 20% for the whole forecasting period.

The recommendation criteria[16] is BUY, HOLD or SELL, according to the estimated upside or downside potential of the stock, taking into account the current stock price of £45.56 as of 31/12/2015. The USD/GBP closing spot exchange rate of the same day, 0.6419, was used to convert the price target in USD to GBP. Also important is the American depository receipts[17] in which AstraZeneca stock trades in USD in the NYSE. Each receipt is worth 0.5 AZN shares trading in London.

Considering the use of the Discounted Cash Flow as the method to evaluate the company, it was calculate the Weighted Average Cost of Capital. The WACC will be used to discount the free cash flow of firm and understand the rate of return an investor needs to invest in the company. For that matter, the following items were assessed.

[16] The recommendation criteria have been chosen by the author itself, based in the standards generally used by investment banks. The recommendation criteria are the available in Annex 41.

[17] American depository receipts are an instrument often used for non-American companies that want its stock to trade in an American stock exchange, without the expenses of listing its stock. ADR's trade in USD, dividends are paid in USD and the buy/selling and settlement process is the same of a regular stock.

6.1 – Cost of Capital

6.1.1 – Beta

First, it was necessary to understand the relation between the performance of the company share price and the evaluation of the benchmark. For that purpose, AZN beta was calculated by a regression.

The regression inputs were the company daily closing price and the FTSE 100 daily closing price, from the 17th of September 2014 until the 31st of December 2014, in a total of 73 observations[18]. With both return on the stock and the return on the market, a beta of 0.803 was calculated, meaning that AZN stock is positively correlated with the FTSE 100.

6.1.2 – Cost of Equity

The cost of equity was calculated by the CAPM. Therefore, it was used a risk free rate, the company beta, the market return and the equity risk premium.

As the risk free rate, it was considered AstraZeneca home country, the UK. Hence, the UK 10 year sovereign bond has been chosen, as of 23 of July 2015 with a rate of 2.01%.

The market return used in the calculation is the British market return extracted from Bloomberg, as of 23 of July 2015.

Using these items, it was calculated an 8.53% cost of equity for the company.

6.1.3 – Cost of debt

Regarding the cost of debt, it was considered the company benchmark for a 5 year period, with a coupon of 1.95% and expires on the 18th of September 2019. The 5 year bond benchmark was used because it corresponds to the forecasting period. AstraZeneca low interest rates are due to the fact that the company has a small amount of debt. Plus the environment of low interest rates of the recent years in the UK, as in the main developed economies.

Bank of England maintains its official bank rate at 0.5% since 2009, which impacts directly on the rates at which the companies and banks can finance their debt.

[18] The number of observations used by the author was the one presenting the best R^2 result. Using more observations, the R^2 result proved to be very low, meaning that the beta result was not viable.

6.1.4 – Capital Structure

AstraZeneca, reports on its full year 2014, affirms that it will maintain capital structure unchanged[19]. Therefore, it was assumed the values of long term and short term debt presented in the 2014 annual accounts report will have little changes over the next 5 years. The equity side was calculated using market value, by multiplying the number of outstanding shares by the closing share price of the 31st of December 2014[20].

6.1.5 – Weighted Average Cost of Capital

Figure 35 - WACC calculations

Cost of Equity (Re)	8,53%
Cost of Debt (Rd)	1,95%
Tax rate	20,00%
(1-Tax rate)	80,00%
D/(E+D)	10,79%
E/(E+D)	89,21%
WACC	**7,78%**

Source: Author's estimates

Considering all the items[21] mentioned before and the UK effective tax rate of 20%, the Weighted Average Cost of Capital of AstraZeneca is 7.78%.

6.2 – Discounted Cash Flow

As mentioned before, the consensus on sales and gross margin was used. The remaining calculations take in consideration sales evolution during the estimated period. The estimation period is from 2015 until 2020[22]. A perpetuity growth rate of 1.033% for the company is also considered, based on consensus.

[19] AstraZeneca declares its intention to maintain its capital structure, in order to fulfill its main three goals which are, managing funding and liquidity risk; optimizing shareholder return; and maintaining a strong, investment-grade credit rating. This intention is on page 174 of the AstraZeneca 2014 annual report.
[20] AstraZeneca closing share price was £45.55 as of 31 December 2014.
[21] WACC items calculations are available on Annexes 39 and 40.
[22] Complete discounted cash flow calculations available on Annex 42.

Figure 36 - Consensus on sales and gross profit 2015 – 2020

	Estimates					
	2015E	2016E	2017E	2018E	2019E	2020E
Total Revenues	$ 24 417,00	$ 23 807,00	$ 23 581,00	$ 25 086,00	$ 26 458,00	$ 28 394,00
% change YoY	-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%
COGS	$ 4 034,91	$ 4 148,85	$ 4 183,74	$ 4 375,75	$ 4 596,02	$ 4 912,16
% change YoY	-27,81%	2,82%	0,84%	4,59%	5,03%	6,88%
Gross Profit	$ 20 382,09	$ 19 658,15	$ 19 397,26	$ 20 710,25	$ 21 861,98	$ 23 481,84
% change YoY	-0,60%	-3,55%	-1,33%	6,77%	5,56%	7,41%
Gross Profit Margin	83,48%	82,57%	82,26%	82,56%	82,63%	82,70%
% change YoY	6,23%	-1,08%	-0,38%	0,36%	0,09%	0,09%

Source: Bloomberg consensus estimates

According to consensus, sales are going to reduce by almost 7% this year and maintain the down trend in the next 2 years. The low result in short term sales growth will be compensated by a recovery beginning in 2018, meaning a CAGR of 2.58% in the next 5 years.

Considering sales by medicine, a decline in AstraZeneca best sellers is expected. *Crestor*, a medicine to fight heart related diseases, as cholesterol, loses its US patent in 2016. Its estimated sales CAGR is -20.21%, from $5 512 million last year to $1 421 million in 2020.

The gastrointestinal medicine, *Nexium*, estimated sales CAGR is -11.60%. This means bringing sales from $3 655 million in 2014 to $1 744 million in 2020. The patent expired in 2014; as a result, generic versions are available in the market at more competitive prices, meaning a decline in sales.

Seroquel sales CAGR until 2020 are expected to be -22.02%. The medicine to fight schizophrenia loses its patent in China and Europe in 2017. Sales in 2020 are expected to be around $315 million.

On the other hand, medicines like *Brilinta*, *Onglyza* and *Forxiga* are expected to become the new best sellers.

Brilinta sales forecasts indicate $1 767 million by 2020. The cardiovascular medicine is expected to replace *Crestor*, has the most sold of its therapeutic area by 2019.

According to analysts, *Onglyza*, the diabetes medicine will sell $1 215 million by 2020.

The cardiovascular medicine, *Forxiga*, is expected to make its debut in 2015. In its first year analyst forecast $426 million and, by 2020, $1 388 million.

As it can be checked on Annexes 49, 50 and 51, several new medicines are expected to start selling in 2017, driving sales up in the following years.

The consensus sales for the whole pipeline are available on annexes 49, 50 and 51 and the expiration years of every medicine are available on Annex 8.

Regarding gross profit, consensus estimates points to a stabilization of the margin around 82%, during the next 5 years. In 2015, the margin is expected to peak at 83.48%. The costs on goods sold will accelerate with sales.

Figure 37 - EBITDA, D&A and EBIT calculations 2015 – 2020

	2015E	2016E	2017E	2018E	2019E	2020E
EBITDA	$ 7 707,33	$ 7 514,78	$ 7 443,44	$ 7 918,50	$ 8 351,58	$ 8 962,69
% change YoY	-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%
D&A	$ 3 070,96	$ 2 994,24	$ 2 965,81	$ 3 155,10	$ 3 327,65	$ 3 571,15
% change YoY	-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%
EBIT	$ 4 636,38	$ 4 520,55	$ 4 477,63	$ 4 763,41	$ 5 023,93	$ 5 391,54
% change YoY	-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%
EBIT*(1-t)	$ 3 709,10	$ 3 616,44	$ 3 582,11	$ 3 810,73	$ 4 019,14	$ 4 313,23
% change YoY	-5,25%	-2,50%	-0,95%	6,38%	5,47%	7,32%

Source: Bloomberg and Author's estimates

EBITDA was calculated by considering the evolution on sales, which means it was considered a constant margin of 31.57% during the forecasting period. As seen before, the sales forecast point a slowdown, which will affect EBITDA. During the analyzed period, EBITDA is expected to grow from $7 707 million to $8 962 million in 2020.

The same with EBIT, which is expected to register 5 391 at the end of the forecasting period. For the calculation of the EBIT after taxes, it was considered a constant tax rate of 20%. Furthermore, the D&A expenses were considered to follow the sales performance.

Figure 38 - Share price calculations

Terminal value	$ 247 755,28
Present value of terminal value	$ 170 353,77
Enterprise value	$ 50 693,57
Non operating assets	$ 6 360,00
Firm value	$ 57 053,57
Current outstanding debt	$ 10 843,00
Equity value	$ 46 210,57
Total shares outstanding	1 262,90
Fair price per share in USD	**$ 36,59**
Fair price per share in GBP	**£ 46,98**

Source: Author's estimates

Discounting the estimated FCFF in 2015 by the WACC minus the perpetuity growth rate, we arrive to terminal value of $247 755 million. Considering the forecast until 2020, the terminal value of the company translates in to $170 353 million today, discounting at the WACC.

The firm value was calculated using the enterprise value result and adding the non operating assets, which results in total of $57 053 million. Subtracting the current outstanding debt we arrive to the equity value of $46 210 million.

Therefore, we arrive to a price target of £46.98 per share by the end of 2015, which comparing with the price of £45.56 gives an upside potential of 3.12%.

Regarding the criteria presented on annex 41, our recommendation is HOLD.

According to annex 48, the estimated price target is in line with other analysts estimations.

7 – SENSITIVITY ANALYSIS

The consensus values used before represent the average results on valuations made by several analysts. To understand how much the target price of AstraZeneca can change with the use of different scenarios, a sensitivity analysis was performed. Thus, there were considered three scenarios: constant zero growth, bear case and bull case. In these three scenarios the discount rate used was the WACC at 7.78% and a constant corporate tax rate of 20%.

7.1 - Constant zero growth

The first scenario considers constant zero growth, where the results of 2014 would be maintained throughout the whole forecasting period and the company would have a steady state growth of 0%.

Considering this scenario, there is no evolution in any item of the financial statement as shown on annex 44, which means no changes on fixed assets and working capital needs, resulting in a constant FCFF until 2020.

Figure 39 - Share price calculations for constant zero growth

Terminal value	$	52 302,27
Present value of terminal value	$	38 759,99
Enterprise value	$	50 957,57
Non operating assets	$	6 360,00
Firm value	$	57 317,57
Current outstanding debt	$	10 843,00
Equity value	$	46 474,57
Total shares outstanding		1 262,90
Fair price per share	**$**	**36,80**
Fair price per share in GBP	**£**	**47,20**

Source: Author's estimates

If AstraZeneca stagnates, the expected value of the future cash flows would be $52 302 million, which is, approximately, ¼ of the estimated terminal value of the company using consensus sales.

In a stagnate stage, the estimated enterprise value of AstraZeneca would be $50 957 million, close to the enterprise value calculated with the average consensus.

Figure 40 - Recommendation for constant zero growth

RECOMMENDATION		
Stock Price at 31/12/2014	£	45,56
Fair price per share	£	47,20
Current Stock Price (27/05/2015)	£	44,69
Upside Potencial (abs. value)	£	1,64
Upside Potencial (%)		3,61%

Source: Author's estimates

In this scenario, the calculated price target for the company would be £46.98 as of 31/12/2015. The estimated upside potential of the stock is 3.12%, if compared with the price at the end of the year. Therefore, our recommendation on constant zero growth would be HOLD.

7.2 – Bear case

The bear case[23] considers the lowest estimates for sales, gross margin and EBITDA among all the equity research papers published by analysts. Analysts estimate a steady state growth of 0.7%.

Figure 41 - Bear case estimates 2015 - 2020

	FCFF Analysis Considering Lowest Estimates					
	2015E	2016E	2017E	2018E	2019E	2020E
Total Revenues	$ 23 457,00	$ 22 110,00	$ 22 120,00	$ 23 636,00	$ 24 855,00	$ 26 832,00
% change YoY	-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%
Gross Profit	$ 18 671,77	$ 17 334,24	$ 17 165,12	$ 19 145,16	$ 20 008,28	$ 21 519,26
Gross Profit Margin %	79,60%	78,40%	77,60%	81,00%	80,50%	80,20%
EBITDA	$ 6 020,00	$ 5 706,00	$ 5 472,00	$ 5 891,00	$ 6 673,00	$ 9 107,00
EBITDA margin	25,66%	25,81%	24,74%	24,92%	26,85%	33,94%
EBIT	$ 3 069,78	$ 2 925,20	$ 2 689,94	$ 2 918,27	$ 3 546,96	$ 5 732,31
EBIT margin	13,09%	13,23%	12,16%	12,35%	14,27%	21,36%

Source: Bloomberg and author's estimates

Sales, in the worst case scenario, are expected to decrease by 10% in 2015 and by 5.74% in 2016. Although the bear case estimates for sale are worst, the trend maintains with a slowdown in the near term and a recovery beginning in 2018.

EBITDA margins would be below 30% until 2020. In 2015 is expected of 10% in fixed costs, but the 8% fall on gross profit puts EBITDA in the $6 020 million.

Considering that D&A follows sales evolution, the EBIT margin would decrease from 19% in 2014 to 13% in 2015. However, margins are expected to recover to 20% in 2020 but never returning to the 30% historical level.

[23] All calculations available on annex 45

Figure 42 - Company share prices in bear case

Terminal value	$	86 896,63
Present value of terminal value	$	59 749,40
Enterprise value	$	29 629,31
Non operating assets	$	6 360,00
Firm value	$	35 989,31
Current outstanding debt	$	10 843,00
Equity value	$	25 146,31

Source: Author's estimates

The enterprise value is $29 629 million, almost half of the one calculated with the average consensus.

Admitting the same level of non operating assets and outstanding debt of the historical year, the equity value is $25 146 million, which translates to a price target of £25.52 per share.

Therefore, if this scenario turns out to be true, the recommendation is SELL.

7.3 – Bull case

In the bull case[24] were considered the highest estimates for sales, the best gross profit margins and the best EBITDA forecasts. The highest long term growth rate estimate is 1.40%, used in the present bull case.

Figure 43 - Bull case estimates 2015 - 2020

	FCFF Analysis Considering Highest Estimates					
	2015E	2016E	2017E	2018E	2019E	2020E
Total Revenues	$ 26 021,00	$ 25 881,00	$ 26 465,00	$ 27 764,00	$ 30 016,00	$ 32 297,00
% change YoY	-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%
Gross Profit	$ 22 794,40	$ 21 817,68	$ 22 310,00	$ 23 460,58	$ 25 303,49	$ 27 226,37
Gross Profit margin	87,60%	84,30%	84,30%	84,50%	84,30%	84,30%
EBITDA	$ 8 451,00	$ 8 128,00	$ 9 789,00	$ 10 657,00	$ 11 883,00	$ 13 301,00
EBITDA margin	32,48%	31,41%	36,99%	38,38%	39,59%	41,18%
EBIT	$ 5 178,31	$ 4 872,92	$ 6 460,46	$ 7 165,09	$ 8 107,85	$ 9 238,97
EBIT margin	19,90%	18,83%	24,41%	25,81%	27,01%	28,61%

Source: Bloomberg and author's estimates

In this scenario, sales are also expected to fall in the next two years, 0.28% and 0.54%, which means that AstraZeneca sales are meant to decrease in the short term, even if the best results

[24] All calculations available on annex 46

on medicine sales are achieve. Reflecting the impact of the decrease on medicines, like *Nexium*, *Crestor* and *Symbicort.* Considering these growth levels, sales CAGR is 4.42%.

In terms of gross profit margins, the bull case considers that it will overcome historical levels and stabilize around 84%. In 2015, gross profit margins are expected to jump 11% to 87.60%.

EBITDA assumes a 17% increase on fixed costs[25] in 2015, yet the EBITDA margin is expected to grow by 1% yoy due to the increase on gross profits.

