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Understanding Growth Pharma: a deep dive into the Actavis-Allergan merger

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☒Public report ☐ Confidential report

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Executive summary

Since the 2000s, the Pharmaceutical industry has been facing strong challenges: a constantly changing and increasingly complex regulatory environment, an erosion of margins caused by governmental pricing pressures and a decrease in Research & Development (R&D) productivity. This complex environment has hurt the industry's bottom line, forcing incumbents and new players to reconsider their approach to the industry's propelling engine: R&D.

Traditionally, innovation was driven by big pharmaceutical companies allocating an important amount of their sales on R&D spending. By developing new drugs in-house, these companies were managing to keep the control over these new drugs and treatments. These innovations were then protected by patents lasting for a few decades. Once the protection had expired, other players could enter the market by replicating the drug, driving its prices and hence, its profitability down by as much as 80%.

In the last decades, the way innovation is being delivered has changed. Rather than big pharmaceutical firms developing new products, small biotechnological start-ups are responsible for most of the new discoveries. Their small size forces these players to specialize and focus all their R&D efforts on specific therapeutic areas. Additionally, these start-ups can attract human capital and talent, but lack financial muscle to exploit their findings. These conditions set the perfect framework for the increase of M&A activity with far more potential targets to buy.

Building on this, a new business model has arisen in the industry: *Growth Pharma*. Among others, its most important characteristic is the way R&D is conducted. Instead of vast investments to develop drugs in-house, *Growth Pharma* companies tend to buy other biotech & pharma companies to acquire their drug development pipeline. In this way, rather than dealing with the uncertainty of developing new drugs and facing regulatory risks, these companies acquire other players with drugs in late-stage of development.

The merger of Actavis and Allergan is considered as of 2015 the foremost example of *Growth Pharma*. In addition to being the fourth largest deal of all times in the Pharmaceutical industry, its characteristics make it a unique deal. The story started with an unsuccessful hostile takeover by Valeant Pharmaceuticals, a company which embraced *Growth Pharma* under the leadership of Michael Pearson. Some investors considered Valeant the new Berkshire Hathaway after it partnered in 2014 with Pershing Square, a New York based hedge fund, to do a hostile takeover over Allergan.

Actavis' friendly takeover of Allergan granted the merged company access to the Top 10 companies by Enterprise Value within the pharmaceutical industry. Both companies followed different R&D models: Allergan's closer to the traditional approach and Actavis opting for the *Growth Pharma* model. However, a combination of both companies seemed to bring the best of these two worlds. On one side, Allergan's expertise in developing new drugs and block-buster patents such as BOTOX®. On the other side, Actavis' best-in-class in pipeline success rate through a spotless record of effectively integrated acquisitions.

Structure of the report

This Research Paper aims to provide an understanding of the recent dynamics in the Pharma Industry by looking at a particular M&A deal: the merger of Actavis and Allergan.

Section I provides a brief overview of the Pharmaceutical industry. It aims to explain the industry main segments, challenges, opportunities, M&A trends and business models. As Allergan focused on Branded drugs and Actavis on Generic drugs, Section I is deemed as relevant to understand the different business drivers to later on further understand the deal's rationale.

Section II presents the case study that illustrates the acquisition of Allergan by Actavis, which took place by the end of 2014 and resulted in the combined entity currently called Allergan. This section is further structured in five chapters. The first chapter provides a description of the parties involved in the deal. Following this introduction, the second chapter discusses the strategic rationale of the deal. Deepening in the deal story, the third chapter describes the process by which what started as a hostile bid by Valeant for Allergan, ended up in a satisfactory binding offer from Actavis. After this contextualization, the section focuses in the financial aspects of the deal. Based on JPM estimates, the target's enterprise value is computed to determine pre-merger expectations on the deal's value creation (in EPS terms). To finish, section II closes with a post-merger analysis of the deal based on realised EPS figures.

Section III aims to provide an outlook of the recent trends in the Pharmaceutical Industry, of which the case eventually serves as an illustration. It provides a deep-dive into Growth Pharma, as the new business model which is disrupting the industry, and its evolution since the 2000s.

Section I: Introduction to the pharmaceutical industry

1. The pharma industry

1.1 Overview

Within the pharmaceutical industry, there are mainly two type of businesses: branded and generic drug companies. In a broad sense, the target (Allergan) belongs to the former whereas the acquirer (Actavis) to the latter. On the one hand, branded companies have higher margins, a temporary monopoly due to patent protection, larger sales, marketing and R&D expenses. On the other hand, generics companies produce off-patent formulations (drugs for which patent protection has already expired) and enjoy much lower margins. Therefore, they must generate higher sales volume to benefit from economies of scale.

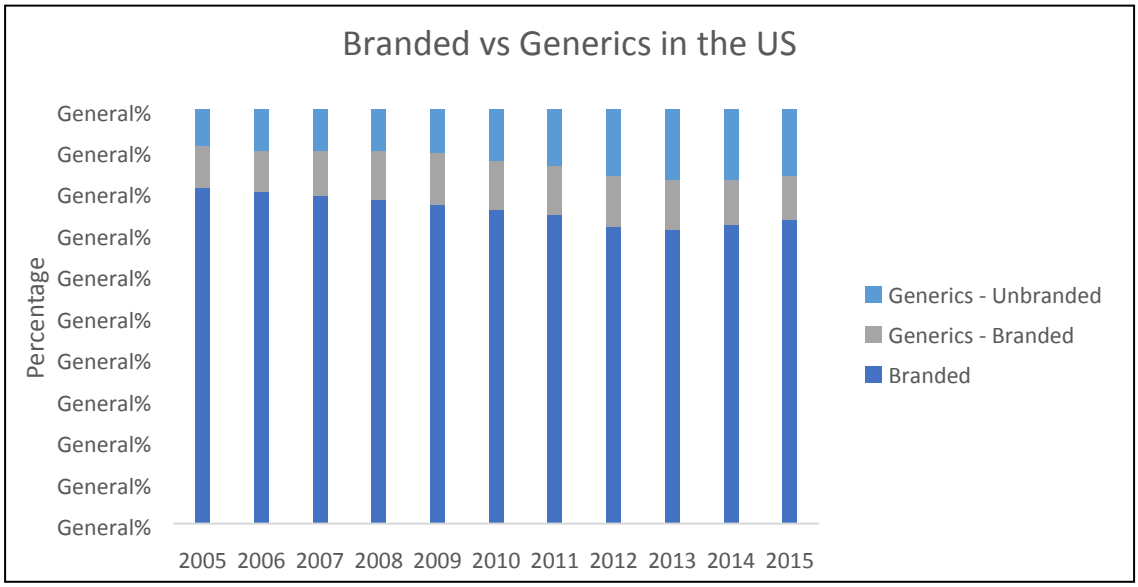

Figure 1: Proportion of branded versus generic prescription drug revenues in the United States. (Statista, 2015)

1.2 Industry outlook

By 2014, global pharmaceutical revenues had reached the value of $1.23 trillion after continuously growing at a 5% CAGR over the past 5 years. Moreover, according to the Economist Intelligence Unit (EIU) (Industry, 2014), pharmaceutical sales were projected to increase and, eventually, to accelerate in growth to an average of 6.9% annually over 2014-18.

North America and Asia were expected to be the two main markets driving growth (Deloitte, 2015). Pharmaceutical spending in North America would be bolstered by rising employment, continued economic recovery, and the expansion of insurance coverage in the US. On the other hand, the roll-out of public health programs in China was the main source of growth for the Asian market.

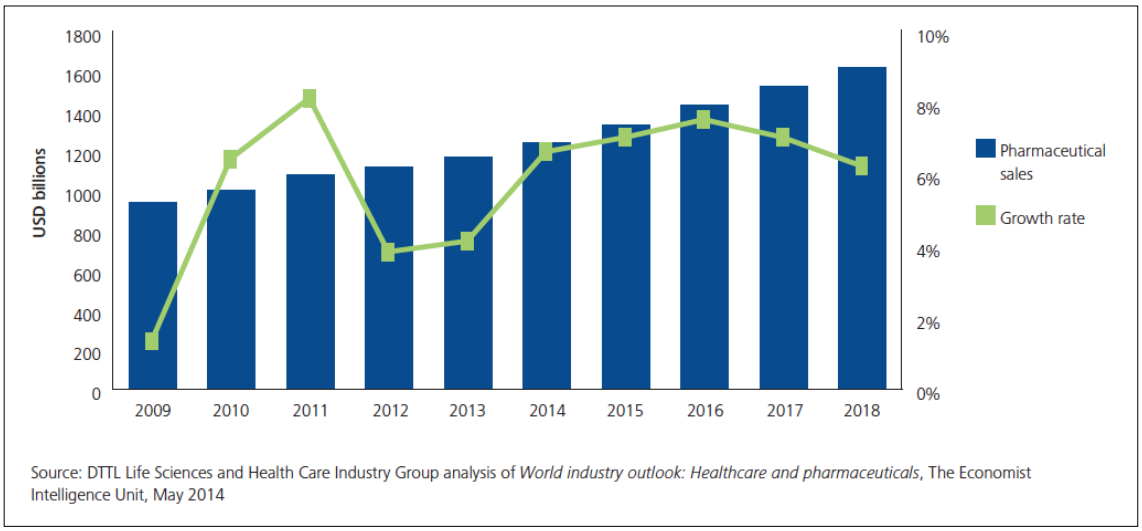

Figure 2: Pharmaceutical revenues in USD billion. (Deloitte, 2015)

The pharmaceutical sector's landscape experienced important challenges throughout 2014-2015. Among the most important, the following:

- ***Decline in R&D productivity accompanied by an increase in R&D costs***
  Total projected value of late-stage pipelines for the 12 largest pharmaceutical companies showed a decline from $1,369 billion to $913 billion in 2013 (Deloitte Centre for Health Solutions, 2013). However, while there had been a decline in pipeline volumes and success rates in early-phase drug development, the number of halted Phase III projects had also decreased suggesting the industry was leveraging its ability to "fail fast, and fail cheaply" (Deloitte, 2015). Actavis sought to leverage Allergan's expertise in developing drugs in-house to increase its R&D productivity while controlling the costs.

- ***A constantly changing and complex regulatory environment***
  The healthcare sector is characterized by a complex and constantly evolving regulatory landscape, which is aimed to rule from patient health & safety to intellectual property protection. Adding to this complexity is the need to comply with all existing legislation which varies across countries. It requires a substantial coordination effort. There are important synergies to be considered between target and acquirer's regulatory departments. Particularly, total number of FTEs (Full-Time Equivalent employee) assigned to regulatory tasks could be downsized.

- ***Margin erosion by pricing pressures***
  By enacting "pricing and reimbursement" legislation, governments in both developed and emerging markets were trying to bring prices down to minimize pharmaceutical spending. International diversification was deemed to become an important competitive edge to protect global margins from regional pricing decisions. Given the strong presence of

Allergan in the US and other countries, the merged entity could reach more than 100 countries hence diversification was expected to be improved.

- ***Growing generic drug demand***

  The steady flow of patent expiration following the 2010-12 "Patent Cliff" continued to depress the revenues of branded drug companies. Additionally, pro-generic government policies encouraged doctors and pharmacist to substitute branded for generic products. However, existing patented products and niche treatments were still very profitable. In this sense, with the deal Actavis could secure some of Allergan's bestselling treatments such as BOTOX®, which owned more than 50% of the treatment's market share.

- ***Scale to prosper***

  Historically, a slow-moving pace has characterised the healthcare industry because of strong regulatory and economic pressures. This adverse environment was driving industry consolidation. Size was increasing in importance to benefit from economies of scale to compete with low margins and to seek the level of growth demanded by investors. Overall transactions were skewing towards fewer, but bigger deals to build big pharmaceutical conglomerates. Actavis-Allergan merger is a perfect example of this race to the top. The merged entity would be top six pharmaceutical company by Enterprise Value as shown by Figure 13.

1.3 Industry consolidation

During recent years, the industry has witnessed an important increase in the number of M&A deals. This has impacted companies operating in generic and branded drug segments likewise. The main drivers are:

- Accessing new branded products: nowadays most of innovation comes from small biotechnological companies as shown by Figure 3. Acquiring these firms allows big pharmaceutical companies to access new and cutting-edge branded products.
- Expanding into international markets: due to high regulatory burdens, pharmaceutical companies' preferred method to expand internationally is by M&A.
- Reaching new therapeutic categories: some niche firms develop an expertise in a therapeutic category which might be untapped for bigger companies. Acquiring them is a safe approach to enter new segments as all regulatory burdens and clinical trials are already completed.
- Gaining economies of scale: due to the nature of the industry, with public sector having a high bargaining power and cutting down its healthcare budgets, pharmaceutical companies seek for consolidation to counteract by gaining size and efficiency.

Moreover, through M&A companies can also access talented human capital. For instance, acquirers get to hire the proven talent from small start-ups, the responsible for the discovery of this new specific branded-drug.

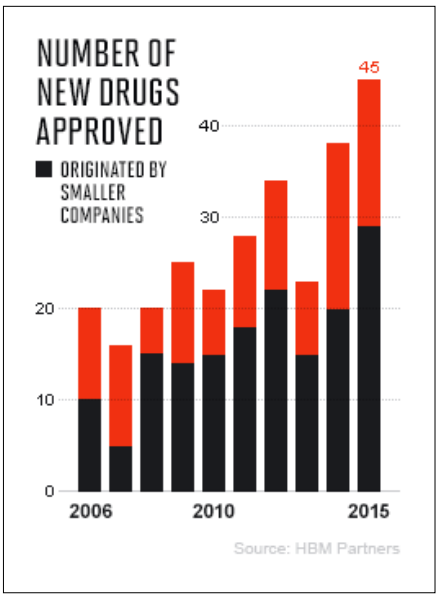

Figure 3: Number of new drugs approved by the Food & Drug US administration. (HBM Partners, 2016)

US corporate tax policy has also served as a catalyser for M&A activity. Many US companies have performed tax inversions mergers, for the sole purpose of re-domiciling their headquarters to lower corporate tax rate countries (notably Ireland). However, the US government is taking measures to mitigate tax inversion operations. For instance, the last mega-deal within the pharmaceutical industry (Pfizer and Allergan, 2015) has been halted due to this new reform.

For target companies, the main motivation to be acquired by larger groups is obviously the consideration received. A typical situation is that of a small company with promising treatments in pre-approval stages, but lacking the capital and infrastructure needed to finish its development. Such companies can leverage the existing infrastructure (e.g. distribution channels, manufacturing facilities) and capital of larger players. It is the case for Bristol-Myers Squibb's acquisition in 2015 of Flexus Biosciences, a biotech start-up which developed anti-cancer therapies. Flexus was less than two years old at the acquisition's date and it had raised only $38 million after two funding rounds. Despite not having drug candidates yet in clinical trials stages, it was acquired for $1.25 billion.

1.4 Generic drugs

In 2013, 86% of US total prescriptions corresponded to generic drugs (Bloomberg, 2013). Firms selling generic drugs are not requested to conduct expensive and time-consuming clinical tests as branded drug firms do. Therefore, generic drugs firms spend considerably less capital in R&D. Moreover, sales and marketing expenses are lower than for the branded ones because the drug is already known by the market. Finally, generic drugs companies incur in higher expenditures in direct distribution, which allows them to have a better access to "shelf-space" in retailers and ultimately, higher revenues (David Reiffen, 2002).

This segment was mainly dominated by four players: Actavis, Mylan, Teva and Sandoz. As of 2013, these firms accounted for 32% of the industry revenues. After the top 6 players, the industry was

fragmented over 150 small and mid-cap companies (Statista, 2013). With a consolidation trend dominating the industry, it was hard for these companies to compete because they lacked scale and efficiency in comparison with the top players. Therefore, they were likely to be acquired during the following years.

Recent trends: the patent cliff and growth

Generic firms benefited from a "patent cliff" between 2010 and 2012. A "Patent cliff" is an industry term used to describe a period with a massively amount of patent expiration. For instance, during this period the patent of "Lipitor", a cholesterol reducer developed by Pfizer, expired. Consequently, sales of "Lipitor" for Pfizer dropped dramatically by 42% during the first quarter of 2012 compared with the year-earlier period (Mullin, 2012). Although during 2013 no major patent was expected to expire, there were many best-selling chemicals set for expiration over 2019. This should intensify investments in biologic-specific manufacturing equipment, professional expertise and partnerships between biotech and generic firms. IBISWorld, a major market research company, expects the generic sector to generate $54 billion by 2019 with a future annualised growth of 6.8%. Another example of patent cliff concerning Allergan was the expiration of "Latisse" patent, an eyelash drug. In 2014, the US Court of Appeals in Washington ruled that it would let generic versions of "Latisse" enter the market.

Competitive forces

The generic industry main competitive factors are the following: price, brand awareness, first-mover advantage, delivery mechanisms, retail ties, dosage strategy, difficulty of formulation, niche offerings and relationships with pharmacists, physicians and other industry professions.

Generic firms always try to be the "first-to-file" and the "first-to-market" when a concrete patent expires. The former means they target to be the first to file the ANDA (Abbreviated New Drug Application) for their generic offering. The latter means they aim to be the first company to place a generic alternative to the branded drug once the patent has expired. Usually, the "first-to-market" tends to achieve a critical penetration. Afterwards, other generic firms will bring to the market their own version of the drug as it happened to Pfizer in 2012 with "Lipitor". Therefore, this drives down margins as competition increases (Burck, 2015). As a rule of thumb, the more generic firms succeeding in selling their drug version, the smaller are the revenues, the market share of each competitor and its margins.

Negative publicity or corporate scandals can damage business reputation causing a dramatic decrease in sales. In 2014, the general attorney claimed that Actavis' plans to discontinue Namenda (Alzheimer's medicine) and switch its patients to an extended-release version of the drug ahead were manipulative, unethical and illegal (CNBC, 2014). As a consequence, Actavis stock price went down more than 1% intra-day.

Lastly, given the nature of generic drugs, price is a key decision-driver for consumers. For this reason, generic firms tend to cut down top and middle-line costs, often by leveraging economies of scale.

Competition from branded firms

Besides the natural competition among generic peers, the segment also faces competition from branded competitors. For instance, branded firms might seek to delay or prevent the approval of generic drugs by lobbying, changing the dosage strategy or treatments prior to the patent expiration. AstraZeneca sued FDA in 2016, the US regulator, to prevent generic versions of Crestor, an AstraZeneca cholesterol pill. The reasons given by AstraZeneca were controversial as were based upon a supposedly misleading labelling in Crestor-generics. Branded firms might pretend to create a new (although closely related) version of existing branded drugs following the end of patent-protection. In other words, branded firms will launch "authorized generics" that will directly compete with the traditional generics (Pollack, 2013). In the past, branded firms used to engage in "pay-for-delay" agreements with generic firms. This meant, branded firms would pay their generic counterparty to delay their market entrance. However, the Supreme Court of the US ruled against this practice on the ground of antitrust reasons (Supreme Court of the US, 2013).

Barriers to entry

Despite having lower barriers to entry than the branded segment, generic firms still face some. Regulation is the main one. For instance, all pharmaceutical companies must comply with the Certified Good Manufacturing Practices (CGMP), a compendium of rules regarding safety and quality. Moreover, they are subject to periodical inspections by supervising authorities. Finally, the industry is high capital intensive meaning that to enter the market, companies face high initial "Property, Plants and Equipment" fixed costs (Morton, 1998).

1.5 Branded drugs

Patented drugs as well as drug development pipelines are critical for branded firms to succeed. The entrance of generic competitors after a patent expiration can drive sales volume down by up to 90% for the previous patent owner (Robin Feldman, 2016). Therefore, keeping high R&D expenses is key to keep alive the pipeline. However, this expenditure does not guarantee successful drugs. In fact, just few developments become blockbuster drugs in the market.

Historically, R&D expenses were up to 20% of annual sales (Congressional Budget Office, 2006). However, there is a new trend in the industry, called *Growth Pharma,* which is lowering this figure. The fundamental idea behind *Growth Pharma* is that companies buy/merge other firms, which already own branded drugs in the market or have developments close to achieve the regulatory approval, to lower R&D expenses and optimise their capital allocation. Another trend consists on developing new biologic components which are harder to imitate for generic firms once the patent expires.

Regarding competition dynamics, branded firms do not tend to compete against their peers. This is due to the specialisation that is arising in the industry. Most of the firms focus on a specific therapy of the industry developing drugs targeting this segment.

Recent trends: orphan drugs, revenue volatility

Orphan drugs are medicines which treat diseases affecting to less than 200,000 people. These drugs are characterised by lower sales volume and higher profit margins. Moreover, orphan drugs have some interesting features from a regulatory standpoint: an accelerated approval process, longer periods of market exclusivity and greater tax benefits (Aarti Sharma, 2010).

Revenue volatility is higher for branded firms. This can be explained due to the complexity of R&D, the FDA approval and patent expirations. Moreover, seasonal effects for some diseases (i.e., flu) can affect branded firms as they tend to be narrow-focused in few treatments. However, a proper portfolio diversification should be enough to hedge this effect.

Barriers to entry

Barriers to entry are much higher than for the generic segment. This is due to the high level of specialisation required for the workforce to develop R&D. Moreover, economies of scale are critical to compete in the market, hence small players are usually under threat of takeover. However, this should not necessarily be a bad situation for small players. An M&A deal can provide those companies with funds to develop their drugs, know-how and relationships with key stakeholders in the industry such as physicians or pharmaceuticals. Factors such as brand recognition, "monopoly" per therapy or regulatory environment hurdles are the segment's main barriers to entry (Vernon, 1992).

Section II: The Actavis - Allergan merger

2. The companies

2.1 Actavis

The acquirer of the deal, Actavis plc (ACT), was an American pharmaceutical company headquartered in Dublin, Ireland. It engaged in the development, manufacturing, distribution, marketing and sale of generic, branded, biosimilar and OTC pharmaceuticals (over-the-counter drugs: medicines which do not require prescription from a healthcare professional). By the end of 2014, prior to its merger with Allergan, the firm boasted the 2nd largest revenue base among generic drug firms and 15th largest in the overall pharmaceutical industry.

History

Founded in Illinois 1983 as Watson Pharmaceuticals by two pharmacist, Allen Chao and David Hsia, the company began as a small drug development enterprise focused on the development and manufacturing of generic pharmaceuticals. In 1993, Watson went public on the NASDAQ stock exchange and it then moved in 1997 to the New York Stock Exchange (NYSE).

Throughout the 2000s and 2010s, Actavis engaged in several strategic acquisitions aimed at gaining access to new products, new markets and, also, to a more favourable tax regime. Overall, since 2009, the company had acquired assets for a total amount of around $50 billion. The more relevant deals were the following (Table 1):

In 2012, Watson acquired for $5.5 billion in cash Actavis Group, a Swiss generic drug manufacturing company, which granted the company access to modified release and controlled release drugs. A few months later, in January, 2013, the company announced it would change its name to Actavis Inc.

In 2013, Actavis acquired Warner Chilcott in a stock-for-stock transaction valued at approximately $9.2 billion. To facilitate the acquisition, the firm created a new entity called Actavis Plc. Actavis Plc had its corporate headquarters in Ireland but retained its administrative headquarters in the US. This allowed the company a more favourable corporate tax rate (17% in Ireland vs 35% in the US).

In 2014, Actavis acquired Forest Laboratories in a cash and equity transaction for $31 billion to expand its drug portfolio with branded products in the US into central nervous system, cardiovascular, gastrointestinal, respiratory, and anti-infective areas.

Key Mergers and Acquisitions

Acquirer	Acquiree	Year	Deal Value (USD billion)	Therapeutic Focus/Drug Type/Markets
Watson	Arrow Group	2009	1.75	Emerging markets (such as Central and Eastern Europe, Turkey, Japan and South Africa)
Watson	Actavis Group	2012	5.50	Modified release, solid oral dosage and transdermal products into semi-solids, liquids and injectables. Presence in both mature and emerging markets.
Actavis	Warner Chilcott	2013	9.20	Speciality products in women's Health, Urology, Gastroenterology (GI) and Dermatology.
Actavis	Forest Laboratories	2014	30.90	Branded drug products In the US with focus on central nervous system, cardiovascular, gastrointestinal, respiratory, and anti-infective
Actavis	Furiex Pharmaceuticals	2014	1.10	Focusing on Gastroenterology disorders. The US, Europe, and Japan are the key markets

Table 1: Key mergers and acquisitions - Pharmaceutical industry (Market Realist, 2015)

Segments

Actavis had 3 revenue segments: Generic, Branded and ANDA Distribution.

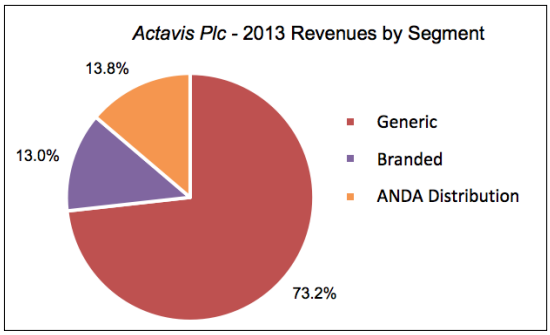

Figure 4: Actavis revenues by segment in 2013 (SEC, 2013)

Actavis Pharma, the generic pharmaceutical division of Actavis, accounted for most of the company's total sales (73% of sales in 2013). By 2014, management expected generic revenues to grow mainly due to two factors: high-growth from underdeveloped markets (primarily Latin America and Southeast Asia) with underserved demographics more likely to opt for affordable generic treatments; and the overall pro-generic government policies that encouraged doctors to prescribe generics to reduce overall healthcare government budget.

The remaining 27% of Actavis' sales corresponded to Branded (13%) and ANDA Distribution (13.8%).

Actavis' Branded products division was management's main focus for the incoming years, as to achieve diversification in revenue sources and growth in sales. By 2014, Actavis's management focused on expanding its patented formulation portfolio to diversify revenue streams. Actavis had managed to grow its portfolio share in Branded products by +3.3pp since 2011, both through in-house development, as well as, the acquisition of "mid-to-late development stage" pharmaceuticals

through licensing agreements and M&A. Actavis intended to continue growing its Branded division. Branded products provided substantially higher margins than their generic counterparts over the period of patent exclusivity, however they also required for high R&D expenditures (University of Oregon Investment Group, 2014).

Actavis ANDA division (14% of revenues in 2013) distributed generics from Actavis and other firms to pharmacies, hospitals and buying groups. Since 2011, the division had lost -3.1pp of share in Actavis's sales portfolio.

Actavis remained very reliant on the US market despite having considerably accelerated its international expansion in the past years. By 2013, 71.3% of its product sales came from America (US, Canada and Latin America). However, this figure had decreased by 20 pp since 2011 (91.7% in 2011) as mainly the European market, but also the MEAAP (Middle East, Africa, Australia, and Asia Pacific) markets grew.