To calculate EBIT, the D&A expenses were calculated assuming its value on the last historical year and the evolution on sales. These calculations show an EBIT margin of 19.90%, representing a 1% increase year on year. Over the estimated years, the margins are expected to return to the historical levels of 30%.

Figure 44 – Bull case price target calculations

Terminal value	$ 66 567,75
Present value of terminal value	$ 45 771,43
Enterprise value	$ 61 355,87
Non operating assets	$ 6 360,00
Firm value	$ 67 715,87
Current outstanding debt	$ 10 843,00
Equity value	$ 56 872,87

Source: Authors' calculations

Regarding the bull case scenario, a terminal value of $66 567 million is calculated. Assuming the maintenance of the non operating assets value and the current outstanding debt value, the estimated equity value is $56 872 million.

In the bull case, the target price of AstraZeneca is £57.76 as of 31/12/2015, which offers an upside of 26%. Therefore, the recommendation is BUY.

[25] Fixed costs were calculated using sales evolution.

8 – MULTIPLES VALUATION

In order to confirm the DCF results, a Multiples valuation has been performed. The analysis took into consideration the six major European healthcare companies described previously and the geometric mean of each multiple for each company as benchmark.

Figure 45 - Equity Multiples analysis

Equity Multiples Full Year 2014					
(in Millions of USD except per share)	P/BV ratio	P/E ratio	Price/Sales ratio	EPS	Dividend Yield
AstraZeneca	**4,57**	**72,70**	**3,44**	**$ 0,98**	**4,79%**
GlaxoSmithKline	15,7	24,01	2,88	$ 0,94	5,81%
Roche	11,71	24,56	4,83	$ 12,02	2,96%
Bayer	4,65	27,29	2,21	$ 5,50	1,99%
Novartis	3,16	21,27	4,32	$ 4,21	2,80%
Novo Nordisk	17,12	25,77	7,68	$ 1,80	1,92%
Sanofi	1,78	22,65	2,92	$ 4,44	3,77%
European Peers Mean	**8,38**	**28,30**	**3,75**	**$ 2,97**	**3,18%**

Source: Bloomberg

Considering the Price to Book value ratio, the European peers average is 8.38x. AZN trades at 4.57x the company book value, which means that the stock is undervalued. Yet, it also reflects the forecast of low future sales.

In terms of P/E ratios, the industry average trades at 28,30x P/E. AZN P/E ratio is well above the industry average. The stock trades at a 72,70x P/E, meaning AZN is the most expensive stock among its peers. This result is also telling that investors have to pay $72.70 for every unit of sales.

AstraZeneca trades at a 3.44x P/S ratio, in line with the average peers (3,75x). We can conclude that the stock price is being evaluated slightly below its peers, meaning that investors give a lower value to each unit of company sales.

Regarding dividend yield, AstraZeneca is attractive for investors comparing with its peers. The company dividend yield is 4.79%, well above its European peers average of 3.18%.

Figure 46 - Enterprise Multiples analysis

Enterprise Multiples				
Full Year 2014	Enterprise Value (in millions of USD)	EV/EBITDA (in x)	EV/EBIT (in x)	EV/Sales (in x)
AstraZeneca	**$ 94 141,20**	**11,43**	**19,00**	**3,61**
GlaxoSmithkline	$ 127 716,60	10,91	13,59	3,56
Roche	$ 251 182,60	14,87	17,63	5,23
Bayer	$ 137 180,90	13,49	20,78	2,67
Novartis	$ 259 278,00	16,44	23,38	4,95
Novo Nordisk	$ 110 080,00	17,78	19,55	7,59
Sanofi	$ 130 031,60	10,38	16,33	3,15
European Peers Mean	**$ 147 756,85**	**13,36**	**18,37**	**4,15**

Source: Bloomberg

Analyzing the Enterprise multiples, we can conclude that AZN is undervalued. Additionally, the EV/Sales below average, confirms weak future sales prospects.

AstraZeneca has the lowest enterprise value among peers, meaning that it is the less valuable of the top 7 European pharmaceuticals.

Although AZN offers an attractive dividend comparing with peers, most multiples point that the stock is slightly undervalued compared with the industry average. This can mean that the stock can offer some upside. Weakness in future sales estimations is also detected. The DCF valuation result is confirmed by the multiples.

10 – RISKS AND OPPORTUNITIES

AstraZeneca presents a promising pipeline with the highest number of projects in development of the recent years. It counts with 40 medicines in FDAs' phase I, 35 medicines in phase II, 32 medicines in late stage development and 26 medicines in lifecycle management[26]. This pipeline assures future sales growth, but dependent on the testing phase results.

The early stage pipeline offers some good opportunities for future sales, but there is too much uncertainty around the success or failure of some medicine, which make AstraZeneca portfolio risky. Even if the whole early stage pipeline is successful, the impact on sales will

[26] Group of medicines available in the market, the company still monitors.

only be felt by 2017. Therefore, we remain positive but cautious, waiting for further clinical data and regulatory readouts.

The expansion in the Emerging Markets is proving its effectiveness by the increasing impact on AstraZeneca sales, mainly, China. The population structure and recent economic development can became important growth drivers.

However, regulatory institutions and IP protection laws still need further improvements to give 'pure' pharmaceutical companies the security they need. Also, the economic downturn in China can be a barrier for further progress on sales.

The acquisition of BMS stake in the diabetes joint venture increases the exposure of AstraZeneca to this region. According to Pascal Poriot, CEO of AZN, by 2030, 550 million people will suffer diabetes, of which 2/3 in the Emerging markets. Therefore, we see it as clear upside opportunity.

Immuno-oncology MEDI – 4736 medicine for solid tumors is creating good expectations as source of future revenue. AstraZeneca is one of the companies which have medicines in PD-1/PD-L1 therapies in clinical developments. Among these companies, AZN is in 4th place in terms of development stage. According to several analysts, AstraZeneca position in testing is not good but it can become an opportunity, due to the importance of the patient selection strategy. This strategy is proving its importance on other company testing results and AZN can take advantage of its lagged position to evaluate the best target population.

Brilinta is being tested together with low doses of aspirin in patients with acute coronary syndrome and in patients which suffered heart attacks versus a group of patients using aspirin and a placebo. Recently, AZN presented some results of these clinical trials. *Brilinta* proved a reduction of 27% of having a new cardiovascular event in patients who had suffered from these events in the past. If clinical studies keep proving a reduction in cardiovascular events, future sales could be the new leading cardiovascular medicine, in terms of sales and replace *Crestor* by 2019[27]. Considering these news, we believe that *Brilinta* is building a good base for a positive future sales performance.

[27] Check Annex 49, annex 50 and 51.

11 – CONCLUSION

The present project analyzes pharmaceutical industry and evaluates AstraZeneca, using its fundamentals, with the purpose of presenting a recommendation based on the calculated price target.

Thereby it contributes with an extensive analysis of the main industry indicators and features, adding the valuation of a specific company for a concrete overview.

AstraZeneca valuation using the discounted cash flow, points to a price target of £46.98 per share, which represents an upside potential of 3.12% comparing with £45.56 as of 31/12/2014. Therefore, the recommendation is to hold AstraZeneca shares.

AstraZeneca is a British multinational that figures among the large capitalization pharmaceutical companies in Europe with a total of $26 095 million in sales. Its portfolio counts with 6 different research areas including cardiovascular (37% of sales), respiratory (19% of sales) and gastrointestinal (18% of sales).

Despite being present in over 100 countries, AstraZeneca leading market is the US, which represented $10 485 million (40%) of 2014 sales, followed by Europe that weights 29% on sales.

AstraZeneca sales have been decreasing in recent years, consequence of the loss of exclusivity of several medicines like *Crestor,* its leading medicine, *Nexium* and *Seroquel*.

According to consensus, sales show weak performance in the short term, but good growth levels from 2017 and beyond. The early stage pipeline is the source of that boost on sales in 2017.

The CAGR on sales during the 2015 - 2020 is 3.06%, which contrast with the negative 4.47% of the 2009 – 2014 period. Also EBITDA and EBIT margins are expected to follow sales trend and recover to historical levels until 2020.

Valuation by multiples shows that although AstraZeneca has an attractive dividend, investors are willing to pay less per unit of earnings per share and sales forecasts are weak. The company trades at 15,68x P/E and 3.47x P/S ratio.

Pharmaceutical companies face several challenges over the process of creating new medicines. From discovery to marketing, medicines have to succeed in several clinical tests and regulatory requirements, which are different in every entity.

Considering intellectual property protection, in most countries, companies have a 20 year period of exclusivity as an incentive for innovation and a way to recover the investments made in R&D. In exceptional cases, the US and EU regulatory entities grant extensions on the exclusivity period, along with other mechanisms to protect companies findings.

Industry sales in 2014 achieved a record of $903 billion as a consequence of the also record breaker number of approvals of new medical components by the FDA. Despite emerging markets weight on global industry sales are increasing, the most important markets are the USA (40% on sales) and Europe (24% of sales). The leading therapeutic areas are oncology, cardiovascular and autoimmune diseases.

The valuation of AstraZeneca had some limitations. The lack of scientific knowledge, the complexity of regulatory criteria and the industry standards of calculating sales by medicine based on probability of success or generic competition. On the industry analysis, the limitation was due to old data. OECD and The World Bank data dates back to 2012.

As a suggestion for future valuation of AstraZeneca or other pharmaceutical company, include valuation using real options and the analysis of medicine sales forecast, mainly pipeline medicines, using probabilities of success and sales peaks for each one.

Concluding, growth drivers, as *Brilinta*, China, respiratory and diabetes portfolios will be crucial on the future of AstraZeneca performance. The performance on immune-oncology portfolio can also become a boost for sales along with an early stage pipeline plenty of readouts in next years. Respiratory and diabetes portfolios have recently been strengthen and promise future sales. The cost cutting will be followed by analysts, in particular the SG&A costs which can damage investment and asset quality.

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11 - ANNEXES

Annex 1 - AstraZeneca standardized Income Statement 2009 - 2014

INCOME STATEMENT						
in Millions of USD except per share						
Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Sales	**$ 32 804,00**	**$ 33 269,00**	**$ 33 591,00**	**$ 27 973,00**	**$25 711,00**	**$26 095,00**
% change YoY	-	1,42%	0,97%	-16,72%	-8,09%	1,49%
(-) Cost of sales	$ 5 775,00	$ 6 245,00	$ 5 972,00	$ 4 932,00	$ 4 633,00	$ 5 589,00
Gross Profit	$ 27 029,00	$ 27 024,00	$ 27 619,00	$ 23 041,00	$ 21 078,00	$ 20 506,00
% change YoY	-	-0,02%	2,20%	-16,58%	-8,52%	-2,71%
Gross Margin	82,40%	81,23%	82,22%	82,37%	81,98%	78,58%
Gross Margin change YoY	-	-1,42%	1,22%	0,18%	-0,47%	-4,15%
(-) Fixed Costs	$ 13 794,00	$ 11 263,00	$ 14 508,00	$ 9 166,00	$ 7 510,00	$ 12 269,00
% change YoY	-	-18,35%	28,81%	-36,82%	-18,07%	63,37%
EBITDA	$ 13 235,00	$ 15 761,00	$ 13 111,00	$ 13 875,00	$ 13 568,00	$ 8 237,00
% change YoY	-	19,09%	-16,81%	5,83%	-2,21%	-39,29%
EBITDA Margin	40,35%	47,37%	39,03%	49,60%	52,77%	31,57%
(-) Depreciation and Amortization	$ 2 087,00	$ 2 741,00	$ 1 997,00	$ 2 518,00	$ 4 583,00	$ 3 282,00
% change YoY	-	31,34%	-27,14%	26,09%	82,01%	-28,39%
EBIT	$ 11 148,00	$ 13 020,00	$ 11 114,00	$ 11 357,00	$ 8 985,00	$ 4 955,00
% change YoY	-	16,79%	-14,64%	2,19%	-20,89%	-44,85%
EBIT Margin	33,98%	39,14%	33,09%	40,60%	34,95%	18,99%
Interest Income	$ -	$ -	$ -	$ -	$ -	$ -
FX Gains	$ 31,00	$ -	$ -	$ -	$ -	$ 98,00
Equity Method Gains	$ 826,00	$ -1 564,00	$ 1 686,00	$ -3 285,00	$ -5 305,00	$ -3 389,00
(-) Interest Expense	$ 1 198,00	$ 479,00	$ 433,00	$ 426,00	$ 413,00	$ 418,00
Financial Income	$ -341,00	$ -2 043,00	$ 1 253,00	$ -3 711,00	$ -5 718,00	$ -3 709,00
EBT	$ 10 807,00	$ 10 977,00	$ 12 367,00	$ 7 646,00	$ 3 267,00	$ 1 246,00
% change YoY	-	1,57%	12,66%	-38,17%	-57,27%	-61,86%
Taxes	$ 3 263,00	$ 2 896,00	$ 2 351,00	$ 1 376,00	$ 696,00	$ 11,00
Tax rate	28,50%	28,00%	26,50%	24,50%	23,25%	21,00%
Net Income	**$ 7 544,00**	**$ 8 081,00**	**$ 10 016,00**	**$ 6 270,00**	**$ 2 571,00**	**$ 1 235,00**
% change YoY	-	7,12%	23,95%	-37,40%	-59,00%	-51,96%
(-) Minority Interests	$ 23,00	$ 28,00	$ 33,00	$ 30,00	$ 15,00	$ 2,00
Group Net Income	**$ 7 521,00**	**$ 8 053,00**	**$ 9 983,00**	**$ 6 240,00**	**$ 2 556,00**	**$ 1 233,00**
Profit Margin	22,93%	24,21%	29,72%	22,31%	9,94%	4,73%
Excepcional Losses (Gains)	$659,00	$1 524,00	-$1 681,00	$4 356,00	$7 652,00	$5 192,00
Tax Effect on Abnormal items	-$1,90	-$426,70	$445,50	-$646,00	-$915,00	-$1 029,00
Excepcional AT Losses (Gains)	$657,10	$1 097,30	-$1 235,50	$3 710,00	$6 737,00	$4 163,00
Normalized Income	**$8 178,10**	**$9 150,30**	**$8 747,50**	**$9 950,00**	**$9 293,00**	**$5 396,00**

Annex 2 - Additional information 2009 – 2010

Other Information						
Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Shares Outstanding (in millions of share	1450	1409	1292	1245	1255	1263
Price BOY (USD per share)	$ 40,40	$ 47,42	$ 46,60	$ 47,72	$ 48,18	$ 58,50
Price EOY (USD per share)	$ 47,00	$ 45,55	$ 46,13	$ 47,26	$ 59,22	$ 70,98
Price BOY (GBP per share)	£ 27,94	£ 29,41	£ 29,90	£ 30,50	£ 29,69	£ 35,58
Price EOY (GBP per share)	£ 29,11	£ 29,22	£ 29,75	£ 29,10	£ 35,75	£ 45,57
Market Capitalization (in millions of $)	$ 68 193,24	$ 64 189,70	$ 59 611,00	$ 58 928,00	$ 74 443,00	$ 89 639,20
Market Capitalization (in millions of £)	£ 42 202,60	£ 41 171,20	£ 38 447,10	£ 36 242,80	£ 44 875,00	£ 57 531,00
R&D Expenditures	$ 4 409,00	$ 5 318,00	$ 5 523,00	$ 5 243,00	$ 4 821,00	$ 5 579,00
SG&A Expenses	$ 11 332,00	$ 10 445,00	$ 11 161,00	$ 9 839,00	$ 12 206,00	$ 13 000,00
Dividends	$ 3 026,00	$ 3 494,00	$ 3 752,00	$ 3 619,00	$ 3 499,00	$ 3 536,12
EPS	$ 5,19	$ 5,72	$ 7,73	$ 5,01	$ 2,04	$ 0,98
Dividends per share	$ 2,09	$ 2,41	$ 2,70	$ 2,85	$ 2,80	$ 2,80
Inflation Rate	2,90%	2,95%	2,75%	2,65%	2,85%	1,78%

Annex 3 - AstraZeneca group inflation rate 2009 - 2014

Inflation												
Year	**2009**		**2010**		**2011**		**2012**		**2013**		**2014**	
Part of Group	UK	Rest of Group	UK	Rest of Group	UK	Rest of Group	UK	Rest of Group	UK	Rest of Group	UK	Rest of Goup
Inflation rate	3,50%	2,30%	3,60%	2,30%	3,20%	2,30%	3,10%	2,20%	3,50%	2,20%	3,10%	2,00%
Average	**2,90%**		**2,95%**		**2,75%**		**2,65%**		**2,85%**		**2,55%**	