Financial Analysis

Margin Analysis

Actavis Net Revenues experienced consistent growth throughout the five pre-merger years resulting on a 33% CAGR over 2009-13. This strong top line growth came mostly from a series of acquisitions. However, while revenues were growing, operational performance seemed to worsen persistently. Over 2011-13, margins decreased even going negative in 2013 (EBIT -4.3% and Net Income -8.6%). The consolidation of Actavis numerous acquisitions into its financial statements pollutes results and prevents a deeper analysis on the reasons behind this worsening operational performance.

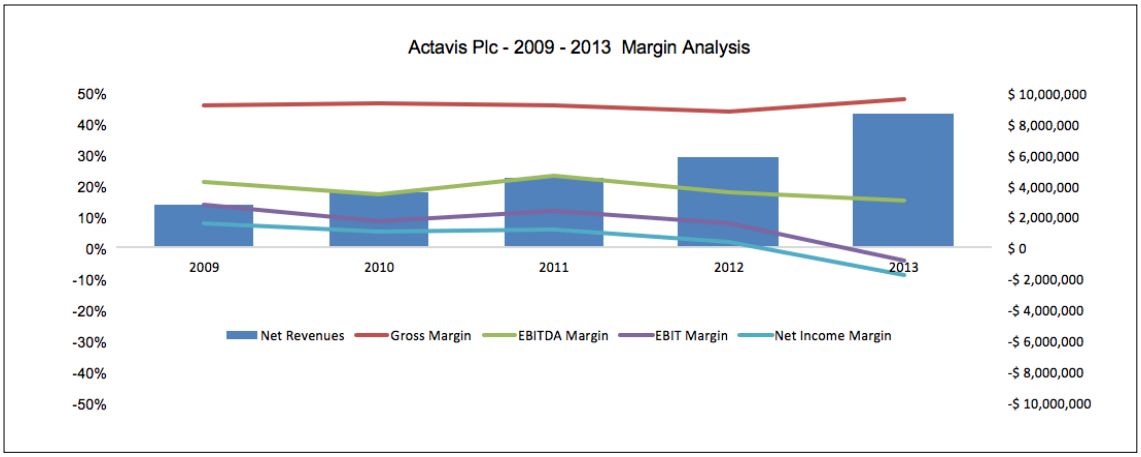

Figure 5: Actavis's key figures (SEC, 2013)

Capital Investment Analysis

Actavis ran a capital-intensive business with its fixed assets accounting for a much larger portion of capital employed than working capital. From its Fixed Assets, the largest portion, between an 80 to 90%, corresponded to goodwill resulting from acquisitions and to intangible assets, such as patents. This was in line with the characteristics of the pharmaceutical industry and of the company's extensive M&A activity.

All of Actavis' investment indicators, pointed to an expansion strategy. Actavis was growing: in Capex (Overall Net PPE>Depreciation), in R&D investment (growing R&D expenditure in absolute value and as % of revenues, though below Patent Amortization) and also inorganically, through the acquisition of businesses (Acquisition of Business CF>0).

Investment Strategy				
In thousands $	**2011**	**2012**	**2013**	
Working Capital	690,500	1,017,300	1,342,900	
Fixed Assets (Tangible & Intangible incl Goodwill)	4,128,600	10,223,800	18,291,200	
Goodwill and Intangibles as % of FA	*80%*	*84%*	*90%*	
= Capital Employed	4,819,100	11,241,100	19,634,100	
% Change	2%	133%	75%	
Depreciation (Tangible Assets)	93,600	97,500	202,000	
Net PPE CF (-Purchase + Sale)	-120,000	-129,500	-170,800	
Amortization (Intangible Assets)	354,300	481,100	842,700	
R&D Expense	-295,400	-401,800	-616,900	
Acquisition of Business CF	-575,100	-5,742,800	-15,100	

Table 2: Actavis's investment strategy (SEC, 2013)

Financing Analysis

Actavis' extensive M&A activity and the following business integration hinders a deeper analysis on its financial position.

Considering its Cash Flow Statement, the continuous positive and growing Cash Flow from Operations (CFO) is a good sign indicating the company's capabilities to generate cash from its core business. Regarding the Cash Flow from Investments (CFI), its negative value is explained by the company's expansion strategy which requires for a continuous acquisition of assets. Finally, Cash Flow from Financing (CFF) is quite volatile and overall negative, except for 2009 and 2012 periods which correspond with M&A deals that involved debt financing.

Regarding its Gearing and ND/EBITDA ratio, both outline a highly-levered capital structure. On the 3-years prior to the merger, Actavis ND/EBITDA ratio skyrocketed to very high values 6-7x due to an overall increase in ND that was not matched with EBITDA because of falling margins.

Gearing and ND/EBITDA Ratio					
In thousands $	**2009**	**2010**	**2011**	**2012**	**2013**
After-tax Kd	2.3%	11.0%	9.9%	1.9%	2.7%
Net Debt	1,242,800	751,100	808,800	6,105,300	8,720,500
EBITDA	585,900	619,700	1,060,400	1,050,200	1,350,200
ND/EBITDA Ratio	**2.1x**	**1.2x**	**0.8x**	**5.8x**	**6.5x**
EBIT	396,600	307,500	544,300	460,400	-370,700
Net Interest	29,200	82,500	79,700	114,200	235,000
Gearing Ratio	**13.6x**	**3.7x**	**6.8x**	**4.0x**	**-1.6x**

Cash Flow					
In thousands $	**2009**	**2010**	**2011**	**2012**	**2013**
Cash Flow from Operations (CFO)	376,800	571,000	632,000	665,800	1,213,500
Cash Flow from Investments (CFI)	-1,036,100	-74,100	-719,000	-5,749,000	-275,300
Cash Flow from Financing (CFF)	353,100	-411,300	16,400	5,189,600	-867,300
Increase (Decrease) in Cash and Equivalents	-306,200	85,600	-70,600	106,400	70,900
Net Debt (Cash)	1,242,800	751,100	808,800	6,105,300	8,720,500

Table 3: Actavis's cash flows and debt ratios (SEC, 2013)

Returns Analysis

Actavis' Return on Capital Employed (ROCE) and Return on Equity (ROE) follow a negative trend, mainly driven by a decrease in operational efficiency and very low bottom-line margins.

Return Analysis						
	2009	**2010**	**2011**	**2012**	**2013**	
EBIT After tax	256,000	240,200	347,400	313,600	-483,400	
Capital Employed	5,032,400	4,741,600	4,819,100	11,241,100	19,634,100	
ROCE	5.1%	5.1%	7.2%	2.8%	-2.5%	
Net Income	222,000	184,400	260,900	97,300	-750,400	
SH Equity	3,023,100	3,282,600	3,562,500	3,856,400	9,537,100	
ROE	7.3%	5.6%	7.3%	2.5%	-7.9%	
DuPont Analysis						
Operating efficiency	0.08	0.05	0.06	0.02	-0.09	
Asset turnover	0.47	0.61	0.68	0.42	0.38	
Equity multiplier	1.98	1.78	1.88	3.66	2.38	
ROE	7.3%	5.6%	7.3%	2.5%	-7.9%	

Table 4: Actavis's return analysis (SEC, 2013)

2.2 Allergan

Allergan Inc., was an American pharmaceutical group headquartered in California, US. Operating across the US, Europe, Asia Pacific and South America, it focused mainly on branded drugs, biologicals and medical devices. While BOTOX® was their best-known drug, Allergan also held a portfolio of ophthalmic, urological, dermatological and neurological drugs. As opposed to Actavis, Allergan lacked presence in generics.

History

Allergan Pharmaceuticals, Inc, was founded by pharmacist Gavin S. Herbert in 1950 in Delaware, US. Allergan focused on the discovery and development of new medicine for specially markets, such as eye care products, and owned the well-renown BOTOX®, its flagship product.

In March 1, 2013, Allergan acquired MAP Pharmaceutical, Inc. for $1 billion a biopharmaceutical company focused on developing new drugs in neurology, mainly researching in the treatment of migraine.

Segments

Allergan had two product divisions: Speciality Pharmaceuticals and Medical Devices (mainly Breast and Facial Aesthetics).

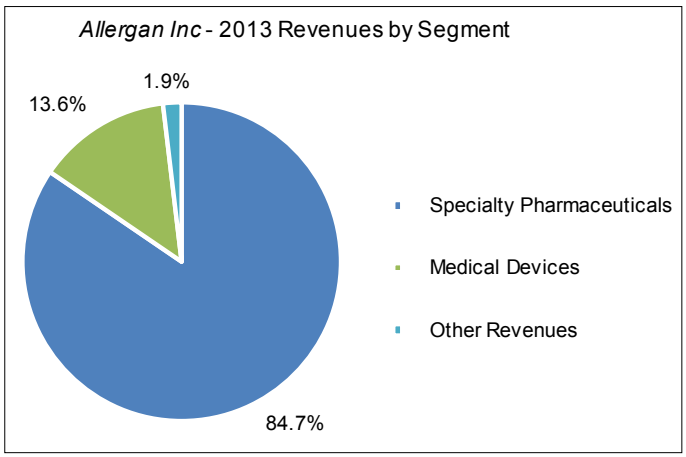

Figure 6: 2013 Allergan's revenues (SEC, 2013)

The Speciality Pharmaceutical division (85% of sales in 2013) had historically accounted for most of Allergan's sales. Eye Care, BOTOX®/Neuromodulators and Skin Care were the main medical fields of its drug portfolio.

The Medical Devices segment (13.6% of sales in 2013) produced a broad range of medical devices, including: breast implants and tissue expanders, as well as, facial aesthetics products.

The US was Allergan's most important market (62% of its Product Net Sales) ahead of Europe (20%).

Financial Analysis

Margin Analysis

Allergan's Net Revenues experienced consistent growth throughout the five pre-merger years resulting on 8.8% CAGR over 2009-13. Allergan's growth was mainly organic and resulted in healthier margins. As of 2013, EBITDA margin was of 33% and main cost items corresponded to: Cost of Goods Sold (COGS) of 10%, R&D Expenses of 17% and Selling, General and Administrative (SG&A) costs of 40% of revenues. Finally, the 16% Net Income margin reflected the overall healthy condition of Allergan's P&L.

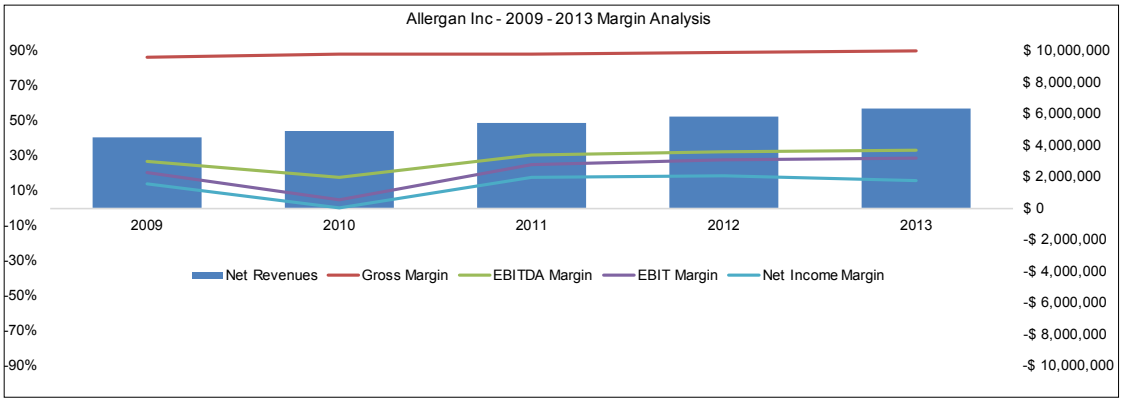

Figure 7: Allergan's key figures (SEC, 2013)

Capital Investment Analysis

Allergan's asset structure was also that of a capital-intensive business, common given the industry particularities. As for Actavis, the largest portion of its Fixed Assets between 75 to 80% corresponded to Goodwill and to Intangible assets, such as Patents.

Allergan's investment focus was mainly in R&D, its expenditure was larger than the total amount dedicated to Capex and Business Acquisitions (the latter, an indicator of inorganic growth). This finding is in line with Allergan's strategy to grow organically through in-house innovation.

Investment Strategy				
In thousands $	**2011**	**2012**	**2013**	
Working Capital	591,200	450,000	481,900	
Fixed Assets (Tangible & Intangible incl Goodwill)	4,460,300	4,720,500	5,254,600	
Goodwill and Intangibles as % of FA	*74%*	*74%*	*77%*	
= *Capital Employed*	5,051,500	5,170,500	5,736,500	
% Change	7%	2%	11%	
Depreciation (Tangible Assets)	167,300	166,400	137,900	
Net PPE CF (-Purchase + Sale)	-117,400	-141,500	-171,400	
Amortization (Intangible Assets)	86,100	90,200	116,700	
R&D Expense	-902,800	-989,600	-1,042,300	
Acquisition of Business CF	-101,400	-349,200	-849,400	

Table 5: Allergan's investment strategy (SEC, 2013)

Financing Analysis

Allergan's financial position was very strong as shown by the large amount of Excess Cash held on its Balance Sheet ($1.50 billion in 2013). When looking at the company's Gearing Ratio (EBIT/Net Interest), the previous conclusion is reinforced. With its EBIT being more than 20x larger than its Net Interest, the company showed far sufficient capacity to meet its debt interest obligations.

Considering its Cash Flow Statement, the continuous positive and growing CFO is a good sign indicating the company's capability to generate cash from its core business. Regarding the CFI, its negative value indicates that Allergan is currently in a growth stage requiring for investment in assets. Finally, CFF is quite volatile with some periods like that of 2013 characterized by debt issuance, whereas others like 2011 with large debt repayments.

Gearing and ND/EBITDA Ratio					
In thousands $	**2009**	**2010**	**2011**	**2012**	**2013**
After-tax Kd	-16.0%	-13.3%	-6.6%	-4.1%	-4.6%
Net Debt	-437,700	-535,500	-986,700	-1,401,200	-1,495,200
EBITDA	1,190,100	884,800	1,642,200	1,892,200	2,075,300
ND/EBITDA Ratio	**-0.4x**	**-0.6x**	**-0.6x**	**-0.7x**	**-0.7x**
EBIT	907,400	242,200	1,364,600	1,590,200	1,799,000
Net Interest	69,900	71,400	64,900	56,900	68,200
Gearing Ratio	**13.0x**	**3.4x**	**21.0x**	**27.9x**	**26.4x**

Cash Flow					
In thousands $	**2009**	**2010**	**2011**	**2012**	**2013**
Cash Flow from Operations (CFO)	1,113,300	463,900	1,081,900	1,599,900	1,695,400
Cash Flow from Investments (CFI)	-98,700	-977,200	340,800	-589,300	-1,375,300
Cash Flow from Financing (CFF)	-181,500	563,000	-1,002,300	-717,500	28,200
Increase (Decrease) in Cash and Equivalents	833,100	49,700	420,400	293,100	348,300
Net Debt (Cash)	-437,700	-535,500	-986,700	-1,401,200	-1,495,200

Table 6: Allergan's cash flows and debt ratios (SEC, 2013)

Returns Analysis

As of 2013, Allergan's ROE was of 15.3%. On the past five years, its behaviour had been slightly volatile despite being positive and overall growing. The main contributor of this positive evolution was ROCE. Throughout the past three years, ROCE consistently increased to reach 26.3% by 2013.

Return Analysis						
	2009	**2010**	**2011**	**2012**	**2013**	
EBIT After tax	762,216	203,448	1,146,264	1,335,768	1,511,160	
Capital Employed	4,796,000	4,710,000	5,051,500	5,170,500	5,736,500	
ROCE	15.9%	4.3%	22.7%	25.8%	26.3%	
Net Income	621,300	600	934,500	1,098,800	985,100	
SH Equity	4,822,800	4,757,700	5,309,600	5,837,100	6,469,500	
ROE	12.9%	0.0%	17.6%	18.8%	15.2%	
DuPont Analysis						
Operating efficiency	0.14	0.00	0.17	0.19	0.16	
Asset turnover	0.60	0.58	0.63	0.62	0.59	
Equity multiplier	1.56	1.75	1.60	1.57	1.63	
ROE	12.9%	0.0%	17.6%	18.8%	15.2%	

Table 7: Allergan's return analysis (SEC, 2013)

3. Acquisition's Strategic Rationale

This section aims to explain the strategic rationale behind Actavis-Allergan merger. First, it introduces main dynamics driving M&A in the pharmaceutical industry. Second, it explains Actavis's view on Allergan's business and how the target's strategy fits in Actavis long-run vision.

3.1 M&A Pharmaceutical trends

2014-2015 was a period of high deal-making activity in the Pharmaceutical Industry, totalling $218 billion in 2014 and $407 billion in 2015 in combined M&A, financing and partnering activity (Figure 8). The last time the industry had seen such a level of activity was in 2009, a year characterized by industry consolidation and mega-deals driven by large companies (e.g., Pfizer/Wyeth and Merck/Shering Plough).

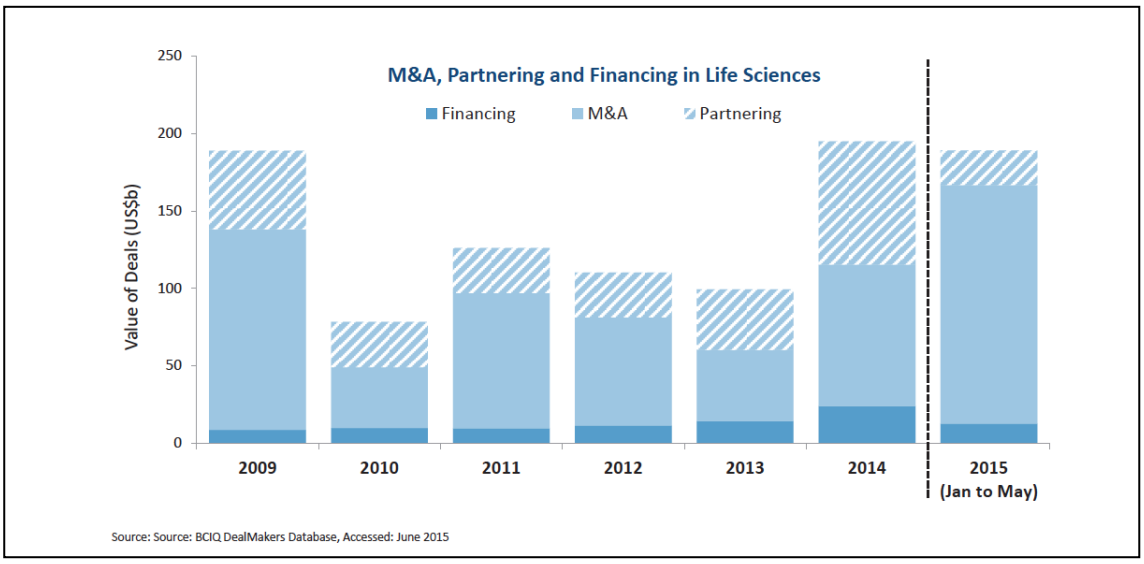

Figure 8: Deal activity in Life Sciences (BCIQ DealMakers, 2015)

Drivers of 2014-2015 M&A Activity

Both in 2014 and 2015, M&A deals accounted for a large stake of the overall deal-making activity: 45% in 2014 and 68% in 2015. Main reasons for this M&A wave are the following (Neel Patel, 2015):

- ***A market rewarding companies that engage in M&A***

  In 2014, top 10 M&A buyers had a 64% greater return than the overall large-cap pharmaceutical index (DRG, Arca Pharmaceutical Index) from 2012 to May 2015 Figure 9).

M&A Top 10 (Total Deal Value, 2012-2015)		
Company	Ticker	Total Deal Value ($M)
Actavis plc	ACT	$ 95,022
Valeant Pharmaceuticals International Inc.	VRX	$ 28,488
Johnson & Johnson	JNJ	$ 22,450
Thermo Fisher Scientific Inc.	TMO	$ 14,525
Merck & Co. Inc.	MRK	$ 13,575
Amgen Inc.	AMGN	$ 13,030
Roche	RHHBY	$ 12,939
Gilead Sciences Inc.	GILD	$ 11,775
Shire plc	SHPG	$ 11,506
Bristol-Myers Squibb Co.	BMY	$ 11,475

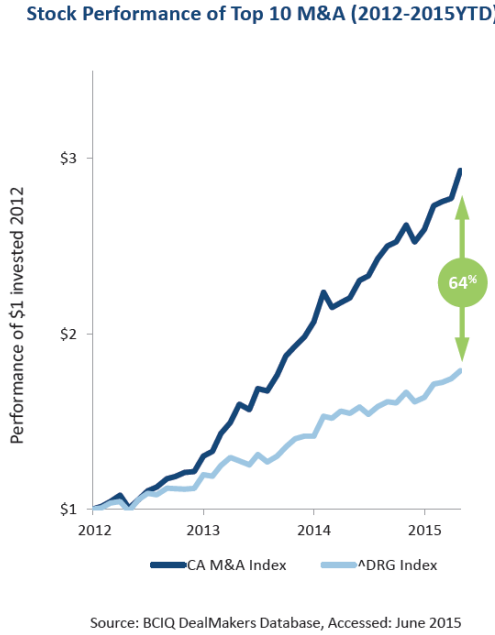

Figure 9: M&A Top 10 deals. (BCIQ DealMakers, 2015)

- ***Willingness to reduce Payer Power***

Payer Power from individuals and governments could also be behind a consolidation trend on the manufacturer side. Rebates as % of gross US sales increased from 20% to 32% in the 2007-2014 period, which seemed to indicate an increase in the negotiation power from the payer side (Figure 10). Consolidation in the manufacturer side could be an attempt to increase pharmaceutical companies' market power.

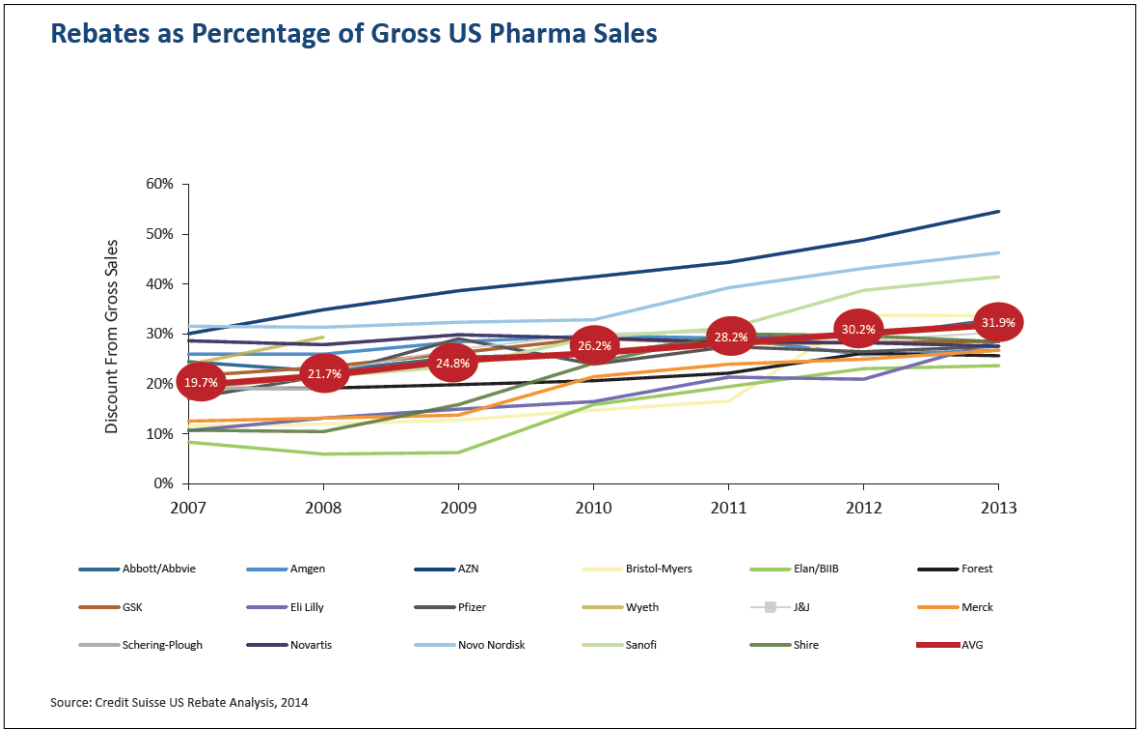

Figure 10: Rebates as % of Gross Us Pharmaceutical Sales. (Credit Suisse, 2014)

- ***Tax Inversion***

  Despite existing regulation seeking to block tax-centric M&A deals, the incentive to merge to reduce tax base still existed. Typically, US pharmaceutical companies generate significant revenue abroad, revenue which they cannot bring back to the US without paying an important tax bill. Moving tax domicile unlocks that cash for dividends, acquisitions, buybacks, etc. Until 2015 pharmaceutical companies had managed to reduce their tax bill by up to 56% after M&A deals. However, in early 2016 new regulation managed to stop a few tax-centric deals including Pfizer's attempt to engineer a $160 billion reverse merger with Allergan or AbbVie's attempt to buy Ireland's Shire for $52 billion. Even though this behaviour is not exclusive of the pharmaceutical industry, they particularly caught the US Congress attention due to the size and importance of the big pharmaceutical corporations trying to avoid US-taxes. Consequently, all sorts of tax-minimization strategies and deals are in upheaval since early 2016.

M&A Supply and Demand by Development Stage

Throughout the drug-development value chain, Preclinical and Phase III are the two stages capturing the largest interest towards M&A activity (Figure 11). Moreover, both phases are the ones showing larger relative imbalance between supply and demand and hence, are more likely to represent unrealistic value expectations. However, whereas Preclinical market dynamics are ruled by Buyer's intentions (higher offer than demand), Phase III market is driven by Seller's intentions.

The above findings don't come as a surprise. Buyer's interest in Phase III is explained by the low-risk of this assets, which leads to buyers willing to pay a premium to shed that risk and go for a safe bet. Buyer's relative high interest in Preclinical assets is, however, slightly more intriguing. Still, there are two likely explanations that could justify it. On one hand, products at this stage can be acquired less expensively, as they still come with low success-rate probabilities. On the other hand, buyers need to fight early to get into hot areas and benefit from the first-mover advantage.