Annex 4 - AstraZeneca standardized Balance Sheet 2009 – 2014

BALANCE SHEET						
In Millions of USD except per share						
Year	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Assets						
(+) Cash & Other Equivalents	$ 9 918,00	$ 11 068,00	$ 7 571,00	$ 7 701,00	$ 9 217,00	$ 6 360,00
(+) Short-Term Investments	$ 1 484,00	$ 1 482,00	$ 4 248,00	$ 823,00	$ 796,00	$ 795,00
(+) Accounts & Notes Receivable	$ 5 863,00	$ 6 247,00	$ 6 630,00	$ 5 696,00	$ 5 514,00	$ 7 232,00
(+) Inventories	$ 1 750,00	$ 1 682,00	$ 1 852,00	$ 2 061,00	$ 1 909,00	$ 1 960,00
(+) Other Current Assets	$ 4 568,00	$ 4 392,00	$ 2 978,00	$ 2 507,00	$ 2 638,00	$ 350,00
Total Current Assets	**$ 23 583,00**	**$ 24 871,00**	**$ 23 279,00**	**$ 18 788,00**	**$ 20 074,00**	**$ 16 697,00**
% change YoY		5,46%	-6,40%	-19,29%	6,84%	-16,82%
(+) LT Investments & LT Receivables	$ 184,00	$ 211,00	$ 201,00	$ 199,00	$ 281,00	$ 502,00
(+) Net Fixed Assets	$ 7 307,00	$ 6 957,00	$ 6 425,00	$ 6 089,00	$ 5 818,00	$ 6 010,00
(+) Gross Fixed Assets	$ 15 168,00	$ 15 583,00	$ 15 310,00	$ 15 071,00	$ 14 907,00	$ 18 381,00
(-) Accumulated Depreciation	$ 7 861,00	$ 8 626,00	$ 8 885,00	$ 8 982,00	$ 9 089,00	$ 12 371,00
(+) Other Long-Term Assets	$ 23 846,00	$ 24 088,00	$ 22 925,00	$ 28 458,00	$ 29 726,00	$ 35 386,00
Total Non current Assets	**$ 31 337,00**	**$ 31 256,00**	**$ 29 551,00**	**$ 34 746,00**	**$ 35 825,00**	**$ 41 898,00**
% change YoY		-0,26%	-5,45%	17,58%	3,11%	16,95%
Total Assets	**$ 54 920,00**	**$ 56 127,00**	**$ 52 830,00**	**$ 53 534,00**	**$ 55 899,00**	**$ 58 595,00**
% change YoY		2,20%	-5,87%	1,33%	4,42%	4,82%
Equity						
(+) Total Preferred Equity	$ -	$ -	$ -	$ -	$ -	$ -
(+) Minority Interest	$ 161,00	$ 197,00	$ 226,00	$ 215,00	$ 29,00	$ 19,00
(+) Common Stock & Additional Paid In Ca	$ 2 543,00	$ 3 024,00	$ 3 401,00	$ 3 816,00	$ 4 298,00	$ 4 577,00
(+) Retained Earnings	$ 16 198,00	$ 18 272,00	$ 17 894,00	$ 17 961,00	$ 16 960,00	$ 13 029,00
(+) Other Equity	$ 1 919,00	$ 1 917,00	$ 1 951,00	$ 1 960,00	$ 1 966,00	$ 2 021,00
Total Equity	**$ 20 821,00**	**$ 23 410,00**	**$ 23 472,00**	**$ 23 952,00**	**$ 23 253,00**	**$ 19 646,00**
% change YoY		12,43%	0,26%	2,04%	-2,92%	-15,51%
Liabilities						
(+) Accounts Payable	$ 2 316,00	$ 2 257,00	$ 2 155,00	$ 2 449,00	$ 2 499,00	$ 3 492,00
(+) Short-Term Debt	$ 1 926,00	$ 125,00	$ 1 990,00	$ 901,00	$ 1 788,00	$ 2 446,00
(+) Other Short-Term Liabilities	$ 13 398,00	$ 14 405,00	$ 11 607,00	$ 10 553,00	$ 11 764,00	$ 11 392,00
Total Current Liabilities	**$ 17 640,00**	**$ 16 787,00**	**$ 15 752,00**	**$ 13 903,00**	**$ 16 051,00**	**$ 17 330,00**
% change YoY		-4,84%	-6,17%	-11,74%	15,45%	7,97%
(+) Long-Term Debt	$ 9 137,00	$ 9 097,00	$ 7 338,00	$ 9 409,00	$ 8 588,00	$ 8 397,00
(+) Other Long-Term Liabilities	$ 7 322,00	$ 6 833,00	$ 6 268,00	$ 6 270,00	$ 8 007,00	$ 13 222,00
Total Non Current Liabilities	**$ 16 459,00**	**$ 15 930,00**	**$ 13 606,00**	**$ 15 679,00**	**$ 16 595,00**	**$ 21 619,00**
% change YoY		-3,21%	-14,59%	15,24%	5,84%	30,27%
Total Liabilities	**$ 34 099,00**	**$ 32 717,00**	**$ 29 358,00**	**$ 29 582,00**	**$ 32 646,00**	**$ 38 949,00**
% change YoY		-4,05%	-10,27%	0,76%	10,36%	19,31%
Total Liabilities & Equity	**$ 54 920,00**	**$ 56 127,00**	**$ 52 830,00**	**$ 53 534,00**	**$ 55 899,00**	**$ 58 595,00**
% change YoY		2,20%	-5,87%	1,33%	4,42%	4,82%

Annex 5 - Sales by medicine 2009 – 2014

Sales per Product and Therapeutic Area								
In Millions of USD	**Product Name/Year**	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**Avg. % of Total**
Gastrointestinal	Nexium	$ 4 959,00	$ 4 969,00	$ 4 429,00	$ 3 944,00	$ 3 872,00	$ 3 655,00	**18%**
	Losec/Prilosec	$ 946,00	$ 986,00	$ 946,00	$ 710,00	$ 486,00	$ 422,00	
	Others	$ 106,00	$ 133,00	$ 161,00	$ 198,00	$ 231,00	$ 788,00	
	Total	**$ 6 011,00**	**$ 6 088,00**	**$ 5 536,00**	**$ 4 852,00**	**$ 4 589,00**	**$ 4 865,00**	
Cardiovascular	Crestor	$ 4 502,00	$ 5 691,00	$ 6 622,00	$ 6 253,00	$ 5 622,00	$ 5 512,00	**32%**
	Atacand	$ 1 436,00	$ 1 483,00	$ 1 450,00	$ 1 009,00	$ 611,00	$ 501,00	
	Seloken/Toprol-XL	$ 1 443,00	$ 1 210,00	$ 986,00	$ 918,00	$ 750,00	$ 758,00	
	Plendil	$ 241,00	$ 255,00	$ 256,00	$ 252,00	$ 260,00	$ 249,00	
	Onglyza	$ 11,00	$ 69,00	$ 211,00	$ 323,00	$ 378,00	$ 820,00	
	Tenormin	$ -	$ 276,00	$ 270,00	$ 229,00	$ 197,00	$ 161,00	
	Brilinta/Brilique	$ -	$ -	$ 21,00	$ 89,00	$ 283,00	$ 476,00	
	Byetta	$ -	$ -	$ -	$ 74,00	$ 206,00	$ 327,00	
	Bydureon	$ -	$ -	$ -	$ 37,00	$ 151,00	$ 440,00	
	Forxiga	$ -	$ -	$ -	$ -	$ 10,00	$ -	
	Others	$ 743,00	$ 419,00	$ 396,00	$ 347,00	$ 362,00	$ 558,00	
	Total	**$ 8 376,00**	**$ 9 403,00**	**$10 212,00**	**$ 9 531,00**	**$ 8 830,00**	**$ 9 802,00**	
Respiratory & Inflammation	Symbicort	$ 2 294,00	$ 2 746,00	$ 3 148,00	$ 3 194,00	$ 3 483,00	$ 3 801,00	**15%**
	Pulmicort	$ 1 310,00	$ 872,00	$ 892,00	$ 866,00	$ 867,00	$ 946,00	
	Rhinocort	$ 264,00	$ 227,00	$ 212,00	$ -	$ -	$ -	
	Oxis	$ 63,00	$ 63,00	$ 56,00	$ -	$ -	$ -	
	Others	$ 201,00	$ 191,00	$ 160,00	$ 355,00	$ 327,00	$ 316,00	
	Total	**$ 4 132,00**	**$ 4 099,00**	**$ 4 468,00**	**$ 4 415,00**	**$ 4 677,00**	**$ 5 063,00**	
Oncology	Zoladex	$ 1 086,00	$ 1 115,00	$ 1 179,00	$ 1 093,00	$ 996,00	$ 924,00	**12%**
	Arimidex	$ 1 921,00	$ 1 512,00	$ 756,00	$ 543,00	$ 351,00	$ 298,00	
	Iressa	$ 297,00	$ 393,00	$ 554,00	$ 611,00	$ 647,00	$ 623,00	
	Casodex	$ 844,00	$ 579,00	$ 550,00	$ 454,00	$ 376,00	$ 320,00	
	Faslodex	$ 262,00	$ 345,00	$ 546,00	$ 654,00	$ 681,00	$ 720,00	
	Nolvadex	$ 88,00	$ 89,00	$ 99,00	$ -	$ -	$ -	
	Others	$ 20,00	$ 12,00	$ 21,00	$ 134,00	$ 142,00	$ 142,00	
	Total	**$ 4 518,00**	**$ 4 045,00**	**$ 3 705,00**	**$ 3 489,00**	**$ 3 193,00**	**$ 3 027,00**	
Neuroscience	Seroquel XR	$ 4 866,00	$ 1 154,00	$ 1 490,00	$ 1 509,00	$ 1 337,00	$ 1 224,00	**15%**
	Seroquel IR	$ -	$ 4 148,00	$ 4 338,00	$ 1 294,00	$ 345,00	$ 178,00	
	Local Anaesthetics	$ 599,00	$ 605,00	$ 602,00	$ 540,00	$ 510,00	$ 488,00	
	Zoming	$ 434,00	$ 428,00	$ 413,00	$ -	$ -	$ -	
	Diprivan	$ 290,00	$ 322,00	$ 294,00	$ -	$ -	$ -	
	Vimovo	$ -	$ -	$ 34,00	$ 65,00	$ 91,00	$ -	
	Others	$ 48,00	$ 47,00	$ 33,00	$ 515,00	$ 452,00	$ -	
	Total	**$ 6 237,00**	**$ 6 704,00**	**$ 7 204,00**	**$ 3 923,00**	**$ 2 735,00**	**$ 1 890,00**	
nfection & Othe	Synagis	$ 1 082,00	$ 1 038,00	$ 975,00	$ 1 038,00	$ 1 060,00	$ 900,00	**6%**
	Merrem	$ 872,00	$ 817,00	$ 583,00	$ 396,00	$ 293,00	$ 253,00	
	FluMist	$ 145,00	$ 174,00	$ 161,00	$ 181,00	$ 245,00	$ 295,00	
	Non Seasonal Flu	$ 389,00	$ 39,00	$ 7,00	$ -	$ -	$ -	
	Others	$ 143,00	$ 108,00	$ 130,00	$ 100,00	$ 89,00	$ -	
	Total	**$ 2 631,00**	**$ 2 176,00**	**$ 1 856,00**	**$ 1 715,00**	**$ 1 687,00**	**$ 1 448,00**	
Other	Astra Tech	$ 506,00	$ 535,00	$ 386,00	$ -	$ -	$ -	**0%**
	Aptium Oncology	$ 393,00	$ 219,00	$ 224,00	$ 48,00	$ -	$ -	
	Total	**$ 4 062,00**	**$ 3 077,00**	**$ 2 603,00**	**$ 1 863,00**	**$ 1 776,00**	**$ 1 448,00**	
	Total Sales	**$ 32 804,00**	**$ 33 269,00**	**$33 591,00**	**$27 973,00**	**$25 711,00**	**$26 095,00**	**100%**

Annex 6 - Sales by Geography 2009 – 2014

Sales by Geography							
In Millions of USD	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**Weights FY2014**
USA	$ 14 994,00	$ 14 010,00	$ 13 745,00	$ 11 074,00	$ 10 198,00	$ 10 485,00	40%
Canada	$ 1 188,00	$ 1 492,00	$ 1 589,00	$ 1 069,00	$ 607,00	$ 583,00	2%
Others	$ 1 113,00	$ 1 387,00	$ 1 452,00	$ 1 326,00	$ 1 177,00	$ 1 165,00	4%
Total America	**$ 17 295,00**	**$ 16 889,00**	**$ 16 786,00**	**$ 13 469,00**	**$11 982,00**	**$ 12 233,00**	**47%**
Europe (excluding UK)	$ 8 876,00	$ 8 770,00	$ 8 229,00	$ 6 197,00	$ 5 652,00	$ 5 757,00	22%
UK	$ 1 809,00	$ 1 952,00	$ 1 980,00	$ 1 843,00	$ 1 819,00	$ 1 764,00	7%
Total Europe	**$ 10 685,00**	**$ 10 722,00**	**$ 10 209,00**	**$ 8 040,00**	**$ 7 471,00**	**$ 7 521,00**	**29%**
Japan	$ 2 214,00	$ 2 458,00	$ 2 905,00	$ 2 748,00	$ 2 403,00	$ 2 202,00	8%
Australia	$ 790,00	$ 981,00	$ 1 166,00	$ 1 050,00	$ 811,00	$ 657,00	3%
China	$ 811,00	$ 1 047,00	$ 1 261,00	$ 1 511,00	$ 1 836,00	$ 2 228,00	9%
Other Emerging Markets	$ 1 009,00	$ 1 172,00	$ 1 264,00	$ 1 155,00	$ 1 208,00	$ 1 254,00	5%
Total Asia, Africa, Oceani	**$ 4 824,00**	**$ 5 658,00**	**$ 6 596,00**	**$ 6 464,00**	**$ 6 258,00**	**$ 6 341,00**	**24%**
Total Sales	**$ 32 804,00**	**$ 33 269,00**	**$ 33 591,00**	**$ 27 973,00**	**$25 711,00**	**$ 26 095,00**	**100%**

Annex 7 - Sales by company division 2009 - 2014

Sales by Company Division						
In Millions of USD	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Pharmaceuticals	$ 31 371,00	$ 32 302,00	$ 32 813,00	$ 27 744,00	$ 25 466,00	$ 25 800,00
Vaccines	$ 534,00	$ 213,00	$ 168,00	$ 181,00	$ 245,00	$ 295,00
Diagnostics & Devices	$ 506,00	$ 535,00	$ 386,00	$ -	$ -	$ -
Other Areas	$ 393,00	$ 219,00	$ 224,00	$ 48,00	$ -	$ -
Total Sales	**$ 32 804,00**	**$ 33 269,00**	**$ 33 591,00**	**$27 973,00**	**$25 711,00**	**$ 26 095,00**

Annex 8 – Patent Expiration by country

Patent Expiration				
Medicine/Country	**US**	**EU**	**China**	**Japan**
Atacand	Expired	Expired	-	-
Brilinta	2019	2024	2019	2019
Bydureon	-	2026	2025	2025
Byetta	-	2021	2020	2020
Crestor	2016	2017	-	2017
Faslodex	-	2021	2021	2026
Iressa	2017	2019	2016	2018
Nexium	2015	Expired	Expired	2018
Onglyza	2023	2024	2021	-
Pulmicort	2019	2018	2018	2018
Seroquel IR	Expired	Expired	-	-
Seroquel XR	-	2017	2017	-
Symbicort	Expired	2018	2018	2017
Synagis	2015	2015	2015	2015
Toprol-xl	Expired	Expired	Expired	Expired
Zoladex	Expired	2021	2021	2021

Annex 9 - Total Health spending as percentage of country GDP

Total Health spending as % of GDP	
Country	**2012**
Austria	11,10%
Belgium	10,89%
Canada	10,93%
Czech Republic	7,55%
Denmark	10,98%
Estonia	5,89%
Finland	9,09%
France	11,61%
Germany	11,27%
Greece	9,27%
Hungary	7,97%
Iceland	9,04%
Ireland	8,87%
Israel	7,35%
Italy	9,19%
Japan	10,28%
Korea	7,63%
Luxembourg	7,13%
Mexico	6,16%
Norway	9,28%
Poland	6,76%
Slovak Republic	8,15%
Slovenia	9,37%
Spain	9,29%
Sweden	9,58%
Switzerland	11,43%
Turkey	5,39%
United Kingdom	9,27%
United States	16,90%
OECD Average	**9,23%**

Annex 10 – Total health expenditure by general government as percentage of GDP 2000 - 2012

Total Health Expenditure by General Government(% of GDP)														
Country Name/Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Arab World	2,33%	2,60%	2,56%	2,47%	2,34%	2,17%	2,18%	2,21%	2,10%	2,85%	2,47%	2,54%	2,60%	2,52%
Australia	5,39%	5,42%	5,61%	5,50%	5,71%	5,65%	5,65%	5,76%	5,92%	6,18%	6,06%	6,21%	5,98%	5,98%
Austria	7,58%	7,58%	7,57%	7,68%	7,79%	7,85%	7,73%	7,78%	8,01%	8,51%	8,40%	8,32%	8,42%	8,36%
Belgium	6,06%	6,25%	6,24%	7,05%	7,15%	7,14%	6,99%	6,97%	7,42%	8,07%	7,92%	8,03%	8,19%	8,48%
Brazil	2,89%	3,07%	3,21%	3,12%	3,35%	3,47%	3,55%	3,53%	3,70%	3,95%	4,24%	4,35%	4,52%	4,66%
Canada	6,10%	6,36%	6,51%	6,69%	6,72%	6,72%	6,78%	6,87%	7,04%	7,89%	7,86%	7,72%	7,66%	7,58%
Central Europe & the Baltics	4,56%	4,68%	4,92%	5,13%	4,94%	5,00%	4,87%	4,85%	5,09%	5,45%	5,36%	5,15%	5,07%	4,98%
Switzerland	5,49%	5,85%	6,12%	6,38%	6,40%	6,46%	6,14%	6,03%	6,70%	7,21%	7,12%	7,22%	7,52%	7,57%
China	1,77%	1,63%	1,72%	1,76%	1,80%	1,82%	1,85%	2,04%	2,31%	2,70%	2,70%	2,88%	3,03%	3,11%
Cyprus	2,40%	2,45%	2,75%	3,08%	2,81%	2,66%	2,66%	2,58%	2,85%	3,31%	3,47%	3,55%	3,44%	3,45%
Czech Republic	5,70%	5,76%	6,15%	6,40%	6,15%	6,05%	5,81%	5,56%	5,63%	6,57%	6,22%	6,31%	6,34%	6,03%
Germany	8,27%	8,33%	8,48%	8,57%	8,19%	8,28%	8,13%	8,00%	8,18%	9,03%	8,87%	8,60%	8,64%	8,68%
Denmark	7,30%	7,66%	7,89%	8,04%	8,15%	8,25%	8,40%	8,43%	8,62%	9,76%	9,43%	9,27%	9,42%	9,07%
East Asia & Pacific	4,73%	4,73%	4,63%	4,63%	4,62%	4,58%	4,33%	4,25%	4,42%	4,87%	4,80%	4,90%	4,91%	4,63%
Europe & Central Asia	6,33%	6,48%	6,67%	6,81%	6,77%	6,83%	6,81%	6,71%	6,89%	7,62%	7,39%	7,18%	7,13%	7,11%
Euro area	6,91%	7,02%	7,17%	7,30%	7,28%	7,44%	7,47%	7,38%	7,62%	8,27%	8,20%	8,04%	8,06%	8,08%
Spain	5,17%	5,16%	5,17%	5,73%	5,80%	5,88%	6,01%	6,10%	6,51%	7,20%	7,17%	6,93%	6,67%	6,25%
Estonia	4,08%	3,82%	3,74%	3,78%	3,88%	3,85%	3,67%	3,90%	4,71%	5,22%	4,93%	4,63%	4,62%	4,46%
European Union	6,57%	6,71%	6,88%	7,04%	7,05%	7,19%	7,22%	7,14%	7,40%	8,09%	7,98%	7,81%	7,84%	7,82%
Finland	5,14%	5,34%	5,66%	5,93%	6,02%	6,22%	6,25%	5,98%	6,19%	6,86%	6,67%	6,67%	6,82%	7,08%
France	8,01%	8,11%	8,41%	8,38%	8,48%	8,53%	8,42%	8,37%	8,43%	8,99%	8,96%	8,91%	8,98%	9,04%
United Kingdom	5,49%	5,72%	5,99%	6,16%	6,44%	6,61%	6,77%	6,74%	7,15%	8,09%	7,87%	7,70%	7,79%	7,62%
Greece	4,73%	5,35%	5,28%	5,34%	5,13%	5,81%	6,05%	5,92%	6,07%	6,97%	6,32%	6,60%	6,22%	6,83%
Croatia	6,68%	6,03%	5,02%	5,32%	5,39%	6,01%	6,05%	6,56%	6,62%	7,06%	7,16%	5,72%	5,82%	5,84%
Hungary	5,08%	4,99%	5,33%	6,09%	5,72%	5,91%	5,76%	5,16%	5,00%	5,08%	5,22%	5,12%	4,98%	5,12%
India	1,16%	1,13%	1,08%	1,04%	10,00%	9,96%	1,00%	1,02%	1,10%	1,22%	1,15%	1,14%	1,16%	1,28%
Ireland	4,58%	5,09%	5,38%	5,60%	5,83%	5,76%	5,67%	5,95%	6,78%	7,22%	6,41%	5,91%	6,00%	6,04%
Iceland	7,70%	7,56%	8,31%	8,48%	8,02%	7,68%	7,48%	7,50%	7,54%	7,90%	7,47%	7,27%	7,28%	7,29%
Italy	5,84%	6,12%	6,22%	6,22%	6,58%	6,82%	6,91%	6,65%	7,02%	7,42%	7,42%	7,13%	7,10%	7,09%
Japan	6,14%	6,35%	6,39%	6,42%	6,46%	6,67%	6,51%	6,61%	7,00%	7,77%	7,87%	8,32%	8,44%	8,45%
Latin America & Caribbean	3,00%	3,08%	2,99%	3,01%	3,08%	3,16%	3,18%	3,29%	3,45%	3,85%	3,81%	3,87%	3,95%	4,01%
Lithuania	4,50%	4,55%	4,79%	4,93%	3,83%	3,95%	4,31%	4,54%	4,78%	5,49%	5,02%	4,74%	4,35%	4,15%
Luxembourg	6,36%	6,24%	7,07%	6,46%	6,96%	6,75%	6,60%	5,82%	6,49%	7,03%	6,59%	6,30%	5,99%	5,94%
Latvia	3,27%	3,16%	3,28%	3,25%	3,68%	3,64%	4,36%	4,26%	4,12%	4,07%	3,94%	3,87%	3,58%	3,54%
Malta	4,76%	4,88%	5,53%	5,73%	5,89%	6,25%	6,25%	5,66%	5,30%	5,41%	5,33%	6,65%	5,70%	5,77%
North America	5,69%	6,09%	6,43%	6,63%	6,70%	6,73%	6,88%	7,01%	7,35%	8,02%	8,08%	8,04%	7,97%	8,00%
Netherlands	5,02%	5,21%	5,54%	5,98%	5,96%	7,04%	8,41%	8,42%	8,67%	9,45%	9,64%	9,62%	1,01%	1,03%
Norway	6,95%	7,35%	8,17%	8,39%	8,02%	7,54%	7,17%	7,36%	7,22%	8,18%	7,98%	7,87%	7,90%	8,18%
New Zealand	5,90%	5,85%	6,21%	6,11%	6,35%	6,65%	7,00%	6,96%	7,67%	8,17%	8,28%	8,28%	8,46%	8,08%
OECD members	5,87%	6,14%	6,36%	6,54%	6,58%	6,65%	6,70%	6,74%	7,05%	7,73%	7,66%	7,62%	7,61%	7,59%
Portugal	6,19%	6,20%	6,37%	6,69%	6,84%	7,04%	6,72%	6,66%	6,67%	7,19%	7,46%	6,90%	6,36%	6,28%
Russian Federation	3,25%	3,33%	3,53%	3,30%	3,09%	3,23%	3,35%	3,45%	3,42%	4,14%	3,69%	3,61%	3,32%	3,15%
Slovak Republic	4,92%	4,91%	5,01%	5,14%	5,32%	5,24%	5,02%	5,18%	5,44%	6,01%	5,80%	5,64%	5,68%	5,75%
Slovenia	6,12%	6,28%	6,32%	6,31%	6,22%	6,21%	6,12%	5,77%	6,29%	6,92%	6,73%	6,67%	6,70%	6,56%
Sweden	6,94%	7,19%	7,51%	7,63%	7,40%	7,35%	7,26%	7,25%	7,52%	8,10%	7,72%	7,75%	7,78%	7,91%
Turkey	3,11%	3,51%	3,79%	3,84%	3,83%	3,70%	3,97%	4,10%	4,44%	4,92%	4,41%	4,21%	4,14%	4,33%
United States	5,66%	6,08%	6,42%	6,62%	6,70%	6,73%	6,89%	7,03%	7,39%	8,04%	8,10%	8,08%	8,01%	8,05%
World	5,27%	5,49%	5,68%	5,82%	5,80%	5,78%	5,74%	5,70%	5,84%	6,38%	6,15%	6,05%	6,00%	5,95%

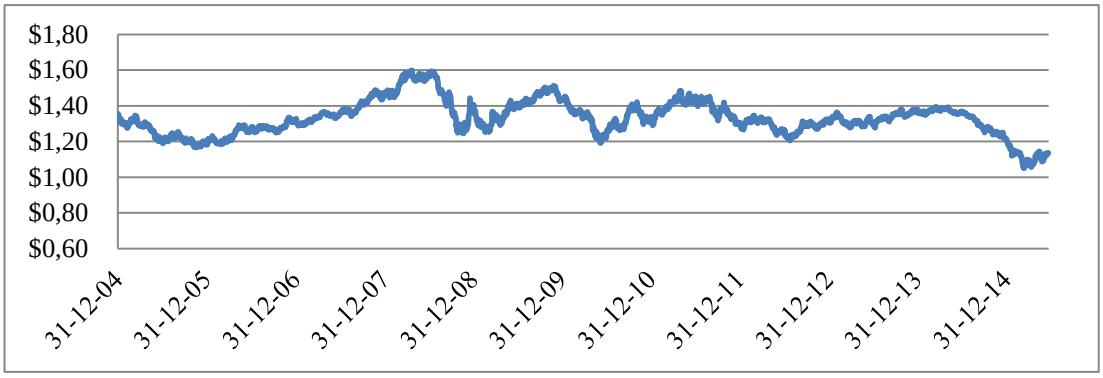
Annex 11 – Sector total sales by geographic region 2012 - 2014

Sector Total Sales				
In millions of USD	**2012**	**2013**	**2014**	**Weights 2014**
USA	$ 326 000	$ 326 000	$ 365 000	40%
Europe	$ 206 000	$ 209 000	$ 216 000	24%
Established Markets	$ 110 000	$ 112 000	$ 114 000	13%
Emerging Markets	$ 168 000	$ 187 000	$ 208 000	23%
TOTAL	**$ 810 000**	**$ 834 000**	**$ 903 000**	**100%**

Annex 12 – Top 10 sales by therapy area in 2014

Sector Sales by Therapy Area in 2014	
Top 10 Areas	**Sales in millions of USD**
Oncology	$ 74 734,00
Cardiovascular	$ 50 475,00
Autoimmune	$ 42 478,00
Diabetes	$ 36 917,00
Neurological	$ 30 803,00
Virology	$ 24 761,00
Respiratory	$ 23 952,00
Vaccines	$ 21 247,00
Multiple Sclerosis	$ 19 022,00
Hematology	$ 15 197,00
TOTAL	**$ 339 586,00**

Annex 13 – EUR/USD daily spot exchange rate 31/12/2004 – 22/06/2015



Source: Bloomberg

Annex 14 – AstraZeneca growth analysis 2009 - 2014

Growth Analysis							
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	CAGR (2009-2014)
Total Sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00	**-4,47%**
% change YoY		1,42%	0,97%	-16,72%	-8,09%	1,49%	
EBITDA	$ 13 235,00	$ 15 761,00	$ 13 111,00	$ 13 875,00	$ 13 568,00	$ 8 237,00	**-9,05%**
% change YoY		19,09%	-16,81%	5,83%	-2,21%	-39,29%	
EBIT	$ 11 148,00	$ 13 020,00	$ 11 114,00	$ 11 357,00	$ 8 985,00	$ 4 955,00	**-14,97%**
% change YoY		16,79%	-14,64%	2,19%	-20,89%	-44,85%	
EBT	$ 10 807,00	$ 10 977,00	$ 12 367,00	$ 7 646,00	$ 3 267,00	$ 1 246,00	**-35,08%**
% change YoY		1,57%	12,66%	-38,17%	-57,27%	-61,86%	
Group Net Income	$ 7 521,00	$ 8 053,00	$ 9 983,00	$ 6 240,00	$ 2 556,00	$ 1 233,00	**-30,35%**
% change YoY		7,07%	23,97%	-37,49%	-59,04%	-51,76%	
Net Income	$ 7 544,00	$ 8 081,00	$ 10 016,00	$ 6 270,00	$ 2 571,00	$ 1 235,00	**-30,37%**
% change YoY		7,12%	23,95%	-37,40%	-59,00%	-51,96%	
Dividends per Share	$ 2,09	$ 2,41	$ 2,70	$ 2,85	$ 2,80	$ 2,80	**6,02%**
% change YoY		15,31%	12,03%	5,56%	-1,75%	0,00%	
Earnings per Share	$ 5,19	$ 5,72	$ 7,73	$ 5,01	$ 2,04	$ 0,98	**-28,40%**
% change YoY		10,19%	35,19%	-35,13%	-59,36%	-52,06%	
Total Assets	$ 54 920,00	$ 56 127,00	$ 52 830,00	$ 53 534,00	$ 55 899,00	$ 58 595,00	**1,30%**
% change YoY		2,20%	-5,87%	1,33%	4,42%	4,82%	
Total Equity	$ 20 821,00	$ 23 410,00	$ 23 472,00	$ 23 952,00	$ 23 253,00	$ 19 646,00	**-1,16%**
% change YoY		12,43%	0,26%	2,04%	-2,92%	-15,51%	
Total Liabilities	$ 34 099,00	$ 32 717,00	$ 29 358,00	$ 29 582,00	$ 32 646,00	$ 38 949,00	**2,70%**
% change YoY		-4,05%	-10,27%	0,76%	10,36%	19,31%	
Total Debt	$ 11 063,00	$ 9 222,00	$ 9 328,00	$ 10 310,00	$ 10 376,00	$ 10 843,00	**-0,40%**
% change YoY		-16,64%	1,15%	10,53%	0,64%	4,50%	
R&D expenses	$ 4 409,00	$ 5 318,00	$ 5 523,00	$ 5 243,00	$ 4 821,00	$ 5 579,00	**4,82%**
% change YoY		20,62%	3,85%	-5,07%	-8,05%	15,72%	
SG&A expenses	$ 11 332,00	$ 10 445,00	$ 11 161,00	$ 9 839,00	$ 12 206,00	$ 13 000,00	**2,78%**
% change YoY		-7,83%	6,85%	-11,84%	24,06%	6,50%	

Annex 15 – AstraZeneca average analysis 2009 - 2014

Average Analysis							
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	Average
Fixed Assets/Total Sales	0,955	0,939	0,880	1,242	1,393	1,606	**1,169**
% change YoY		-1,65%	-6,36%	41,19%	12,18%	15,23%	
Net Working Capital Needs/Sales	-0,108	-13,05%	-6,85%	-9,79%	-16,34%	-20,47%	**-12,88%**
% change YoY		21,15%	-47,48%	42,83%	66,97%	25,26%	
ROS - Return on Sales	24,30%	28,18%	24,32%	30,65%	26,82%	15,00%	**24,88%**
% change YoY		15,97%	-13,70%	26,05%	-12,50%	-44,07%	
Debt/Total Sales	33,72%	27,72%	27,77%	36,86%	40,36%	41,55%	**34,66%**
% change YoY		-17,81%	0,18%	32,73%	9,49%	2,96%	
Interest Expense/Sales	3,65%	0,014	0,013	0,015	0,016	0,016	**0,019**
% change YoY		-61%	-10%	18%	5%	0%	
EBITDA/Sales	40,35%	47,37%	39,03%	49,60%	52,77%	31,57%	**43,45%**
% change YoY		17,42%	-17,61%	27,08%	6,39%	-40,18%	
Net Income/Sales	23,00%	24,29%	29,82%	22,41%	10,00%	4,73%	**19,04%**
% change YoY		5,62%	22,76%	-24,83%	-55,39%	-52,67%	
Tax rate	28,50%	28,00%	26,50%	24,50%	23,25%	21,00%	**25,29%**
% change YoY		-1,75%	-5,36%	-7,55%	-5,10%	-9,68%	