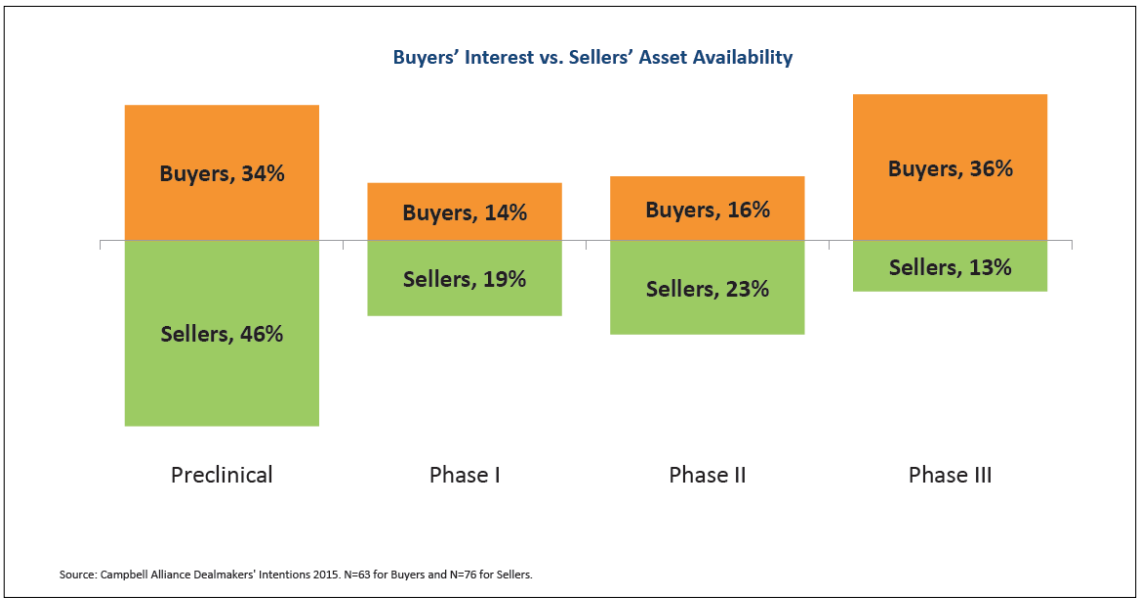

Figure 11: Buyers & Sellers interest for each development phase. (Campbell Alliance, 2015)

3.2 Management view

Brent Saunders, Actavis CEO, expertise in inorganic growth through M&A is key to understand the development of Actavis-Allergan merge. Besides developing new treatments and increasing its operational efficiency, Actavis's CEO convinced the board that Allergan's strategy and characteristics were aligned with those of Actavis. Moreover, a proven track record of successful integrations from previous acquisitions was a key decision driver to bid for Allergan. (Figure 12)

		Timing	Synergies/Costs
Watson Pharmaceuticals	actavis	Faster	Overachieved
Actavis	Warner Chilcott	Faster	Overachieved
Forest Laboratories, Inc.	Aptalis	Faster	Overachieved
Forest Laboratories, Inc.	Rejuvenate	Faster	Overachieved
Actavis	Forest Laboratories, Inc.	Faster	Overachieved
Allergan	Endurance	Faster	Overachieved

Figure 12: Past successful integrations. (Actavis, 2014)

Actavis-Allergan merge was driven by some of the trends described in the previous section. Actavis would benefit from the existing brand-awareness of Allergan's blockbusters, such as BOTOX®. Moreover, the fact that Valeant also bid for Allergan is an example of the high buyer interest that arises when the target owns successful drugs or Phase III promising developments. (Figure 15)

Another characteristic observed is the target's suitability to undertake a Tax Inversion process. Thanks to the merger, Allergan could decrease its tax rate from 26% to 15%, by moving its

administrative centre from the US to Ireland (Actavis tax domicile). In this way, bottom line was boosted without the need of implementing any operational improvement.

Moreover, the pharmaceutical industry is very capital intensive with high fixed and low variable costs. While they spend an important fraction of the budget in research and development, the actual cost of manufacturing a treatment is negligible. Consequently, Actavis-Allergan merger benefits from the actual nature of the industry. Being the top 6 firm by Enterprise Value (Figure 13) enables them to join efforts in R&D and to leverage existing know-how to become more efficient.

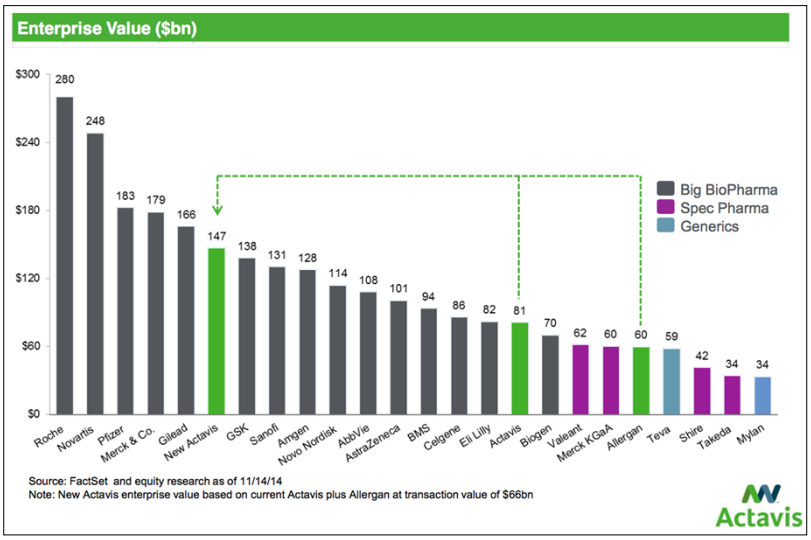

Figure 13: Pharmaceutical companies by Enterprise Value. (Actavis, 2014)

Regarding portfolio management and distribution channels, Actavis sought to start competing in the branded-segment to complement its successful generic arm. Allergan had a world-class sales team capable of managing a portfolio with six blockbuster's drugs (Figure 14) yielding in 2015 more than $15 billion in sales. Moreover, Allergan operated in large, promising and growing therapeutic categories:

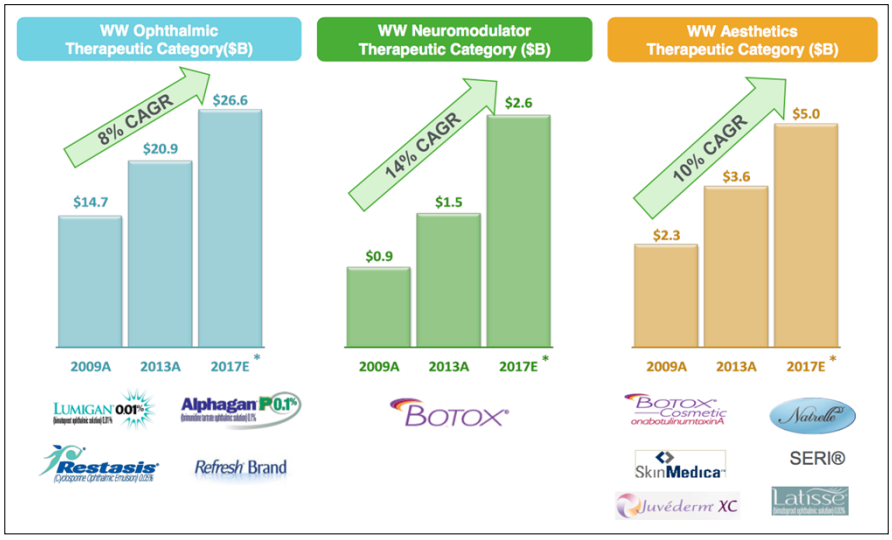

Figure 14: Actavis blockbusters' franchises. (Actavis, 2014)

Geographical expansion was a top priority for Actavis's CEO. With the acquisition, the company would operate in more than 100 countries in key markets such as Canada, Europe, Southeast Asia, Latin America, China and India. Additionally, Allergan's franchises were leading drugs and treatments, including world-recognised brands like BOTOX®.

The combined firm would commit to spend $1.7 billion during 2015 in R&D to develop and expand its pipeline (Figure 15). Moreover, it would have more than 20 drugs in late-stage of development within its core therapeutic areas. Another source of growth would be in ANDA distribution, where the combined firm could benefit from having more than 200 applications including 70 "first-to-file".

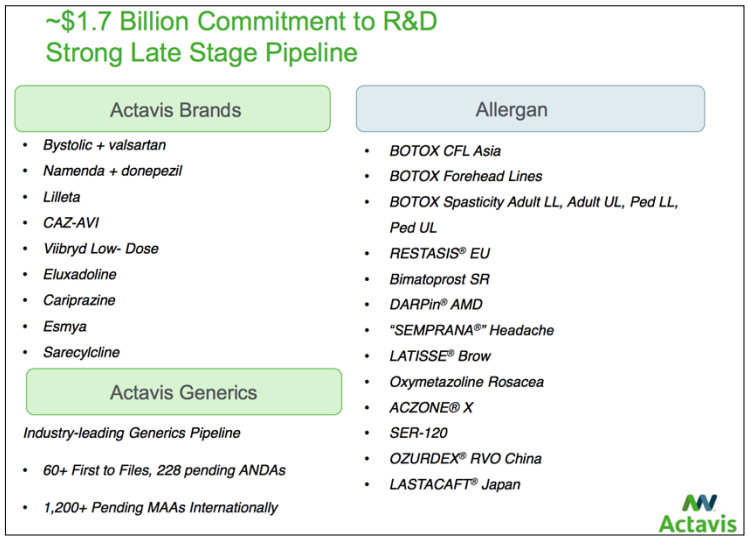

Figure 15: Merged entity Late Stage Pipeline. (Actavis, 2014)

In addition, being the first option for prescriptions is a key competitive advantage. It means that a brand is the most preferred one for physicians to prescribe. The combined entity benefited from this ability developed by Allergan as it had tight ties with physicians and insurance companies.

Actavis and its financial advisors expected the transaction to generate double-digit accretion of the non-GAAP EPS within first 12 months after the deal closure. This deemed to be relevant for the acquirer, despite the fact that EPS accretion is not an indicator of value creation. (Bob Haas, 2013) Actavis expected $1.8 billion in operating and financial synergies to be realised within a year. On top of this, Allergan started last year its "Project Endurance" which lead to a $475 million in savings. This project was a transformation effort to keep pace in the dynamic pharmaceutical market. It tackled nearly all steps in the value chain and it was designed and implemented in six months. Allergan would cut activities delivering low ROI and reduce its employees by 13%. Finally, due to the acquisition, Actavis expected to generate $8 billion in excess cash flow to de-lever its balance sheet.

4. Deal process: the steps in the merger decision

4.1 Valeant's offer and the activist shareholder

During 2014, Allergan Inc. was the target of a hostile takeover bid by Valeant Pharmaceutical International Inc. with the collaboration of an activist shareholder, Bill Ackman, founder and CEO of the hedge fund called Pershing Square.

Back in 2012, J. Michael Pearson, Valeant's CEO, spoke to David Pyott, Allergan's CEO, about the possibility of combining the two companies. Two weeks later, after discussing the matter with its board, Pyott told Pearson they were not interested. Under Pearson's leadership, Valeant continued engaging in highly leveraged mergers and acquisitions. After each deal, Pearson would cut costs to the minimum (particularly in R&D, a characteristic of the *Growth Pharma*, business model embraced by Valeant) to extract higher profits (SEC, 2014).

During 2013, Pershing Square hired William F. Doyle, a former Johnson & Johnson executive as senior advisor. On January 14, 2014, during the annual healthcare conference organised by JPMorgan, Doyle and Pearson, who knew each other from McKinsey days, held a meeting to discuss about possible joint M&A ventures. The meeting went well and they decided to meet again three weeks later for further discussions (Crow, 2015).

In this meeting, Pearson and Doyle exchanged public information about Valeant and Pershing Square and discussed about Valeant's financial position and business model. Moreover, they talked about how could Valeant structure its future transactions. Pearson and Ackman agreed that Valeant would identify a target and disclose it confidentially to Pershing Square, for the latter to decide whether it would be interested in participating. If Pershing Square was not interested, it would not purchase any shares in the target. Otherwise, Pershing Square would conduct an independent due diligence on the target, confirm its interest in working with Valeant and develop a strategy for the equity purchase.

Around the same time, Pearson and Pyott agreed to meet to follow up on their September 2012 discussion regarding a potential merge of the two entities. However, Valeant had already decided it would make a hostile takeover on Allergan. To do so, Pearson agreed with Ackman that Pershing Square would acquire first 5% of Allergan's equity. Just before reaching the 5% ownership by 11 April 2014, Pershing Square needed to get Valeant's greenlight to keep acquiring Allergan's shares. As for Schedule 13 D, anyone holding over 5% of a publicly listed company was required to file within 10 days a SEC report disclosing it. After the SEC filing, Pershing Square began a rapid accumulation program until it reached 9.7% of Allergan's outstanding common stock, which happened by 21 April 2014. That day, both Pershing Square and Valeant filed a Schedule 13D with the SEC disclosing their positions in Allergan. The stake was broken down into 24.8 million shares underlying call options with exercise dates from March 2015 to April 2015. Moreover, they purchased forward contracts to have additional exposure to 3.45 million shares of Allergan's common stock. Even though Valeant did not have any share itself, the operation was conducted via a Pershing Square's fund called "PS Fund 1, LLC" contributed by Valeant with $76 million. (SEC, 2014)

On April 22, 2014, once the 9.7% stake was built in Allergan, Valeant's board made a public proposal to Pyott to acquire Allergan: $48.3 in cash and 0.83 Valeant's common shares for each share of Allergan's common stock. Allergan shareholders would have received a substantial premium over the unaffected price of $116.63 and would own 43% of the combined entity. Pyott and its team reviewed the proposal and, fifteen days later, rejected it.

4.2 Allergan refusal of the offer

Ackman started to put pressure on Allergan's board from his position as largest shareholder. For instance, Ackman claimed that Pyott was in conflict of interest as he was fearing to lose his leadership position if Valeant's proposal was accepted. Allergan's board heard Ackman's complaints but ended up dismissing them.

On May 27, 2014, Allergan filed a presentation with the SEC, in which it criticised Valeant's business model and management team. Allergan's concerns were Valeant's: low organic sales growth driven mainly by price increases, intense and unsustainable acquisition activity, low R&D investments and its consequences for future growth, market share erosion due to the lack of sales and marketing infrastructure, and lack of transparency in financial report, as well as, the sustainability of its tax structure. Since Valeant's takeover offer included an important amount of consideration in Valeant equity, Allergan was entitled to care and pose its concerns about Valeant's intrinsic value and business model.

Allergan also presented the findings of independent consultants and forensic accountants (Alvarez & Marsal and FTI Consulting) based on publicly available information.

4.3 The White Knight

Brendon Saunders was Actavis' CEO. He took his first position as CEO in 2010 (Bausch & Lomb). By 2014 he had already run three major pharmaceutical companies and sold two of them, resulting in a total deal value of $25 billion. The following graph shows 2010-2014 M&A activities related with Saunders leadership (Herper, 2015).

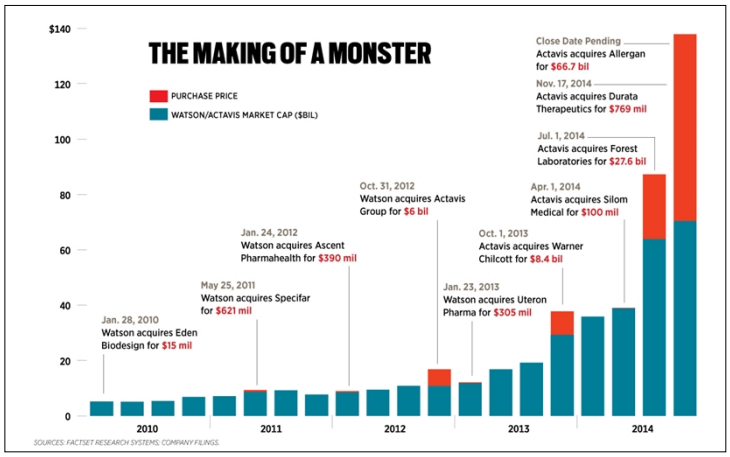

Figure 16: Saunders' M&A activity since 2010. (Factset Research System & Company filings, 2014)

Brenton Saunders was a PricewaterhouseCoopers partner focused on regulatory compliance in health care. Back in 2003, he met Fred Hassan, a pharmaceutical turnaround specialist. Both worked together in the turnaround of Schering, a pharmaceutical company accused of kickbacks, dangerous manufacturing and illegal marketing. It was a success and Saunders became its Chief Compliance Officer, negotiating hundreds of millions of dollars in settlements with the regulators. In 2007, Hassan choose Sanders to lead the integration of Schering's new biotech acquisition for $14 billion. Throughout the process, Sander's learnt Hassan's deal making style: create your own team, eliminate middle management, find the right products, and communicate your strategy clearly to help employees, journalists and investors understand it. Two years later, Schering was sold to Merck for $41 billion, Hassan moved to become a partner at a Private Equity firm (Warburg Pincus) and Saunders stayed to manage the integration with Merck.

Once the integration process had finished, Hassan offered Saunders to become CEO of Bausch & Lomb; one of the largest suppliers of eye health products including contact lenses, lens care products, etc. Warburg Pincus had recently bought the company with the aim to turnaround its situation. The company was struggling after having received accusations on its products causing dangerous eye infections. Saunders accepted the position. He replaced two-thirds of the managers and made a series of acquisitions to add 34 new products to the company's portfolio. In two years, sales grew at a YoY of 9% and EBITDA at 17%.

After the successful turnaround, Warburg Pincus was considering an IPO, but there was another offer for Bausch & Lomb: Valeant wanted to buy the company. Finally, Bausch & Lomb was sold to Valeant and Pearson implemented its Growth Pharma strategy to the company cutting SG&A from 40% to 20%.

Due to his experience working with a private equity firm, Saunders was hired as CEO of Forest Laboratories when Icahn, another private equity firm, bought an 11% stake in the company. Forest Laboratories was an American pharmaceutical company known for licensing European drugs for sale in the US. Three months later, during the annual JPMorgan Healthcare conference in San Francisco, Saunders met Paul Bisaro, CEO of Actavis. That's when talks about a potential merger of the two companies started. Two months later, Actavis bought Forest for $28 billion, yielding more than $600 million to Icahn. Then, Bisaro offered Saunders the CEO position of the combined company.

After ten days being officially appointed the new CEO of Actavis, on July 11, 2014, Saunders asked the board of directors for permission to start talking to David Pyott, CEO of Allergan, who was trying to fight back Valeant's hostile takeover. On July 30, Saunders called Pyott and offered him an alternative deal that would allow Allergan escape from the potential cost cutting program of Valeant's hostile takeover. Saunders and Pearson had very similar understanding of the pharma industry and they were both very relevant players on this new trend called Growth Pharma. However, Saunders managed to convince Pyott that he would not cut R&D expenditure and that Allergan's business model would remain largely intact. After a few months, Saunders and Pyott agreed on a final offer of $67 billion to acquire Allergan. The offer was far too high for Valeant and Pershing Square to be able to match it and the deal was closed.

4.4 Evolution of deal terms

The first non-binding proposal offered by Saunders took place on August 6, 2014: $175 per share in cash. It was above Valeant's offer worth $170.21: $72 in cash and the rest resulting from the exchange of 0.83 Valeant' shares per each of Allergan's ones. Saunders' first offer was still not enough for Allergan's management, who demanded at least $180 per share.

Negotiations between Allergan and Actavis were arduous with several back and forth offers and Valeant's background threat of a potential hostile takeover. Moreover, in the meanwhile, Allergan was fined by the SEC with a $15 million penalty for failing to disclose merger talks with Actavis. Negotiations continued and Actavis gradually increased the total amount of its consideration, while giving a higher stake in the form of stock consideration.

4.5 Final agreement

On November 14, 2014, Saunders called Pyott to propose an offer from Actavis, subject to negotiation of mutually satisfactory acquisition agreement and approval by both companies' board. Saunders proposed a combination of $129.22 in cash and 0.3683 of Actavis' share for each Allergan share. The implied value of the consideration, based on the Actavis' share price that day, was of $219 per share.

Actavis board met in Ireland on November 15, 2014 to review the terms and conditions of the transaction. Among others, JPMorgan representatives, Actavis senior management and rating agencies participated in the meetings. Actavis would maintain the investment grade credit rating upon completion of the transaction. They also reviewed the proposed bridge facility, the results of the due diligence and the potential timeline to closing as well as the communication plan. Finally, JPMorgan presented a financial analysis of the combined entity and concluded that the proposed merger consideration was fair from a financial point of view.

Allergan's board met on November 16 to review the terms and conditions. Among others, Goldman Sachs and Bank of America Merril Lynch representatives participated in the meetings to review the financial aspects of the final consideration. They discussed the reasonableness of the termination fees and the potential conflict of interests disclosed by Allergan's financial advisors. Finally, they elaborated a presentation expressing that the merger consideration was fair from a financial point of view.

After four months of tough negotiations, the night of November 16, 2014 the merger agreement was finally closed. On November 17, before the opening of US financial markets, a joint press note was released announcing the transaction.

5. Company valuation

In this chapter, we assess what was the fair value of Allergan Inc. for Actavis Plc at the time of the acquisition. The analysis includes different valuation methodologies:

- Market and research
- Standalone valuation
- Discounted cash flow
- Control valuation

5.1 Market and Research

Historical Trading Range

One approach to obtain the standalone valuation of a company is to consider market's view as reflected in the company's share price. Typically, analysists look for the unaffected price taking different prices before the day of the announcement: one day, one week and four weeks before the deal's announcement. However, since the market was already aware of a potential M&A operation almost 1 year beforehand (because of Valeant's prior bid), a longer time horizon is considered. For Allergan, historical trading quotes, as stated in JPMorgan broker report, were the following:

- Price 8 Oct 2014 (unaffected): $190.5
- 52 weeks - high: $190.72
- 52 weeks - low: $88.34

Brokers' Price Target

Allergan, as an important player in the sector, was covered by numerous research analysts. On 8th November 2014, JPMorgan published a buy-side survey concerning Allergan. JPMorgan conducted a buy-side survey from 2nd – 7th October 2014 of 171 investors, who followed the pharmaceutical industry. 19% of respondents agreed on a standalone valuation for Allergan of $160-$170 per share, while 70% stated a range between $150-$200 ($180 average).

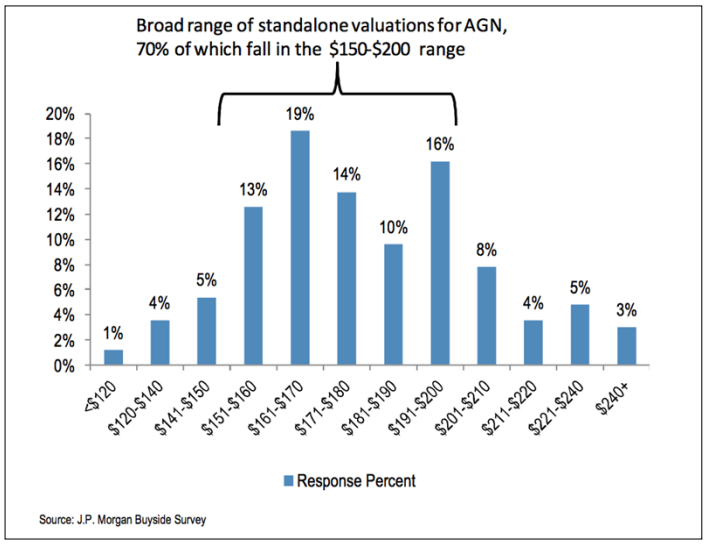

Figure 17: Range of standalone valuations for Allergan. (JPMorgan, 2014)

As for a potential acquisition price, responses pointed to a tighter range: 70% answered that a price in the range $190-$220 per share ($208 average) would be accepted.

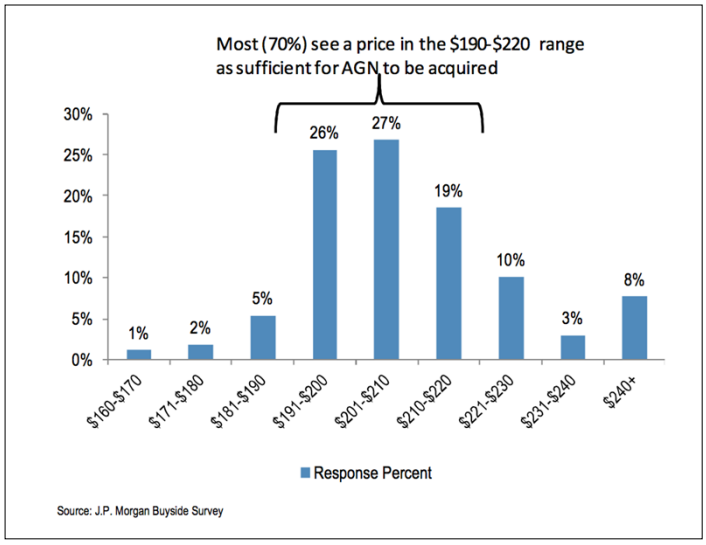

Figure 18: Price sufficient for Allergan to be acquired. (JPMorgan, 2014)

After the announcement of the deal, on 31st December 2014, JPMorgan published a broker report which set a target price of $210. In the DCF valuation, JPMorgan obtained an Allergan stock value of $200. It also claimed that Valeant's unsolicited offer had brought numerous potential strategic options for the future of Allergan. Therefore, the $10 gap between their DCF and the target price reflected the value-enhancing strategic options for Allergan to be acquired.

5.2 Standalone Valuation Methods

Trading multiples

Standalone valuation aims to assess the value of the target company in its present condition as an independent entity. Therefore, it does not consider any synergies for the buyer. It relies on actual Allergan's status quo.

Peer's analysis is a commonly used approach to obtain a standalone valuation of a company. This approach aims to value a company's share based upon how companies that are similar and comparable are currently priced in the market.

The first task is to design different peer groups. Companies within one peer group should belong to the same industry and have similar features (such as size, business lines etc.). Moreover, they must be publicly traded, so as for stock price information to be available. Allergan's peer group is defined as follows:

- **Industry:** Pharmaceutical and Biotechnologies companies
- **Geographies:** Multinational companies with sales distributed across different countries.
- **Segment:** *Traditional Pharma* and *Growth Pharma* companies.

The following table provides a summary of the key figures for the peer group. The source of the data is the RV ("Relative Valuation") tool of Bloomberg Terminal®. For the purposes of this analysis, we calculated implied enterprise values for each of the selected companies by multiplying its closing share price as of 14th November 2014 by the number of the company's fully diluted shares (using the treasury stock method) based on information contained in most recent public figures and added to the result the company's net debt.

When using multiples valuation, the main trade-off is that the more peers you use, the less variance you have, but the less similar are the companies.