Annex 16 – AstraZeneca sales growth analysis 2009 - 2014

Sales Growth							
In Millions of USD	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**	**CAGR (2009-2014)**
Total sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00	**-4,47%**
Nominal growth rate		1,42%	0,97%	-16,72%	-8,09%	1,49%	
Inflation rate	2,90%	2,95%	2,75%	2,65%	2,85%	2,55%	
Real growth rate		-1,49%	-1,73%	-18,87%	-10,63%	-1,03%	

Annex 17 – AstraZeneca economic profitability analysis 2009 - 2014

Economic Profitability						
In Millions of USD except percen	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
EBIT + Interest income	$ 7 970,82	$ 9 374,40	$ 8 168,79	$ 8 574,54	$ 6 895,99	$ 3 914,45
Total Assets	$54 920,00	$56 127,00	$52 830,00	$53 534,00	$55 899,00	$58 595,00
ROA	14,51%	16,70%	15,46%	16,02%	12,34%	6,68%
ROS (including interest income)	24,30%	28,18%	24,32%	30,65%	26,82%	15,00%
ROS	24,30%	28,18%	24,32%	30,65%	26,82%	15,00%
Total Assets turnover (x)	0,597	0,593	0,636	0,523	0,460	0,445
ROA	14,51%	16,70%	15,46%	16,02%	12,34%	6,68%
Non current assets	$31 337,00	$31 256,00	$29 551,00	$34 746,00	$35 825,00	$41 898,00
Operating current assets	$12 181,00	$12 321,00	$11 460,00	$10 264,00	$10 061,00	$ 9 542,00
Operating current liabilities	$15 714,00	$16 662,00	$13 762,00	$13 002,00	$14 263,00	$14 884,00
NOWCN	$ -3 533,00	$ -4 341,00	$ -2 302,00	$ -2 738,00	$ -4 202,00	$ -5 342,00
Invested Capital	$27 804,00	$26 915,00	$27 249,00	$32 008,00	$31 623,00	$36 556,00
ROIC	28,67%	34,83%	29,98%	26,79%	21,81%	10,71%
Invested Capital turnover	118%	124%	123%	87%	81%	71%
Fixed Assets/Sales	95,53%	93,95%	87,97%	124,21%	139,34%	160,56%
OpNWC/Sales	161,55%	168,33%	151,35%	188,16%	210,46%	215,17%
Fixed Assets/Sales + OpNWC/Sales	257,08%	262,28%	239,32%	312,37%	349,80%	375,73%
ROIC	28,67%	34,83%	29,98%	26,79%	21,81%	10,71%

Annex 18 - AstraZeneca financial profitability analysis 2009 - 2014

Financial Profitability (Product factor model)						
In Millions of USD except percen	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Contribution Margin (%)	82,40%	81,23%	82,22%	82,37%	81,98%	78,58%
% change YoY		-1,42%	1,22%	0,18%	-0,47%	-4,15%
Fixed Expenses Effect	48,97%	58,32%	47,47%	60,22%	64,37%	40,17%
% change YoY		19,11%	-18,61%	26,85%	6,89%	-37,60%
D&A effect	84,23%	82,61%	84,77%	81,85%	66,22%	60,16%
% change YoY		-1,93%	2,61%	-3,44%	-19,10%	-9,16%
Invested Capital turnover	118%	124%	123%	87%	81%	71%
% change YoY		4,77%	-0,27%	-29,11%	-6,97%	-12,20%
Interest Expense effect	97%	84%	111%	67%	36%	25%
% change YoY		-13,03%	31,98%	-39,50%	-45,99%	-30,84%
Equity Turnover	134%	115%	116%	134%	136%	186%
% change YoY		-13,90%	0,97%	15,11%	1,77%	36,82%
Tax effect	69,81%	73,62%	80,99%	82,00%	78,70%	99,12%
% change YoY		5,46%	10,01%	1,25%	-4,03%	25,95%
ROE	**36,23%**	**34,52%**	**42,67%**	**26,18%**	**11,06%**	**6,29%**
% change YoY		-4,73%	23,62%	-38,65%	-57,76%	-43,14%
ROCE	**29,90%**	**33,10%**	**29,97%**	**28,66%**	**22,55%**	**12,01%**

Annex 19 - AstraZeneca operating profitability 2009 - 2014

Operating Profitability						
In Millions of USD except percen	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Total Sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00
Variable Charges	$ 5 775,00	$ 6 245,00	$ 5 972,00	$ 4 932,00	$ 4 633,00	$ 5 589,00
Gross Profit	$ 27 029,00	$ 27 024,00	$ 27 619,00	$ 23 041,00	$ 21 078,00	$ 20 506,00
Gross Profit Margin	**82,40%**	**81,23%**	**82,22%**	**82,37%**	**81,98%**	**78,58%**
Operating Fixed Charges	$ 13 794,00	$ 11 263,00	$ 14 508,00	$ 9 166,00	$ 7 510,00	$ 12 269,00
EBITDA	$ 13 235,00	$ 15 761,00	$ 13 111,00	$ 13 875,00	$ 13 568,00	$ 8 237,00
SG&A/Sales	34,54%	31,40%	33,23%	35,17%	47,47%	49,82%
R&D/Sales	13,44%	15,98%	16,44%	18,74%	18,75%	21,38%
EBIT Margin	33,98%	39,14%	33,09%	40,60%	34,95%	18,99%
Cash Flow Margin	**40,35%**	**47,37%**	**39,03%**	**49,60%**	**52,77%**	**31,57%**

Annex 20 - AstraZeneca dividend policy effects 2009 - 2010

Dividend Policy Effects						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Dividends	$ 3 026,00	$ 3 494,00	$ 3 752,00	$ 3 619,00	$ 3 499,00	$ 3 536,12
Group Net Income	$ 7 521,00	$ 8 053,00	$ 9 983,00	$ 6 240,00	$ 2 556,00	$ 1 233,00
Retained Earnings	$ 16 198,00	$18 272,00	$17 894,00	$ 17 961,00	$16 960,00	$13 029,00
Group Equity	$ 20 660,00	$23 213,00	$23 246,00	$ 23 737,00	$23 224,00	$19 627,00
Dividend Payout	40,23%	43,39%	37,58%	58,00%	136,89%	286,79%
Plow Back or Retention Ratio	215,37%	226,90%	179,24%	287,84%	663,54%	1056,69%
GROE (1st approach)	**36,40%**	**34,69%**	**42,95%**	**26,29%**	**11,01%**	**6,28%**
Internal Growth Factor (1st Appro	**78,40%**	**78,71%**	**76,98%**	**75,67%**	**73,03%**	**66,38%**
Internal Growth Factor (2nd Appr	**78,40%**	**78,71%**	**76,98%**	**75,67%**	**73,03%**	**66,38%**
Rate of Sustainable Growth	**363%**	**370%**	**334%**	**311%**	**271%**	**197%**

Annex 21 - AstraZeneca dividend analysis 2009 - 2010

Dividend Analysis						
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Dividend Payout	40,29%	42,17%	34,94%	56,86%	137,48%	286,79%
Payout ratio	40,23%	43,39%	37,58%	58,00%	136,89%	286,79%
Plow Back ratio	215,37%	226,90%	179,24%	287,84%	663,54%	1056,69%
# shares outstanding (in millions)	1450	1409	1292	1245	1255	1263
DPS	$ 2,09	$ 2,41	$ 2,70	$ 2,85	$ 2,80	$ 2,80
EPS	$ 5,19	$ 5,72	$ 7,73	$ 5,01	$ 2,04	$ 0,98
Share Price BOY	$ 40,40	$ 47,42	$ 46,60	$ 47,72	$ 48,18	$ 58,50
Share Price EOY	$ 47,00	$ 45,55	$ 46,13	$ 47,26	$ 59,22	$ 70,98
Price Yield	16,34%	-3,94%	-1,01%	-0,96%	22,91%	21,33%
Total Shareholder Return (TSR)	21,51%	1,14%	4,79%	5,01%	28,73%	26,12%
Market Capitalization	$ 68 150,00	$ 64 179,95	$ 59 599,96	$ 58 838,70	$ 74 321,10	$ 89 640,64
PER	$ 9,06	$ 7,97	$ 5,97	$ 9,43	$ 29,08	$ 72,70
Dividend Yield	5,17%	5,08%	5,79%	5,97%	5,81%	4,79%

Annex 22 – AstraZeneca breakeven analysis 2009 - 2014

Breakeven Analysis						
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00
All Fixed Charges (Operational)	$ 15 881,00	$ 14 004,00	$ 16 505,00	$ 11 684,00	$ 12 093,00	$ 15 551,00
All Fixed Charges (Operational + Financial)	$ 17 079,00	$ 14 483,00	$ 16 938,00	$ 12 110,00	$ 12 506,00	$ 15 969,00
Gross Profit (% of sales)	82,40%	81,23%	82,22%	82,37%	81,98%	78,58%
BE in $ (Operational)	$ 19 274,12	$ 17 240,20	$ 20 073,84	$ 14 185,00	$ 14 751,07	$ 19 789,49
TBE in $ (Operational and Financial)	$ 20 728,09	$ 17 829,89	$ 20 600,47	$ 14 702,18	$ 15 254,85	$ 20 321,42
Safety Margin	**70,20%**	**92,97%**	**67,34%**	**97,20%**	**74,30%**	**31,86%**
Maximum Sales Drop	**41,24%**	**48,18%**	**40,24%**	**49,29%**	**42,63%**	**24,16%**

Annex 23 – AstraZeneca risk analysis 2009 - 2014

Risk Analysis						
Degree of Operating Leverage						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Δ EBIT	$ 1 872,00	$ -1 906,00	$ 243,00	$ -2 372,00	$ -4 030,00	$ -
EBIT	$ 11 148,00	$ 13 020,00	$ 11 114,00	$ 11 357,00	$ 8 985,00	$ 4 955,00
Δ Sales	$ 465,00	$ 322,00	$ -5 618,00	$ -2 262,00	$ 384,00	$ -
Sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00
Gross Profit	$ 27 029,00	$ 27 024,00	$ 27 619,00	$ 23 041,00	$ 21 078,00	$ 20 506,00
DOL (Ex-Ante)	**2,42**	**2,08**	**2,49**	**2,03**	**2,35**	**4,14**
DOL (Ex-Post)	**11,85**	**-15,13**	**-0,13**	**2,58**	**-30,03**	**-**

Degree of Financial Leverage						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Δ Net Income	$ 537,00	$ 1 935,00	$ -3 746,00	$ -3 699,00	$ -1 336,00	$ -
Net Income	$ 7 544,00	$ 8 081,00	$ 10 016,00	$ 6 270,00	$ 2 571,00	$ 1 235,00
Δ EBIT	$ 1 872,00	$ -1 906,00	$ 243,00	$ -2 372,00	$ -4 030,00	$ -
EBIT	$ 11 148,00	$ 13 020,00	$ 11 114,00	$ 11 357,00	$ 8 985,00	$ 4 955,00
EBT	$ 10 807,00	$ 10 977,00	$ 12 367,00	$ 7 646,00	$ 3 267,00	$ 1 246,00
DFL (Ex-ante)	**1,03**	**1,19**	**0,90**	**1,49**	**2,75**	**3,98**
DFL (Ex-post)	**0,42**	**-1,64**	**-17,11**	**2,82**	**1,16**	**-**

Degree of Combined Leverage						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Δ Net Income	$ 537,00	$ 1 935,00	$ -3 746,00	$ -3 699,00	$ -1 336,00	$ -
Net Income	$ 7 544,00	$ 8 081,00	$ 10 016,00	$ 6 270,00	$ 2 571,00	$ 1 235,00
Δ Sales	$ 465,00	$ 322,00	$ -5 618,00	$ -2 262,00	$ 384,00	$ -
Sales	$ 32 804,00	$ 33 269,00	$ 33 591,00	$ 27 973,00	$ 25 711,00	$ 26 095,00
Gross Profit	$ 27 029,00	$ 27 024,00	$ 27 619,00	$ 23 041,00	$ 21 078,00	$ 20 506,00
EBT	$ 10 807,00	$ 10 977,00	$ 12 367,00	$ 7 646,00	$ 3 267,00	$ 1 246,00
DCL (Ex-ante)	**2,50**	**2,46**	**2,23**	**3,01**	**6,45**	**16,46**
DCL (Ex-post)	**5,02**	**24,74**	**2,24**	**7,30**	**-34,79**	**-**

Annex 24 – AstraZeneca net treasury 2009 - 2014

Net Treasury						
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Permanent Capital	$ 37 280,00	$ 39 340,00	$ 37 078,00	$ 39 631,00	$ 39 848,00	$ 41 265,00
(-) Fixed Assets	$ 31 337,00	$ 31 256,00	$ 29 551,00	$ 34 746,00	$ 35 825,00	$ 41 898,00
(=) Net Working Capital	$ 5 943,00	$ 8 084,00	$ 7 527,00	$ 4 885,00	$ 4 023,00	$ -633,00
Op. Current Assets	$ 9 097,00	$ 9 411,00	$ 12 730,00	$ 8 580,00	$ 8 219,00	$ 9 987,00
(-) Op.Current Liab	$ 2 316,00	$ 2 257,00	$ 2 155,00	$ 2 449,00	$ 2 499,00	$ 3 492,00
(=) Net Op. Working Capital Needs	$ 6 781,00	$ 7 154,00	$ 10 575,00	$ 6 131,00	$ 5 720,00	$ 6 495,00
Non-Op. Current Assets	$ 4 568,00	$ 4 392,00	$ 2 978,00	$ 2 507,00	$ 2 638,00	$ 350,00
(-) Non-Op. Current Liabilities	$ 13 398,00	$ 14 405,00	$ 11 607,00	$ 10 553,00	$ 11 764,00	$ 11 392,00
(=) Net Non-Op. Working Capital	$ -8 830,00	$ -10 013,00	$ -8 629,00	$ -8 046,00	$ -9 126,00	$ -11 042,00
Total Working Capital Needs	**$ -2 049,00**	**$ -2 859,00**	**$ 1 946,00**	**$ -1 915,00**	**$ -3 406,00**	**$ -4 547,00**
Net Treasury (1st Approach)	**$ 7 992,00**	**$ 10 943,00**	**$ 5 581,00**	**$ 6 800,00**	**$ 7 429,00**	**$ 3 914,00**
% change YoY		36,92%	-49,00%	21,84%	9,25%	-47,31%
Net Treasury Assets	$ 9 918,00	$ 11 068,00	$ 7 571,00	$ 7 701,00	$ 9 217,00	$ 6 360,00
(-) Net Trasury Liabilities	$ 1 926,00	$ 125,00	$ 1 990,00	$ 901,00	$ 1 788,00	$ 2 446,00
Net Treasury (2nd Approach)	**$ 7 992,00**	**$ 10 943,00**	**$ 5 581,00**	**$ 6 800,00**	**$ 7 429,00**	**$ 3 914,00**

Annex 25 – AstraZeneca credit rating 2014

Credit Rating		
Moody's	Rating	A2
	Outlook	Stable
Standard & Poor's	Rating	A +
	Outlook	Negative
Fitch	Rating	A +
	Outlook	Stable

Annex 26 - AstraZeneca capital structure and debt coverage 2009 - 2014

Capital Structure and Debt Coverage						
	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Total Equity / Total Assets	37,91%	41,71%	44,43%	44,74%	41,60%	33,53%
Total Liabilities / Total Assets	62,09%	58,29%	55,57%	55,26%	58,40%	66,47%
Debt / Total Assets	20,14%	16,43%	17,66%	19,26%	18,56%	18,50%
Liabilities Structure	0,52	0,51	0,54	0,47	0,49	0,44
Interest Bearing Debt/Total Assets	0,20	0,16	0,18	0,19	0,19	0,19
Leverage Ratio (D/E)	1,64	1,40	1,25	1,24	1,40	1,98
Solvency Ratio	0,61	0,72	0,80	0,81	0,71	0,50
TIE - Times Interest Expense	9,31	27,18	25,67	26,66	21,76	11,85
EBITDA/Debt Services	5,14	27,70	6,92	12,54	7,60	3,50

Annex 27 – AstraZeneca liquidity analysis 2009 - 2014

Liquidity Ratios						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
Total Liquidity Ratio	0,62	0,58	0,56	0,55	0,58	0,66
Current Ratio	1,34	1,48	1,48	1,35	1,25	0,96
Quick Ratio	1,24	1,38	1,36	1,20	1,13	0,85

Annex 28 – AstraZeneca financial structure analysis 2009 - 2014

Financial Structure						
	FY2009	**FY2010**	**FY2011**	**FY2012**	**FY2013**	**FY2014**
M/L Term Debt	$ 9 137,00	$ 9 097,00	$ 7 338,00	$ 9 409,00	$ 8 588,00	$ 8 397,00
Short Term Debt	$ 1 926,00	$ 125,00	$ 1 990,00	$ 901,00	$ 1 788,00	$ 2 446,00
Net Debt	$ 1 145,00	$ -1 846,00	$ 1 757,00	$ 2 609,00	$ 1 159,00	$ 4 483,00
Interest Expense	$ 1 198,00	$ 479,00	$ 433,00	$ 426,00	$ 413,00	$ 418,00
Avg Interest Expense Rate	10,83%	5,19%	4,64%	4,13%	3,98%	3,86%
Cash & equivalent	$ 9 918,00	$ 11 068,00	$ 7 571,00	$ 7 701,00	$ 9 217,00	$ 6 360,00
Total Debt	$ 11 063,00	$ 9 222,00	$ 9 328,00	$ 10 310,00	$ 10 376,00	$ 10 843,00
ST Debt to Total Debt	17,41%	1,36%	21,33%	8,74%	17,23%	22,56%
LT Debt to Total Debt	82,59%	98,64%	78,67%	91,26%	82,77%	77,44%
Market Capitalization	$ 68 193,24	$ 64 189,70	$ 59 611,00	$ 58 928,00	$ 74 443,00	$ 89 639,20

Annex 29 – Bayer AG sales by division in 2014

Bayer (BAYN GY)		
In millions of USD	**2014**	**% of Total Sales**
Healthcare	$ 26 536,60	47,29%
Material Science	$ 15 478,20	27,58%
Crop Science	$ 12 612,70	22,48%
Other	$ 1 486,60	2,65%
TOTAL	**$ 56 114,10**	**100,00%**

Annex 30 - GlaxoSmithKline sales by therapeutic area in 2014

GlaxoSmithKline (GSK LN)		
In millions of USD	**2014**	**% of Total Sales**
Respiratory	$ 10 182,40	26,87%
Oncology	$ 1 980,00	5,22%
Cardiovascular & Metabolism	$ 1 589,70	4,19%
Immuno-inflammation	$ 352,50	0,93%
ViiV Healthcare (HIV)	$ 2 467,80	6,51%
Others	$ 8 925,40	23,55%
Other sources of Revenue	$ 12 401,70	32,72%
TOTAL Pharmaceuticals	**$ 25 497,80**	**67,28%**

Annex 31 – Novartis AG sales by therapeutic area in 2014

Novartis (NOVN VX)		
In millions of USD	**2014**	**% of Total Sales**
Oncology	$ 11 703,00	22,33%
Cardiovascular & Metabolism	$ 7 961,00	15,19%
Neuroscience	$ 4 509,00	8,60%
Ophtalmology	$ 2 504,00	4,78%
Infectious Diseases	$ 3 112,00	5,94%
Others	$ 2 002,00	3,82%
TOTAL Pharmaceuticals	**$ 31 791,00**	**61,25%**

Annex 32 – Novo Nordisk A/S sales by geography in 2014

Novo Nordisk (NOVOB DC)		
In millions of USD	**2014**	**% of Total Sales**
North America	$ 7 684,40	48,56%
Europe	$ 3 590,70	22,69%
China	$ 1 441,30	9,11%
Japan and South Korea	$ 874,10	5,52%
Rest of the World	$ 2 234,60	14,12%
TOTAL	$ 15 825,10	100%

Annex 33 – Roche AG sales by geography 2014

Roche (ROG VX)		
In millions of USD	**2014**	**% of Total Sales**
North America	$ 20 782,40	40,04%
Europe	$ 15 907,00	30,65%
Asia-Pacific	$ 9 932,40	19,14%
Latin America	$ 3 592,60	6,92%
Africa, Australia and Oceania	$ 1 691,90	3,26%
TOTAL	**$ 51 906,30**	**100,00%**

Annex 34 – Sanofi sales by division in 2014

Sanofi (SAN FP)		
In millions of USD	**2014**	**% of Total Sales**
Pharmaceuticals	$ 30 356,00	66,99%
Vaccines	$ 5 323,30	11,75%
Consumer Healthcare	$ 4 433,00	9,78%
Animal Health	$ 2 803,10	6,19%
Generics	$ 2 397,90	5,29%
TOTAL	**$ 45 313,40**	**100,00%**

Annex 35 - IMF GDP growth forecast by country 2015 - 2019

Forecast GDP Growth by Country						
	2015E	**2016E**	**2017E**	**2018E**	**2019E**	**Avg Growth**
UK	2,71%	2,44%	2,39%	2,42%	2,45%	**2,48%**
USA	3,09%	3,03%	2,95%	2,73%	2,56%	**2,87%**
Canada	2,45%	2,36%	2,22%	2,08%	2,01%	**2,22%**
Europe (excluding UK)	1,76%	1,99%	2,00%	1,97%	1,97%	**1,94%**
Japan	0,83%	0,84%	0,91%	0,92%	1,02%	**0,90%**
China	7,09%	6,84%	6,62%	6,42%	6,33%	**6,66%**
Australia	2,90%	3,01%	2,97%	3,00%	3,04%	**2,98%**
Other Americas	0,86%	2,01%	2,67%	2,81%	2,91%	**2,25%**
Other Emerging Markets**	4,69%	5,06%	5,35%	5,17%	5,32%	**5,12%**
Group GDP Growth	**2,58%**	**2,54%**	**2,52%**	**2,50%**	**2,51%**	**2,53%**

**Average between Emerging Asia, North Africa and Middle East

Annex 36 – Real GDP growth by country 2015 - 2019

Real GDP growth by Country					
	2015E	**2016E**	**2017E**	**2018E**	**2019E**
UK	1,85%	2,05%	2,05%	2,05%	2,05%
USA	2,19%	2,20%	2,27%	2,18%	2,04%
Canada	2,00%	2,08%	2,06%	2,06%	2,06%
Europe (excluding UK)	1,16%	1,51%	1,65%	1,73%	1,77%
Japan	2,68%	2,05%	2,61%	1,80%	2,04%
China	2,44%	2,67%	3,20%	3,19%	3,19%
Australia	2,72%	2,60%	2,53%	2,60%	2,60%
Other Americas	12,41%	11,53%	9,55%	5,24%	5,25%
Other Emerging Markets**	4,83%	5,00%	5,05%	5,09%	5,05%
TOTAL	**2,62%**	**2,65%**	**2,62%**	**2,38%**	**2,39%**

**Average between Emerging Asia, North Africa and Middle East

Annex 37 – IMF inflation forecast 2015 - 2019 by country

Forecast GDP Growth by Country						
	2015E	**2016E**	**2017E**	**2018E**	**2019E**	**Avg Growth**
UK	2,71%	2,44%	2,39%	2,42%	2,45%	**2,48%**
USA	3,09%	3,03%	2,95%	2,73%	2,56%	**2,87%**
Canada	2,45%	2,36%	2,22%	2,08%	2,01%	**2,22%**
Europe (excluding UK)	1,76%	1,99%	2,00%	1,97%	1,97%	**1,94%**
Japan	0,83%	0,84%	0,91%	0,92%	1,02%	**0,90%**
China	7,09%	6,84%	6,62%	6,42%	6,33%	**6,66%**
Australia	2,90%	3,01%	2,97%	3,00%	3,04%	**2,98%**
Other Americas	0,86%	2,01%	2,67%	2,81%	2,91%	**2,25%**
Other Emerging Markets**	4,69%	5,06%	5,35%	5,17%	5,32%	**5,12%**
Group GDP Growth	**2,58%**	**2,54%**	**2,52%**	**2,50%**	**2,51%**	**2,53%**

**Average between Emerging Asia, North Africa and Middle East

Figure 38 - 5 year average forecasted GDP and inflation by country and steady growth rate

Country	% Total Sales (2014)	5Y Avg Forecast GDP Growth	5Y Avg Forecast Inflation Growth
USA	40%	2,87%	2,12%
Canada	2%	2,22%	2,01%
Europe (excluding UK)	22%	1,94%	1,53%
UK	7%	2,48%	1,96%
Japan	8%	0,90%	2,22%
Australia	3%	2,98%	2,54%
China	9%	6,66%	2,76%
Other Americas	4,5%	2,25%	8,62%
Other Emerging Markets**	5%	5,12%	4,76%
Total Sales	**100%**	**2,72%**	**2,47%**

**Average between Emerging Asia, North Africa and Middle East

Steady Growth Rate	**5,25%**

Annex 39 - AstraZeneca cost of equity using CAPM

		Cost of Equity (Re)
Risk Free rate (Rf)	2,01%	
Beta	0,803	
Unlevered Beta	0,732	**8,53%**
Market Return (Rm)	10,13%	
Equity Risk Premium (Rm-Rf)	8,12%	

Annex 40 – AstraZeneca capital structure

			D/(E+D)	E/(E+D)
Short term Debt	£	1 570,09		
Long term Debt	£	5 390,03		
Total Debt	**£**	**6 960,12**	**10,79%**	**89,21%**
Shares Outstanding (in millions of shares)		1263		
Price per share	£	45,55		
Equity Market Value	**£**	**57 529,65**		

Annex 41 - Recommendation criteria

Recommendation Criteria	
Recommendation	**Upside**
Buy	> 10%
Hold	0% - 10%
Sell	< 0%

Annex 42 - FCFF analysis 2014 – 2020

FCFF Analysis								
	Historical year	1	2	3	4	5	6	
Millions of USD except per share	**2014**	**2015E**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	
Total Revenues	$ 26 095,00	$ 24 417,00	$ 23 807,00	$ 23 581,00	$ 25 086,00	$ 26 458,00	$ 28 394,00	
% change YoY		-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%	1,03%
COGS	$ 5 589,00	$ 4 034,91	$ 4 148,85	$ 4 183,74	$ 4 375,75	$ 4 596,02	$ 4 912,16	
% change YoY		-27,81%	2,82%	0,84%	4,59%	5,03%	6,88%	
Gross Profit	$ 20 506,00	$ 20 382,09	$ 19 658,15	$ 19 397,26	$ 20 710,25	$ 21 861,98	$ 23 481,84	
% change YoY		-0,60%	-3,55%	-1,33%	6,77%	5,56%	7,41%	
Gross Profit margin	78,58%	83,48%	82,57%	82,26%	82,56%	82,63%	82,70%	
% change YoY		6,23%	-1,08%	-0,38%	0,36%	0,09%	0,09%	
Fixed costs	$ 12 269,00	$ 12 674,76	$ 12 143,37	$ 11 953,81	$ 12 791,74	$ 13 510,40	$ 14 519,15	
% change YoY		3,31%	-4,19%	-1,56%	7,01%	5,62%	7,47%	
EBITDA	$ 8 237,00	$ 7 707,33	$ 7 514,78	$ 7 443,44	$ 7 918,50	$ 8 351,58	$ 8 962,69	
% change YoY		-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
EBITDA margin	31,57%	31,57%	31,57%	31,57%	31,57%	31,57%	31,57%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
D&A	$ 3 282,00	$ 3 070,96	$ 2 994,24	$ 2 965,81	$ 3 155,10	$ 3 327,65	$ 3 571,15	
% change YoY		-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
EBIT	$ 4 955	$ 4 636,38	$ 4 520,55	$ 4 477,63	$ 4 763,41	$ 5 023,93	$ 5 391,54	
% change YoY		-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
EBIT margin	18,99%	18,99%	18,99%	18,99%	18,99%	18,99%	18,99%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Tax Rate	20%	20%	20%	20%	20%	20%	20%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT*(1-t)	$ 3 914,45	$ 3 709,10	$ 3 616,44	$ 3 582,11	$ 3 810,73	$ 4 019,14	$ 4 313,23	
% change YoY		-5,25%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
Fixed Assets	$ 41 898	$ 28 549,97	$ 27 836,72	$ 27 572,46	$ 29 332,21	$ 30 936,44	$ 33 200,14	
% change YoY		-31,86%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
Net Capex		$ -13 348,03	$ -713,25	$ -264,25	$ 1 759,75	$ 1 604,23	$ 2 263,70	
% change YoY			-94,66%	-62,95%	-765,93%	-8,84%	41,11%	
Net Working Capital Needs	$ -5 342	$ -4 998,49	$ -4 873,62	$ -4 827,35	$ -5 135,44	$ -5 416,31	$ -5 812,64	
% change YoY		-6,43%	-2,50%	-0,95%	6,38%	5,47%	7,32%	
Δ Working Capital Needs	$ -5 342	$ 343,51	$ 124,88	$ 46,27	$ -308,09	$ -280,87	$ -396,33	
% change YoY		-106,43%	-63,65%	-62,95%	-765,93%	-8,84%	41,11%	
Free Cash Flow to the Firm	$ -	$ 16 713,62	$ 4 204,81	$ 3 800,10	$ 2 359,07	$ 2 695,78	$ 2 445,86	$ 2 471,13
% change YoY			-74,84%	-9,63%	-37,92%	14,27%	-9,27%	
Discounted FCFF	$ -	$ 15 507,32	$ 3 619,75	$ 3 035,24	$ 1 748,26	$ 1 853,59	$ 1 560,37	
% change YoY			-76,66%	-16,15%	-42,40%	6,02%	-15,82%	
EV of Future FCFF	$ 50 694,05	$ 37 923,88	$ 36 669,14	$ 35 721,51	$ 36 141,18	$ 36 256,81	$ 36 631,34	
EV of Future FCFF + FCFF Yea	$ 50 694,05	$ 54 637,50	$ 40 873,95	$ 39 521,60	$ 38 500,26	$ 38 952,58	$ 39 077,20	

Annex 43 - AstraZeneca estimated CAGR 2015 - 2020

CAGR 2015 - 2020	
Total Revenues	3,06%
COGS	4,01%
Gross Profit	2,87%
Fixed costs	2,75%
EBITDA	3,06%
EBIT	3,06%