					M (USD)					*USD*	
Name	**Country**	**Stock market**	**Currency**	**Nb of Shares (M)**	**Mkt Cap**	**Net Debt**	**EV**	**EBITDA TTM**	**EBITDA FY1**	**EPS TTM**	**EPS FY1**
Valeant Pharmaceuticals	CA	NYSE	USD	333	51504	17942	69446	1816	5003	0.9	12.9
Forest Laboratories Inc	US	NYSE	USD	273	26987	-323	26664	422	1798	1.3	3.6
Shire PLC	UK	LSE	GBP	302	25693	-1352	24342	1316	3858	3.2	5.9
UCB SA	BRU	XBRU	EUR	194	14566	2455	17021	624	1500	0.6	4.7
Actelion Ltd	CH	VTX	CHF	108	13071	-666	12404	588	870	4.5	7.4
Endo International PLC	US	NASDAQ	USD	152	10308	3268	13576	NA	1444	2.8	5.4
Cubist Pharmaceuticals LLC	US	NASDAQ	USD	76	5549	239	5788	70	252	1.3	1.5
Meda AB	SE	OTCPK	SEK	348	4875	1867	6741	502	934	0.4	0.9
Orion Oyj	FI	NASDAQ OMX	EUR	141	4819	53	4872	379	366	1.8	1.6
Ipsen SA	FR	EURONEXT	EUR	101	4244	-137	4106	294	458	1.7	3.1

Table 8: Allergan's peer group. (Bloomberg, 2014)

Source: Bloomberg and annual reports.
Date: 14th November 2014
TTM: Trailing twelve months
FY1: Fiscal Year 2015

Price to Earnings (P/E) Ratio

The price to earnings ratio is used to value a company by measuring its current share price relative to its earnings per-share.

Usually, a company showing a high P/E, relative to its peers, signifies that investors expect higher-than-peers' earnings growth in the near future. Consistently, a low P/E ratio could imply that a company might be currently undervalued or that the market believes it has no foreseeable growth opportunities.

As for the Earnings-per-share (EPS) value, two different ratios are computed based on: Trailing-twelve-months EPS (TTM EPS) and the EPS forecast one-year ahead (EPS FY1).

Below, one can find a summary with the different multiple values obtained for the peer group. The sub-group excludes those companies whose multiple is an outlier (too high/low) or whose multiple is meaningless (negative earnings).

Name	Share Price	TTM EPS	P/TTM E	EPS FY1	P/E FY1
Shire PLC	$ 85.1	$ 3.2	26.5x	$ 5.9	14.5x
Actelion Ltd	$ 121.0	$ 4.5	26.7x	$ 7.4	16.4x
Endo International PLC	$ 67.8	$ 2.8	24.5x	$ 5.4	12.7x
Cubist Pharmaceuticals LLC	$ 73.0	$ 1.3	55.1x	$ 1.5	49.4x
Meda AB	$ 14.0	$ 0.4	38.6x	$ 0.9	15.6x
Orion Oyj	$ 34.2	$ 1.8	18.8x	$ 1.6	21.0x
Ipsen SA	$ 42.0	$ 1.7	24.1x	$ 3.1	13.7x
Mean			30.6x		20.5x
Median			26.5x		15.6x

Table 9: Sub-group for P/E ratios. (Bloomberg, 2014)

When applying the peer's multiple to Allergan TTM EPS, one can obtain an estimation of Allergan's value per share. Hence, for a TTM EPS of $6.3 (from Bloomberg 17th November 2014), the implied value per share would be either $165.6 using the peer group Median P/E or $191.3 using the Mean P/E. Moreover, actual P/ TTM E ratio for Allergan is 47x which means that markets expect higher future growth for Allergan than for its peers.

Allergan Inc	
TTM EPS	$6.3
x Median P/E	26.5x
Value per share	$165.6

Allergan Inc	
TTM EPS	$6.3
x Mean P/E	30.6x
Value per share	$191.3

When applying the peer's multiple to Allergan EPS FY1, one can obtain an estimation of Allergan's value per share. Therefore, for an EPS FY1 of $8.7 (from Bloomberg 17th November 2014), the implied value per share would be either $135.8 using the peer group Median P/E or $177.9 using the Mean P/E. Additionally, actual P/EPS FY1 for Allergan is 24.4x. This figure deviates less from the Mean than Allergan's P/TTM E ratio. Therefore, the market expects a slowdown in the future growth for the following year.

Allergan Inc	
EPS FY1	$8.7
x Median P/E	15.6x
Value per share	$135.8

Allergan Inc	
EPS FY1	$8.7
x Mean P/E	20.5x
Value per share	$177.9

Finally, it is important to highlight the fact that P/E ratios in the pharmaceutical industry tend to be higher than market's average. Much of the industry's costs are R&D investments. Usually, these are expensed immediately impacting the EPS figure on that year. In other words, pharmaceutical companies incur the costs of developing new drugs before the drug itself starts to produce revenues. Hence, the market interprets that there are always future growth opportunities derived from current P&L figures.

Enterprise Value to EBITDA (EV/EBITDA) Ratio

The EV/EBITDA ratio is another ratio used to determine the value of a company. It considers the company's debt which is neglected by P/E ratios. Still it studies the company as a standalone entity, without considering a control premium or the synergies that the target might bring to the merged entity.

The EV/EBITDA ratio is particularly interesting for transnational comparisons, as it ignores the effect of different taxation policies except for a debt tax shield. Additionally, since EV includes equity and debt, it gives a better overview of the target than P/E ratios.

Below, one can find a summary with the different multiple values that have been obtained for the peer group. The sub-group excludes those companies whose multiple is an outlier (too high/low) or whose multiple is meaningless (negative earnings).

Name	EV (M)	TTM EBITDA	EV / TTM EBITDA	EBITDA FY1	EV / EBITDA FY
Valeant Pharmaceuticals	69446	1816	38.2x	5003	13.9x
Forest Laboratories Inc	26664	422	63.1x	1798	14.8x
Shire PLC	24342	1316	18.5x	3858	6.3x
UBC SA	17021	624	27.3x	1500	11.4x
Actelion Ltd	12404	588	21.1x	870	14.3x
Meda AB	6741	502	13.4x	934	7.2x
Orion Oyj	4872	379	12.9x	366	13.3x
Ipsen SA	4106	294	14.0x	458	9.0x
Mean			26.1x		11.3x
Median			19.8x		12.3x

Table 10: Sub-group for EV/EBITDA ratios. (Bloomberg, 2014)

Applying these multiples to Allergan's TTM EBITDA (from Bloomberg 17th November 2014) gives an estimation of the company's enterprise value. Hence, for an EBITDA of $2064M the implied value per share would be either $130.3 using the Median EV/EBITDA or $173.7 using the Mean EV/EBITDA. Actavis pays a higher EV/EBITDA multiple because it expects to compensate this fact with synergies. Additionally, the actual EV/EBITDA for Allergan of 29.5x means that the company could be slightly overvalued in comparison with its peers.

Allergan Inc	
TTM EBITDA (M USD)	2064
x Median EV/EBITDA	19.8x
Implied EV	40881
- Net Debt	-2041
Implied Equity Value	38840
/ Number of shares	298
Value per share	$130.3

Allergan Inc	
TTM EBITDA (M USD)	2064
x Mean EV/EBITDA	26.1x
Implied EV	53798
- Net Debt	-2041
Implied Equity Value	51757
/ Number of shares	298
Value per share	$173.7

When applying the peer's multiple to Allergan EBITDA FY1, one can obtain an estimation of Allergan's value per share. Therefore, for an EBITDA FY1 of $3483 (from Bloomberg 17th November 2014), the implied value per share would be either $137.3 using the peer group Median EV/EBITDA or $124.8 using the Mean EV/EBITDA. The fact that Actavis pays a higher-than-peers' multiple means that it expects higher earnings growth for Allergan than for its peer group. Moreover, the EV/EBITDA FY1 for Allergan of 16.1x means that the company still is slightly overvalued.

Allergan Inc	
EBITDA FY1	3483
x Median EV/EBITDA	12.33x
Implied EV	42945
- Net Debt	-2041
Implied Equity Value	40904
/ Number of shares	298
Value per share	$137.3

Allergan Inc	
EBITDA FY1	3483
x Mean EV/EBITDA	11.26x
Implied EV	39232
- Net Debt	-2041
Implied Equity Value	37191
/ Number of shares	298
Value per share	$124.8

Different Ratios' Pros and Cons

Price to earnings pros

The multiple is easy to understand and to compute. Moreover, since amortisation impacts net income, it accounts for differences in the capital intensity among companies. Finally, it focuses on the post-tax line of the P&L and hence, it accounts for differences between tax rates.

Price to earnings cons

Some of the multiples are computed by using EPS forecasts. These forecasts are made by equity research analysts, which may adjust their computations in different ways. For instance, the categorisation of items according to whether they are non-recurrent or core business leaves room for discretion. Therefore, using the average of different market consensus might pollute results, undermining the accuracy of the multiple. Additionally, this problem arises for every single company multiplying exponentially the concern.

Another issue with EPS is the number of shares outstanding. For instance, a company performing a shares' buyback program decreases its number of shares outstanding, hence increasing its EPS. Consequently, the growth in EPS might not be accompanied by an improvement in performance. This might thus be misinterpreted by the market and affect P/E ratio values.

Enterprise value to EBITDA pros

Since EBITDA comes before depreciation and amortisation, it is not biased by the depreciation policy of a firm allowing a better comparability across companies. Moreover, EBITDA is considered to be a better proxy of cash flow generation than profit. Furthermore, it is easy to correct for non-core assets or one-off events than the net income since the EBITDA comes before in the P&L.

Enterprise value to EBITDA cons

There is no single definition for Enterprise Value since there are many items that might be considered sometimes as "debt-like" or "asset-like" but the criteria are not always consistent. Moreover, it requires harder computations than the PE ratio and it does not consider the tax-differences between companies. For some companies, it might not be useful since it does not account for the capital intensity of the business as Depreciation & Amortisation is not reflected.

5.3 Discounted Cash-Flow Analysis (DCF)

Another valuation methodology is the Discounted Cash-Flow analysis. It aims to assess the intrinsic Enterprise Value of a company based on its ability to generate Free Cash Flows. These cash flows are discounted at a rate accounting for the riskiness of the cash flows. There are two cases, one values Allergan as a standalone company and the other includes synergies expected for Actavis. Both cases are equal except for the synergy module.

Cost of Capital

The cost of capital is defined as the "opportunity cost of all capital invested in the company". It is a key element of the DCF analysis because it is the rate used to discount all the future cash flows:

$$\textbf{Weighted average cost of capital} = \frac{ND}{E + ND} * (1 - \textbf{Tax rate}) * Kd + \frac{E}{E + ND} * Ke$$

To compute the weighted average cost of capital (WACC), the following methodology is used:

1. Compute the amount of equity and debt the company uses in its capital structure. To do so, the market value of the equity and the book value of the net debt are used:

    a. Equity value

    $$Market\ capitalisation = Diluted\ shares\ outstanding * share\ price$$

    The number of shares at the deal announcement date was 300,238,000 and the unaffected share price of October 2014 is $190.5.

    Therefore, the **market capitalisation is $57,195,339,000 (E).**

    b. Net debt value

    From the annual report of Allergan 2014, the **total financial debt** accounts for **$2,157,400,000.** Allergan's Cash and cash equivalent position is $4,911,400,000. Therefore, Net Debt is computed as Debt minus Cash and cash equivalent, it is **$-2,754,000,000 (ND)**.

2. Compute the cost of each kind of source of capital the company uses: equity and debt in this case.
    a. *Cost of equity*. Equity shareholders face an opportunity cost of investing in a specific company instead of using the same capital for a different project. Typically, CAPM (Capital Asset Pricing Model) is used to compute the cost of equity.

$$\textbf{Cost of equity = risk free + } \beta \textbf{ * market risk premium}$$

In this case, since Allergan is an American company, the "risk free" can be assumed to be equal to the US treasury long-term rate posted on the announcement date which is 2.21%.
Unlevered β_U is taken from Damodaran Database which computes it for the Pharmaceutical industry 2014. Levered β_L is computed considering Allergan's capital structure with the following formula:

$$\beta_L = B_U * (1 + (1 - Tax\ rate) * \frac{\text{Net Debt}}{\text{Equity}})$$

$$\beta_L = 0.91 * (1 + (1 - 0.26) * (-0.05)) = 0.88$$

The market risk premium obtained from historical data is 4.24%.

Therefore, the **cost of equity is 5.93% (Ke) = 2.21% + 0.88*4.24%**.

    b. *Cost of debt*. Analysts assume the cost of debt equal to the implied interest rate derived from the P&L's interest expenses and the company's debt in the Balance Sheet. This is later adjusted by the tax rate, to account for the tax-deductibility benefit of interest expenses.

Moody's rating for Allergan's debt was A3 which is quite strong and reflects the company's strong niche market position. Allergan provides its **cost of debt pre-tax** in their 10-k SEC filling which is **3.49% (Kd).**

3. Finally, components are weighted as the formula below shows. To adjust the post-tax cost of debt, a tax rate of **26%** is considered which is consistent with Allergan's annual report data.

$$\textbf{WACC} = \frac{\textbf{ND}}{\textbf{E + ND}} * (\textbf{1 - Tax rate}) * \textbf{Kd} + \frac{\textbf{E}}{\textbf{E + ND}} * \textbf{Ke} = \textbf{5.36\%}$$

Stand-alone DCF

Free Cash Flows

After-tax free cash flow is defined as the after-tax cash flow that would be generated by operating assets if the company had no debt and cash. It is computed as follows:

Free Cash Flow = EBIT * (1 - Tax rate) + De preciation - Change in working capital - Capital expenditures

So as for the Free Cash Flows input, this research paper is based on JPMorgan estimates presented in its Oct'14 Broker report. The report includes estimates for the next five fiscal years: 2014E, 2015E, 2016E, 2017E and 2018E (expected).