Annex 44 – FCFF with constant zero growth full calculations

FCFF Analysis with Constant 0% Growth								
Millions of USD except per share	Historical year							
	2014	2015E	2016E	2017E	2018E	2019E	2020E	
Total Revenues	$ 26 095,00	$ 26 095,00	$ 26 095,00	$ 26 095,00	$ 26 095,00	$ 26 095,00	$ 26 095,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
COGS (Cost of Goods Sold)	$ 5 589,00	$ 5 589,00	$ 5 589,00	$ 5 589,00	$ 5 589,00	$ 5 589,00	$ 5 589,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Gross Profit	$ 20 506,00	$ 20 506,00	$ 20 506,00	$ 20 506,00	$ 20 506,00	$ 20 506,00	$ 20 506,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Gross Profit Margin	78,58%	78,58%	78,58%	78,58%	78,58%	78,58%	78,58%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Fixed costs	$ 12 269,00	$ 12 269,00	$ 12 269,00	$ 12 269,00	$ 12 269,00	$ 12 269,00	$ 12 269,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBITDA	$ 8 237,00	$ 8 237,00	$ 8 237,00	$ 8 237,00	$ 8 237,00	$ 8 237,00	$ 8 237,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBITDA margin	31,57%	31,57%	31,57%	31,57%	31,57%	31,57%	31,57%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
D&A	$ 3 282,00	$ 3 282,00	$ 3 282,00	$ 3 282,00	$ 3 282,00	$ 3 282,00	$ 3 282,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT	$ 4 955	$ 4 955,00	$ 4 955,00	$ 4 955,00	$ 4 955,00	$ 4 955,00	$ 4 955,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT margin	18,99%	18,99%	18,99%	18,99%	18,99%	18,99%	18,99%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Tax Rate	20%	20%	20%	20%	20%	20%	20%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT*(1-t)	$ 3 914,45	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	
% change YoY		1,27%	0,00%	0,00%	0,00%	0,00%	0,00%	
Fixed Assets	$ 41 898	$ 41 898,00	$ 41 898,00	$ 41 898,00	$ 41 898,00	$ 41 898,00	$ 41 898,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Net Capex	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Net Working Capital Needs	$ -5 342	$ -5 342,00	$ -5 342,00	$ -5 342,00	$ -5 342,00	$ -5 342,00	$ -5 342,00	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Δ Working Capital Needs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Free Cash Flow to the Firm	$ -	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$3 964,00
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
Discounted FCFF		$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 3 964,00	$ 2 528,89	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	-36,20%	
EV of Future FCFF	$ 50 958,16	$ 50 958,16	$ 50 958,16	$ 50 958,16	$ 50 958,16	$ 50 958,16	$ 50 958,16	
EV of Future FCFF + FCFF Year	$ 50 958,16	$ 54 922,16	$ 54 922,16	$ 54 922,16	$ 54 922,16	$ 54 922,16	$ 54 922,16	

Annex 45 – Bear case full calculations

FCFF Analysis Considering Lowest Estimates							
Millions of USD except per share	Historical year **2014**	**2015E**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**	
Total Revenues	$ 26 095,00	$ 23 457,00	$ 22 110,00	$ 22 120,00	$ 23 636,00	$ 24 855,00	$ 26 832,00	0,70%
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
COGS (Cost of Goods Sold)	$ 5 589,00	$ 5 024,00	$ 4 735,50	$ 4 737,64	$ 5 062,33	$ 5 323,42	$ 5 746,85	
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
Gross Profit	$ 20 506,00	$ 18 671,77	$ 17 334,24	$ 17 165,12	$ 19 145,16	$ 20 008,28	$ 21 519,26	
% change YoY		-8,94%	-7,16%	-0,98%	11,54%	4,51%	7,55%	
Gross Profit Margin %	78,58%	79,60%	78,40%	77,60%	81,00%	80,50%	80,20%	
% change YoY		1,30%	-1,51%	-1,02%	4,38%	-0,62%	-0,37%	
Fixed costs	$ 12 269,00	$ 11 028,70	$ 10 395,39	$ 10 400,09	$ 11 112,86	$ 11 685,99	$ 12 615,51	
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
EBITDA	$ 8 237,00	$ 6 020,00	$ 5 706,00	$ 5 472,00	$ 5 891,00	$ 6 673,00	$ 9 107,00	
% change YoY		-26,92%	-5,22%	-4,10%	7,66%	13,27%	36,48%	
EBITDA margin	31,57%	25,66%	25,81%	24,74%	24,92%	26,85%	33,94%	
% change YoY		-18,70%	0,56%	-4,14%	0,75%	7,72%	26,42%	
D&A	$ 3 282,00	$ 2 950,22	$ 2 780,80	$ 2 782,06	$ 2 972,73	$ 3 126,04	$ 3 374,69	
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
EBIT	$ 4 955,00	$ 3 069,78	$ 2 925,20	$ 2 689,94	$ 2 918,27	$ 3 546,96	$ 5 732,31	
% change YoY		-38,05%	-4,71%	-8,04%	8,49%	21,54%	61,61%	
EBIT margin	18,99%	13,09%	13,23%	12,16%	12,35%	14,27%	21,36%	
% change YoY		-31,08%	1,10%	-8,08%	1,53%	15,58%	49,70%	
Tax Rate	20%	20%	20%	20%	20%	20%	20%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT*(1-t)	$ 3 914,45	$ 2 455,83	$ 2 340,16	$ 2 151,95	$ 2 334,62	$ 2 837,57	$ 4 585,85	
% change YoY		-37,26%	-4,71%	-8,04%	8,49%	21,54%	61,61%	
Fixed Assets	$ 41 898,00	$ 37 662,44	$ 35 499,70	$ 35 515,76	$ 37 949,84	$ 39 907,06	$ 43 081,32	
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
Net Capex	$ -	$ -4 235,56	$ -2 162,74	$ 16,06	$ 2 434,08	$ 1 957,22	$ 3 174,26	
% change YoY			-48,94%	-100,74%	15060,00%	-19,59%	62,18%	
Net Working Capital Needs	$ -5 342,00	$ -4 801,97	$ -4 526,22	$ -4 528,26	$ -4 838,61	$ -5 088,16	$ -5 492,87	
% change YoY		-10,11%	-5,74%	0,05%	6,85%	5,16%	7,95%	
Δ Working Capital Needs	$ -	$ 540,03	$ 275,75	$ -2,05	$ -310,35	$ -249,55	$ -404,72	
% change YoY			-48,94%	-100,74%	15060,00%	-19,59%	62,18%	
Free Cash Flow to the Firm	$ -	$ 6 151,35	$ 4 227,15	$ 2 137,94	$ 210,88	$ 1 129,89	$ 1 816,30	$ 1 829,02
% change YoY			-31,28%	-49,42%	-90,14%	435,80%	60,75%	
Discounted FCFF		$ 6 151,35	$ 4 227,15	$ 2 137,94	$ 210,88	$ 1 129,89	$ 1 158,74	
% change YoY			-31,28%	-49,42%	-90,14%	435,80%	2,55%	
EV of Future FCFF	$ 29 629,31	$ 25 782,80	$ 23 561,28	$ 23 256,15	$ 24 854,35	$ 25 657,87	$ 25 837,47	
EV of Future FCFF + FCFF Yea	$ 29 629,31	$ 31 934,15	$ 27 788,43	$ 25 394,10	$ 25 065,23	$ 26 787,76	$ 27 653,77	

Annex 46 – Bull case full calculations

FCFF Analysis Considering Highest Estimates								
Millions of USD except per share	Historical year							
	2014	2015E	2016E	2017E	2018E	2019E	2020E	
Total Revenues	$ 26 095,00	$ 26 021,00	$ 25 881,00	$ 26 465,00	$ 27 764,00	$ 30 016,00	$ 32 297,00	
% change YoY		-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%	
COGS (Cost of Goods Sold)	$ 5 589,00	$ 5 573,15	$ 5 543,17	$ 5 668,25	$ 5 946,46	$ 6 428,80	$ 6 917,34	
% change YoY		-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%	
Gross Profit	$ 20 506,00	$ 22 794,40	$ 21 817,68	$ 22 310,00	$ 23 460,58	$ 25 303,49	$ 27 226,37	
% change YoY		11,16%	-4,28%	2,26%	5,16%	7,86%	7,60%	
Gross Profit Margin	78,58%	87,60%	84,30%	84,30%	84,50%	84,30%	84,30%	
% change YoY		11,48%	-3,77%	0,00%	0,24%	-0,24%	0,00%	
Fixed costs	$ 12 269,00	$ 14 343,40	$ 13 689,68	$ 12 521,00	$ 12 803,58	$ 13 420,49	$ 13 925,37	
% change YoY		16,91%	-4,56%	-8,54%	2,26%	4,82%	3,76%	
EBITDA	$ 8 237,00	$ 8 451,00	$ 8 128,00	$ 9 789,00	$ 10 657,00	$ 11 883,00	$ 13 301,00	
% change YoY		2,60%	-3,82%	20,44%	8,87%	11,50%	11,93%	
EBITDA margin	18,99%	32,48%	31,41%	36,99%	38,38%	39,59%	41,18%	
% change YoY		71,04%	-3,30%	17,78%	3,77%	3,14%	4,03%	
D&A	$ 3 282,00	$ 3 272,69	$ 3 255,08	$ 3 328,54	$ 3 491,91	$ 3 775,15	$ 4 062,03	
% change YoY		-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%	
EBIT	$ 4 955,00	$ 5 178,31	$ 4 872,92	$ 6 460,46	$ 7 165,09	$ 8 107,85	$ 9 238,97	
% change YoY		4,51%	-5,90%	32,58%	10,91%	13,16%	13,95%	
EBIT margin	18,99%	19,90%	18,83%	24,41%	25,81%	27,01%	28,61%	
% change YoY		4,80%	-5,39%	29,65%	5,72%	4,67%	5,90%	
Tax Rate	20%	20%	20%	20%	20%	20%	20%	
% change YoY		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	
EBIT*(1-t)	$ 3 914,45	$ 4 142,65	$ 3 898,33	$ 5 168,37	$ 5 732,07	$ 6 486,28	$ 7 391,17	
% change YoY		5,83%	-5,90%	32,58%	10,91%	13,16%	13,95%	
Fixed Assets	$ 41 898,00	$ 41 779,19	$ 41 554,40	$ 42 492,07	$ 44 577,74	$ 48 193,54	$ 51 855,90	
% change YoY		-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%	
Net Capex	$ -	$ -118,81	$ -224,78	$ 937,67	$ 2 085,67	$ 3 615,80	$ 3 662,36	
% change YoY		0,00%	89,19%	-517,14%	122,43%	73,36%	1,29%	
Net Working Capital Needs	$ -5 342,00	$ -5 326,85	$ -5 298,19	$ -5 417,74	$ -5 683,67	$ -6 144,68	$ -6 611,63	
% change YoY		-0,28%	-0,54%	2,26%	4,91%	8,11%	7,60%	
Δ Working Capital Needs	$ -	$ 15,15	$ 28,66	$ -119,55	$ -265,92	$ -461,01	$ -466,95	
% change YoY		0,00%	89,19%	-517,14%	122,43%	73,36%	1,29%	
Free Cash Flow to the Firm	$ -	$ 4 246,31	$ 4 094,46	$ 4 350,26	$ 3 912,33	$ 3 331,50	$ 4 195,76	$ 4 254,50
% change YoY		0,00%	-3,58%	6,25%	-10,07%	-14,85%	25,94%	
Discounted FCFF		$ 4 246,31	$ 4 094,46	$ 4 350,26	$ 3 912,33	$ 3 331,50	$ 2 676,75	
% change YoY		0,00%	-3,58%	6,25%	-10,07%	-14,85%	-19,65%	
EV of Future FCFF	$ 61 355,87	$ 61 882,39	$ 62 601,73	$ 63 121,22	$ 64 119,05	$ 65 775,33	$ 66 696,18	
EV of Future FCFF + FCFF Yea	$ 61 355,87	$ 66 128,70	$ 66 696,18	$ 67 471,47	$ 68 031,37	$ 69 106,82	$ 70 891,95	

Annex 47 - Equity multiples 2014

Equity Multiples Full Year 2014									
(in Millions of USD except per share)	ROE	ROA	D/E ratio	Market Cap (in millions of USD)	Shares Outstand. (in millions)	Sales (in millions of USD)	Sales per Share	BV per share	EBIT Margin
AstraZeneca	**6,29%**	**6,68%**	**55,19%**	**$ 89 639,20**	**1262,90**	**$ 26 095,00**	**$ 20,66**	**$ 15,54**	**18,99%**
GlaxoSmithKline	48,95%	6,66%	380,55%	$ 104 267,20	4863,80	$ 37 899,50	$ 7,88	$ 1,37	26,22%
Roche	48,00%	13,54%	119,28%	$ 235 023,40	849,70	$ 51 906,40	$ 61,14	$ 23,19	29,69%
Bayer	16,78%	5,64%	108,12%	$ 113 601,20	826,90	$ 56 114,00	$ 67,86	$ 29,42	12,86%
Novartis	14,07%	8,11%	28,74%	$ 252 671,00	2398,60	$ 52 419,00	$ 21,61	$ 29,50	21,15%
Novo Nordisk	63,92%	35,93%	1,79%	$ 112 619,60	2650,00	$ 15 824,90	$ 6,04	$ 2,47	38,84%
Sanofi	7,77%	4,54%	26,32%	$ 120 812,60	1319,40	$ 45 313,00	$ 34,34	$ 51,47	19,29%
Industry Mean	**20,88%**	**8,92%**	**44,88%**	**$ 135 939,57**	-	**$ 37 701,81**	**$ 22,62**	**$ 12,74**	**22,60%**

Annex 48 – Other recommendations and price targets

Institution	Recomendation	Price target	As of
New Street Research	Buy	£ 60,00	(30/07/2015)
Liberum Capital Ltd	Buy	£ 58,00	(20/05/2014)
UBS	Buy	£ 55,00	(08/01/2015)
Jefferies	Buy	£ 54,00	(31/07/2015)
Berenberg	Buy	£ 52,00	(31/07/2015)
Sanford Bernstein & C Inc.	Market Perform	£ 49,93	(31/07/2015)
JP Morgan	Neutral	£ 44,00	(23/06/2015)
Credit Suisse	Neutral	£ 43,20	(31/07/2015)
Morningstar Inc	Hold	N.A.	(31/07/2015)
Morgan Stanley	Underweight	£ 45,00	(30/07/2015)
Barclays	Underweight	£ 44,00	(30/07/2015)

Annex 49 - Sales by medicine 2015 – 2020

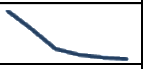
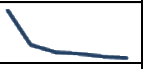
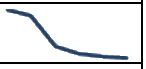
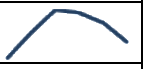
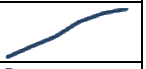
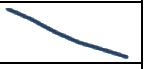
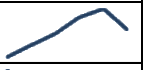
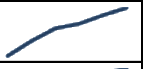
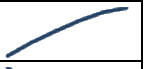
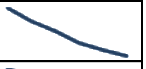
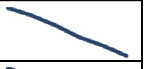
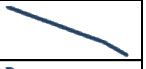
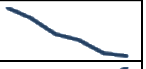
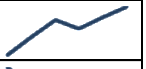
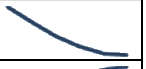
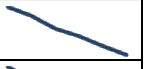
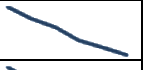
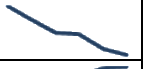
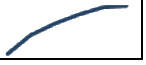
CONSENSUS BY MEDICINES SALES								
Product Sales in Million of USD	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**CAGR**	**Sales trend**
Crestor	$ 4.982,27	$ 3.612,57	$ 2.174,71	$ 1.734,36	$ 1.513,82	$ 1.421,80	**-20,21%**	
% change YoY	-9,61%	-27,49%	-39,80%	-20,25%	-12,72%	-6,08%		
Symbicort	$ 3.579,47	$ 3.625,69	$ 3.544,88	$ 3.299,92	$ 2.992,75	$ 2.657,45	**-5,79%**	
% change YoY	-5,83%	1,29%	-2,23%	-6,91%	-9,31%	-11,20%		
Nexium	$ 2.121,80	$ 1.847,00	$ 1.794,93	$ 1.775,45	$ 1.755,18	$ 1.744,00	**-11,60%**	
% change YoY	-41,95%	-12,95%	-2,82%	-1,08%	-1,14%	-0,64%		
Seroquel	$ 1.153,88	$ 1.035,00	$ 526,78	$ 399,60	$ 352,40	$ 315,20	**-22,02%**	
% change YoY	-17,70%	-10,30%	-49,10%	-24,14%	-11,81%	-10,56%		
Pulmicort	$ 940,53	$ 969,47	$ 996,59	$ 992,93	$ 980,21	$ 958,54	**0,22%**	
% change YoY	-0,58%	3,08%	2,80%	-0,37%	-1,28%	-2,21%		
Onglyza	$ 846,60	$ 926,21	$ 1.003,36	$ 1.111,27	$ 1.182,27	$ 1.215,60	**6,78%**	
% change YoY	3,24%	9,40%	8,33%	10,76%	6,39%	2,82%		
Zoladex	$ 815,86	$ 787,29	$ 756,64	$ 729,91	$ 709,55	$ 691,40	**-4,72%**	
% change YoY	-11,70%	-3,50%	-3,89%	-3,53%	-2,79%	-2,56%		
Toprol-xl	$ 737,46	$ 745,38	$ 755,15	$ 749,10	$ 749,30	$ 746,78	**-0,25%**	
% change YoY	2,43%	1,07%	1,31%	-0,80%	0,03%	-0,34%		
Faslodex	$ 727,64	$ 766,91	$ 804,36	$ 857,11	$ 890,89	$ 819,11	**2,17%**	
% change YoY	1,06%	5,40%	4,88%	6,56%	3,94%	-8,06%		
Synagis	$ 685,07	$ 652,93	$ 631,29	$ 668,64	$ 654,27	$ 655,40	**-5,15%**	
% change YoY	-23,88%	-4,69%	-3,31%	5,92%	-2,15%	0,17%		
Brilinta	$ 638,60	$ 874,29	$ 1.131,79	$ 1.332,00	$ 1.547,64	$ 1.767,30	**24,44%**	
% change YoY	34,16%	36,91%	29,45%	17,69%	16,19%	14,19%		
Iressa	$ 590,92	$ 626,58	$ 650,42	$ 633,10	$ 612,20	$ 584,78	**-1,05%**	
% change YoY	-5,15%	6,04%	3,80%	-2,66%	-3,30%	-4,48%		
Bydureon	$ 587,33	$ 684,75	$ 758,67	$ 789,67	$ 841,78	$ 895,50	**12,57%**	
% change YoY	33,48%	16,59%	10,79%	4,09%	6,60%	6,38%		
Forxiga	$ 426,64	$ 693,15	$ 912,58	$ 1.103,00	$ 1.287,18	$ 1.388,30	**26,61%**	
% change YoY	100,00%	62,47%	31,66%	20,87%	16,70%	7,86%		
Parapres	$ 406,86	$ 373,86	$ 350,93	$ 322,45	$ 306,45	$ 292,40	**-6,39%**	
% change YoY	100,00%	-8,11%	-6,13%	-8,11%	-4,96%	-4,59%		
Atacand HCT	$ 399,00	$ 387,00	$ 371,00	$ 353,50	$ 340,00	$ 325,00	**-6,96%**	
% change YoY	-20,36%	-3,01%	-4,13%	-4,72%	-3,82%	-4,41%		
Prilosec	$ 365,17	$ 337,42	$ 313,67	$ 289,89	$ 269,00	$ 231,00	**-9,56%**	
% change YoY	-13,47%	-7,60%	-7,04%	-7,58%	-7,21%	-14,13%		
Byetta	$ 342,00	$ 331,36	$ 316,55	$ 311,78	$ 299,11	$ 296,13	**-1,64%**	
% change YoY	4,59%	-3,11%	-4,47%	-1,51%	-4,06%	-1,00%		
FluMist	$ 292,83	$ 305,92	$ 317,58	$ 312,10	$ 319,40	$ 327,67	**1,77%**	
% change YoY	-0,73%	4,47%	3,81%	-1,73%	2,34%	2,59%		
Casodex	$ 270,00	$ 252,08	$ 235,83	$ 223,22	$ 215,33	$ 212,75	**-6,58%**	
% change YoY	-15,63%	-6,64%	-6,45%	-5,35%	-3,53%	-1,20%		
Diprivan	$ 223,25	$ 223,25	$ 222,25	$ 262,00	$ 268,50	$ 272,00	**4,03%**	
% change YoY	100,00%	0,00%	-0,45%	17,89%	2,48%	1,30%		
Plendil	$ 242,57	$ 238,71	$ 233,14	$ 230,00	$ 225,67	$ 221,67	**-1,92%**	
% change YoY	-2,58%	-1,59%	-2,33%	-1,35%	-1,88%	-1,77%		
Arimidex	$ 240,07	$ 216,57	$ 196,64	$ 170,64	$ 156,18	$ 141,80	**-11,64%**	
% change YoY	-19,44%	-9,79%	-9,20%	-13,23%	-8,47%	-9,21%		
Merrem	$ 221,75	$ 209,38	$ 198,88	$ 197,43	$ 184,67	$ 179,50	**-5,56%**	
% change YoY	-12,35%	-5,58%	-5,01%	-0,73%	-6,46%	-2,80%		
Tudorza	$ 209,91	$ 289,50	$ 339,10	$ 377,40	$ 407,90	$ 420,00	**21,60%**	
% change YoY	100,00%	37,92%	17,13%	11,29%	8,08%	2,97%		

Figure 50 - Sales by medicine 2015 – 2020 (continuation)

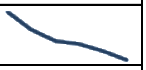
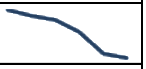
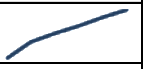
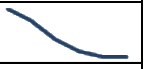
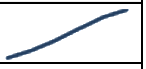
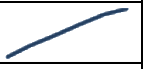
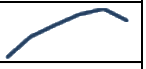
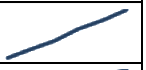
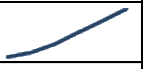
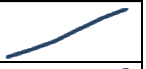
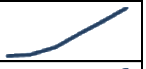
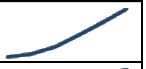
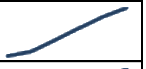
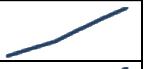
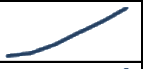
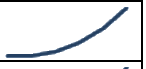
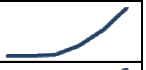
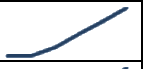
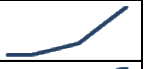
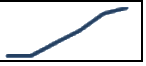
CONSENSUS BY MEDICINES SALES								
Product Sales in Million of USD	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**CAGR**	**Sales trend**
Tenormin	$ 148,83	$ 136,33	$ 128,33	$ 126,00	$ 120,20	$ 114,40	**-5,54%**	
% change YoY	-7,56%	-8,40%	-5,87%	-1,82%	-4,60%	-4,83%		
Rhinocort	$ 135,67	$ 122,00	$ 111,67	$ 87,50	$ 40,00	$ 30,00	**-26,05%**	
% change YoY	100,00%	-10,07%	-8,47%	-21,64%	-54,29%	-25,00%		
Symlin	$ 128,50	$ 138,50	$ 143,50	$ 148,50	$ 153,50	$ 158,50	**4,29%**	
% change YoY	100,00%	7,78%	3,61%	3,48%	3,37%	3,26%		
Zomig	$ 83,25	$ 73,75	$ 67,00	$ 65,67	$ 69,50	$ 69,00	**-3,69%**	
% change YoY	100,00%	-11,41%	-9,15%	-1,99%	5,84%	-0,72%		
Caprelsa	$ 96,25	$ 119,25	$ 140,25	$ 130,33	$ 143,33	$ 177,50	**13,02%**	
% change YoY	100,00%	23,90%	17,61%	-7,07%	9,97%	23,84%		
Zestril	$ 65,00	$ 55,00	$ 40,00	$ 30,00	$ 25,00	$ 25,00	**-17,40%**	
% change YoY	100,00%	-15,38%	-27,27%	-25,00%	-16,67%	0,00%		
Zytiga	$ 24,00	$ 64,00	$ 112,00	$ 175,00	$ 231,00	$ 271,00	**62,39%**	
% change YoY	100,00%	166,67%	75,00%	56,25%	32,00%	17,32%		
Movantik	$ 52,00	$ 123,18	$ 187,55	$ 248,09	$ 303,91	$ 344,30	**45,94%**	
% change YoY	100,00%	136,89%	52,25%	32,28%	22,50%	13,29%		
Vimovo	$ 66,25	$ 79,00	$ 89,00	$ 75,00	$ 81,67	$ 88,33	**5,92%**	
% change YoY	100,00%	19,25%	12,66%	-15,73%	8,89%	8,16%		
Lynparza	$ 64,64	$ 140,73	$ 239,91	$ 354,45	$ 469,27	$ 565,80	**54,33%**	
% change YoY	100,00%	117,72%	70,48%	47,75%	32,39%	20,57%		
Teflaro	$ 32,75	$ 70,75	$ 93,50	$ 110,75	$ 123,75	$ 100,00	**25,01%**	
% change YoY	100,00%	116,03%	32,16%	18,45%	11,74%	-19,19%		
Epanova	$ 32,56	$ 83,11	$ 139,67	$ 201,56	$ 257,56	$ 321,13	**58,06%**	
% change YoY	100,00%	155,29%	68,05%	44,31%	27,78%	24,68%		
Tudorza	$ 33,80	$ 86,20	$ 15,08	$ 221,80	$ 282,40	$ 321,40	**56,90%**	
% change YoY	100,00%	155,03%	-82,51%	1370,82%	27,32%	13,81%		
Metreleptin	$ 14,67	$ 25,33	$ 35,33	$ 46,00	$ 30,00	$ 36,00	**19,67%**	
% change YoY	100,00%	72,73%	39,47%	30,19%	-34,78%	20,00%		
Brodalumab	$ 14,60	$ 47,90	$ 125,40	$ 212,80	$ 308,70	$ 406,78	**94,54%**	
% change YoY	100,00%	228,08%	161,80%	69,70%	45,07%	31,77%		
Lesinurad	$ 15,18	$ 72,18	$ 147,82	$ 238,55	$ 337,18	$ 409,00	**93,23%**	
% change YoY	100,00%	375,45%	104,79%	61,38%	41,35%	21,30%		
Tremelimumab	$ 2,78	$ 23,89	$ 139,89	$ 340,80	$ 517,90	$ 731,00	**204,82%**	
% change YoY	100,00%	760,00%	485,58%	143,62%	51,97%	41,15%		
Selumetinib	$ -	$ 17,18	$ 60,18	$ 124,33	$ 204,83	$ 280,91	**101,08%**	
% change YoY		100,00%	250,26%	106,60%	64,75%	37,14%		
PT003	$ -	$ 36,20	$ 103,80	$ 178,10	$ 246,80	$ 309,00	**70,93%**	
% change YoY		100,00%	186,74%	71,58%	38,57%	25,20%		
CAZAVI	$ 8,86	$ 40,71	$ 71,29	$ 122,71	$ 176,86	$ 223,43	**90,71%**	
% change YoY	100%	360%	75%	72%	44%	26%		
CeftarolineFosamil/A	$ 3,00	$ 7,00	$ 18,50	$ 35,50	$ 51,00	$ 70,00	**87,76%**	
% change YoY	100%	133,33%	164,29%	91,89%	43,66%	37,25%		
Benralizumab	$ -	$ -	$ 37,54	$ 103,92	$ 209,46	$ 356,54	**111,78%**	
% change YoY			100,00%	176,84%	101,55%	70,22%		
Tralokinumab	$ -	$ -	$ 11,78	$ 45,20	$ 112,30	$ 209,80	**161,16%**	
% change YoY			100,00%	283,77%	148,45%	86,82%		
AZD1775	$ -	$ -	$ 22,00	$ 53,00	$ 84,50	$ 115,50	**73,80%**	
% change YoY			100,00%	140,91%	59,43%	36,69%		
AZD2014	$ -	$ -	$ 12,50	$ 25,00	$ 62,50	$ 100,00	**100,00%**	
% change YoY			100,00%	100,00%	150,00%	60,00%		
AZD2115	$ -	$ -	$ 26,50	$ 48,50	$ 79,50	$ 92,00	**51,42%**	
% change YoY			100,00%	83,02%	63,92%	15,72%		

Figure 51 – Sales by medicine 2015 – 2020 (continuation)

CONSENSUS BY MEDICINES SALES								
Product Sales in Million of USD	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**CAGR**	**Sales trend**
AZD3293	$ -	$ -	$ -	$ 3,67	$ 66,00	$ 139,33	**516,44%**	
% change YoY				100,00%	100,00%	100,00%		
AZD4547	$ -	$ -	$ 24,33	$ 65,00	$ 122,67	$ 175,00	**93,02%**	
% change YoY			100,00%	167,12%	88,72%	42,66%		
AZD5213	$ -	$ -	$ 12,50	$ 39,00	$ 61,00	$ 92,00	**94,52%**	
% change YoY			100%	212,00%	56,41%	50,82%		
AZD5363	$ -	$ -	$ 12,50	$ 31,50	$ 56,50	$ 81,50	**86,82%**	
% change YoY			100%	152,00%	79,37%	44,25%		
Anifrolumab	$ -	$ -	$ 6,25	$ 26,75	$ 66,25	$ 114,00	**163,23%**	
% change YoY			100%	328,00%	147,66%	72,08%		
Azd3241	$ -	$ -	$ 12,50	$ 34,50	$ 53,00	$ 78,00	**84,10%**	
% change YoY			100%	176,00%	53,62%	47,17%		
MEDI551	$ -	$ -	$ 8,33	$ 42,00	$ 85,67	$ 126,33	**147,49%**	
% change YoY			100%	404,00%	103,97%	47,47%		
MEDI2070	$ -	$ -	$ 12,50	$ 32,00	$ 56,50	$ 83,00	**87,96%**	
% change YoY			100%	156,00%	76,56%	46,90%		
MEDI573	$ -	$ -	$ 25,00	$ 62,50	$ 100,00	$ 137,50	**76,52%**	
% change YoY			100,00%	150,00%	60,00%	37,50%		
MEDI7183	$ -	$ -	$ 12,50	$ 39,00	$ 61,00	$ 92,00	**94,52%**	
% change YoY			100%	212,00%	56,41%	50,82%		
Mavrilimumab	$ -	$ -	$ 15,75	$ 55,25	$ 113,50	$ 174,25	**122,83%**	
% change YoY			100,00%	250,79%	105,43%	53,52%		
Moxetumomab pasuc	$ -	$ 5,00	$ 15,83	$ 36,29	$ 82,43	$ 130,00	**125,81%**	
% change YoY		100%	216,67%	129,17%	127,17%	57,71%		
PT001	$ -	$ -	$ 25,25	$ 47,00	$ 69,75	$ 93,75	**54,85%**	
% change YoY			100,00%	86,14%	48,40%	34,41%		
Roxadustat	$ 5,71	$ 18,86	$ 37,25	$ 72,88	$ 137,13	$ 205,29	**104,68%**	
% change YoY	100,00%	230,00%	97,54%	95,64%	88,16%	49,71%		
SaxaDapa	$ 18,33	$ 89,75	$ 235,75	$ 415,75	$ 654,50	$ 871,00	**116,45%**	
% change YoY	100%	389,55%	162,67%	76,35%	57,43%	33,08%		
Sifalimumab	$ -	$ -	$ 11,00	$ 27,75	$ 57,75	$ 85,25	**97,89%**	
% change YoY			100,00%	152,27%	108,11%	47,62%		
Tenapanor	$ -	$ 19,00	$ 44,00	$ 81,50	$ 119,00	$ 131,50	**62,20%**	
% change YoY		100,00%	131,58%	85,23%	46,01%	10,50%		
AZD5847	$ -	$ -	$ 10,00	$ 20,00	$ 30,00	$ 40,00	**58,74%**	
% change YoY			100%	100,00%	50,00%	33,33%		
AZD9412	$ -	$ -	$ 25,00	$ 50,00	$ 75,00	$ 100,00	**58,74%**	
% change YoY			100%	100,00%	50,00%	33,33%		
Abediterol	$ -	$ -	$ 25,00	$ 50,00	$ 75,00	$ 100,00	**58,74%**	
% change YoY			100%	100,00%	50,00%	33,33%		
MEDI9929	$ -	$ -	$ 25,00	$ 50,00	$ 75,00	$ 100,00	**58,74%**	
% change YoY			100%	100,00%	50,00%	33,33%		
RDEA 3170	$ -	$ -	$ 25,00	$ 50,00	$ 75,00	$ 100,00	**58,74%**	
% change YoY			100%	100%	200%	33,33%		
Daliresp	$ 100,00	$ 145,00	$ 155,00	$ 165,00	$ 175,00	$ 175,00	**11,84%**	
% change YoY	100%	45%	7%	6%	6%	0%		
Mereletinib	$ 5,83	$ 124,54	$ 258,62	$ 463,31	$ 635,54	$ 801,50	**167,67%**	
% change YoY	100%	2035%	108%	79%	37%	26%		
Durvalumab	$ -	$ 17,23	$ 145,92	$ 414,62	$ 759,17	$ 1.204,09	**189,13%**	
% change YoY		100%	747%	184%	83%	59%		
PT 003	$ -	$ 36,20	$ 103,80	$ 178,10	$ 246,80	$ 309,00	**70,93%**	
% change YoY		100%	187%	72%	39%	25%		
Volitinib	$ -	$ 3,00	$ 26,00	$ 59,00	$ 95,00	$ 130,50	**156,82%**	
% change YoY		100%	767%	127%	61%	37%		