FORECASTS	Business Plan				
($ million)	**2014 E**	**2015 E**	**2016 E**	**2017 E**	**2018 E**
EBIT (1-t)	1642	2373	2844	3012	3163
D&A	262	276	286	315	330
CAPEX	196	200	200	200	200
Change in net working capital	-307	-75	5	25	50
FCF	2015	2524	2925	3102	3243
PV FCF	1913	2274	2501	2517	2498

Table 11: Stand-alone DCF output. (JPMorgan, 2014)

Since it considers year-end figures, the discount factor for year n is:

$$DF_n = \frac{1}{(1 + \text{WACC})^n}$$

DF1 = 0.95 DF2 = 0.9 DF3 = 0.86 DF4 = 0.81 DF5 = 0.77

Terminal Value

The Terminal value of the DCF computation allows to reflect returns that will occur so far in the future that they are nearly impossible to forecast on a per-item basis. There are two different approaches to compute terminal value: either based on the capital employed or based on the last-period free cash flow of the forecast period. The first method is commonly used in industries such as mining where analysts estimate a liquidation value by adding the residual value of land, buildings, equipment less the cost of restoring the place. However, since Allergan is not expected to be liquidated in the long run, the latter option, based on Terminal Value is used.

The normalised free cash flow is computed by multiplying the 2018E free cash flow by one plus the long-term growth rate selected for Allergan. To compute the terminal value, a perpetuity is assumed over this normalised free cash flow and then it is discounted to present value. The growth rate suggested by JPMorgan for the company's main competitors falls between -1% and 0% given the mature franchises.

$$FCF_{\text{Normative}} = FCF_{2018E} * (1 + g) = 3243 * (1 + 0\%) = 3243\text{M USD}$$

The analysis below assumes a 0% growth rate for Allergan aiming to obtain a conservative result. Still, we also run a sensitivity analysis to different growth and WACC rate.

$$TV = \frac{FCF_{\text{Normative}}}{(\text{WACC} - g)} = \frac{3243}{(5.36\% - 0\%)} = 60492.8 \text{ M USD}$$

With the considerations detailed above, the present value (TV * DF5) of the **TV is 46590.6 M USD**. All figures except share price (USD) and Nb of shares (Million) are in Million USD.

Summary		
EV = PV FCFs + PV TV		58292.6
Net Debt		-2754.0
Equity Value		61046.6
Nb of shares		300.2
Share price	$	203.3

Additionally, the output of the DCF model yields a standalone value per share of **$203.3** for Allergan.

Sensitivity Analysis

One of the main concerns on a DCF valuation is that it heavily relies on assumptions over two parameters: the perpetual growth rate and the weighted-average cost of capital. Hence, it is important to carry out a sensitivity analysis. When running it over Allergan's valuation, the share price ranges between [$180.2 – $234].

Share price sensitivity		WACC					
		4.9%	*5.4%*	*5.9%*	*6.4%*	*6.9%*	*7.4%*
Growth	*-0.5%*	$ 206.9	$ 189.4	$ 174.7	$ 162.1	$ 151.3	$ 141.8
	-0.3%	$ 215.0	$ 196.0	$ 180.2	$ 166.8	$ 155.2	$ 145.2
	0.0%	$ 224.0	**$ 203.3**	$ 186.2	$ 171.8	$ 159.5	$ 148.8
	0.3%	$ 234.0	$ 211.3	$ 192.7	$ 177.2	$ 164.0	$ 152.7
	0.5%	$ 245.1	$ 220.1	$ 199.9	$ 183.1	$ 168.9	$ 156.9
	0.8%	$ 257.5	$ 229.9	$ 207.7	$ 189.5	$ 174.3	$ 161.3

Table 12: Stand-alone DCF sensitivity analysis

Synergies DCF

The methodology for the DCF with synergies is equal to that of the standalone version.

Free Cash Flows

Free cash flows are computed as the standalone free cash flows plus synergies expected on due time. Operating and Tax synergies estimation comes from a JPMorgan broker report. As discussed before, Allergan benefits from Actavis's Tax Regime. Therefore, Tax Synergies account for 70% of total synergies in the long-term. Operating Synergies represent the fact that Allergan can leverage Actavis' scale and scope.

FORECASTS	Business Plan				
($ million)	**2014 E**	**2015 E**	**2016 E**	**2017 E**	**2018 E**
Operating Synergies	0	800	1150	1400	200
Tax Synergies	0	497	445	509	534

Table 13:Expected synergies. (JPMorgan, 2014)

FORECASTS	Business Plan				
($ million)	**2014 E**	**2015 E**	**2016 E**	**2017 E**	**2018 E**
EBIT (1-t)	1642	3333	4024	4206	3350
D&A	262	276	286	292	295
CAPEX	196	200	200	200	200
Change in net working capital	-307	-75	5	25	50
FCF	2015	3484	4105	4273	3394

Table 14:Synergies DCF output. (JPMorgan, 2014)

Terminal Value

The new Terminal Value uses new Free Cash Flows with synergies. All the rest being equal, FCF normative is:

$$FCF_{\text{Normative}} = FCF_{2018E} * (1 + g) = 3394 * (1 + 0\%) = 3394\text{M USD}$$

$$\text{TV} = \frac{FCF_{\text{Normative}}}{(\text{WACC} - \text{g})} = \frac{3394}{(5.36\% - 0\%)} = 63308.9\ \text{M USD}$$

With the considerations detailed above, the present value (TV * DF5) of the **TV is 48759.5 M USD**. All figures except share price (USD) and Nb of shares (Million) are in Million USD.

Summary		
EV = PV FCFs + PV TV		63401.5
Net Debt		-2754.0
Equity Value		66155.5
Nb of shares		300.2
Share price	$	220.3

Additionally, the output of the DCF model yields a standalone value per share of **$220.3** for Allergan.

Sensitivity Analysis

One of the main concerns on a DCF valuation is that it heavily relies on assumptions over two parameters: the perpetual growth rate and the weighted-average cost of capital. Therefore, it is relevant to carry out a sensitivity analysis. When running it over Allergan's valuation, the share price ranges between [$196 – $252.5].

Share price sensitivity		WACC					
		4.9%	*5.4%*	*5.9%*	*6.4%*	*6.9%*	*7.4%*
Growth	*-0.5%*	$ 224.2	$ 205.7	$ 190.2	$ 177.0	$ 165.5	$ 155.5
	-0.3%	$ 232.7	$ 212.7	$ 196.0	$ 181.8	$ 169.6	$ 159.0
	0.0%	$ 242.1	**$ 220.3**	$ 202.3	$ 187.1	$ 174.1	$ 162.8
	0.3%	$ 252.5	$ 228.7	$ 209.1	$ 192.8	$ 178.9	$ 166.9
	0.5%	$ 264.1	$ 237.9	$ 216.6	$ 198.9	$ 184.0	$ 171.3
	0.8%	$ 277.2	$ 248.2	$ 224.8	$ 205.6	$ 189.6	$ 176.0

Table 15: Synergies DCF sensitivity analysis

5.4 Control Valuation Methodologies

Control Valuation Methodologies take into account the "Control Premium". The Transaction Multiples Methodology compares multiples paid in comparable precedent transactions, in our case those selected by JPMorgan and Bank of America (BOFA). Comparability is assessed in the following way: first, companies are chosen based on similar financial and operational characteristics, including belonging to the pharmaceutical industry. Second, the size of the transactions should be similar to that of Actavis & Allergan. Third, the type of transaction and characteristics of the buyer also should be comparable. Fourth, those transactions which occurred recently tend to be more meaningful.

Transactions Multiples

Announcement Date	Target	Acquiror	Transaction Value (Million USD)	EBITDA (Million USD)	TV/EBITDA
August 24, 2014	InterMune Inc.	Roche Holdings Inc.	8300	-207.5	NA
February 18, 2014	Forest Laboratories, Inc.	Actavis	25000	418.3	59.8x
August 26, 2013	OnyxPharmaceuticals, Inc.	Amgen Inc.	10400	-141	NA
May 27, 2013	Bausch & Lomb Incorporated	Valeant	8700	720	12.1x
September 3, 2012	Medicis Pharmaceutical Corporation	Valeant	2600	200	13.0x
May 2, 2011	Cephalon, Inc.	Teva Pharmaceutical Industries Ltd.	6800	721	9.4x
February 16, 2011	Genzyme Corporation	Sanofi-Aventis	20100	1100	18.3x
January 3, 2010	Alcon, Inc.	Novartis AG	12900	680	19.0x
March 12, 2009	Genentech, Inc.	Roche Holdings, Inc.	46800	3250	14.4x
October 16, 2008	ImClone Systems Incorporated	Eli Lilly and Company	6500	200	32.5x
April 10, 2008	MillenniumPharmaceuticals,Inc.	TakedaAmericaHoldings,Inc.	8800	64	137.5x
April 23, 2007	MedImmune, Inc.	AstraZeneca PLC	15200	-144	NA
March 11, 2007	Organon BioSciences N.V.	Schering-Plough Corp.	14400	860	16.7x
				Mean	33.3x
				Median	17.5x

Table 16: Precedent transactions selected by JPMorgan and BOFA. (Bloomberg, 2014)

Note: TV: Transaction Value paid by the acquirer in Million USD
EBITDA from Annual Report of targets for acquisition's year in Million USD.

The median transaction TV/EBITDA is 17.5x. Using the TTM EBITDA at announcement provided by Bloomberg, it implies an **Allergan' share price of $129.6.** On the other hand, the mean multiple value is 33.3x, implying an **Allergan' share price of $237.9.**

Allergan Inc	
TTM EBITDA	2064
x Median TV/EBITDA	17.5x
Implied TV	36137
- Net Debt	-2754
Implied Equity Value	38891
/Number of shares	300.2
Value per share	$129.6

Allergan Inc	
TTM EBITDA	2064
x Mean TV/EBITDA	33.3x
Implied TV	68663
- Net Debt	-2754
Implied Equity Value	71417
/Number of shares	300.2
Value per share	$237.9

Conclusions

A football field is typically used to show the results of different valuation methodologies at once. EV/EBITDA and P/E multiple's results suggest a valuation in the low-range of the football field, partially explained because they do not account for the expected synergies and the control premium. DCF Standalone seems to indicate that Allergan might be more valuable than its peers, as its result stands above the standalone multiple valuation. When taking into account synergies, DCF yields a valuation in the high-range of the football field. Finally, Precedent transactions' multiple shows a wide-range, with no clear trend to be noted.

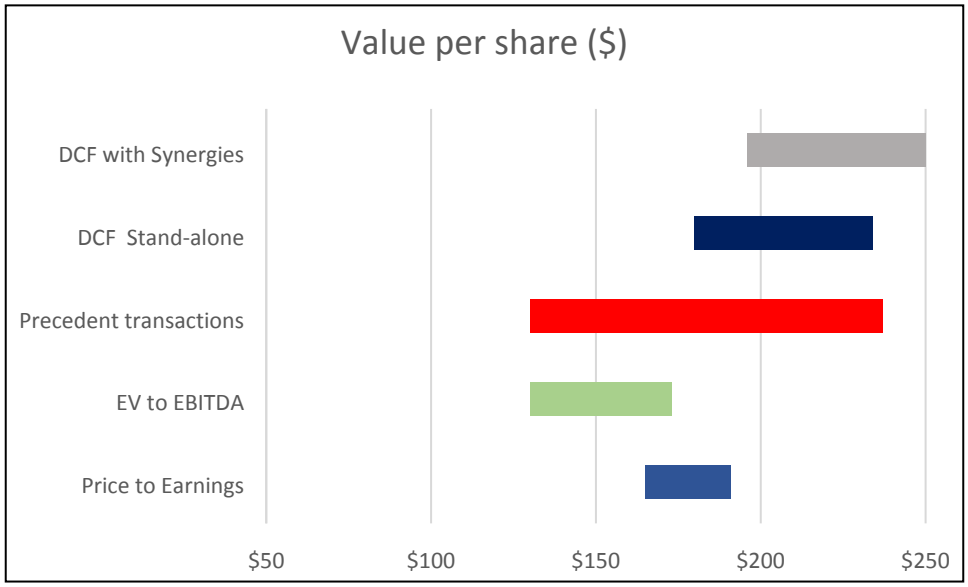

Figure 19: Allergan's football field

On the 14th of November, the two parties agreed on the deal terms which implied, by that time, a consideration of $219 (cash: $129 and 0.3683 Actavis shares) per each of Allergan's shares. A bridge financing was provided by JPMorgan, Mizuho and Wells Fargo to support the total transaction value. Moreover, the deal financing consisted of a combination of existing cash, new debt, new equity and equity-linked securities (Actavis, 2014):

- $27.5 billion of new debt issued
- $28 billion of new equity issued to Allergan shareholders
- $9 billion of new equity and mandatory convertible preferred issued to the market
- Upsized existing revolver to $1 billion

Regarding new capital structure, key figures are:

- $45 billion total debt
- 420 million fully diluted shares
- 15% effective tax rate for the merged entity

Actavis expected a strong cash flow generation for the merged entity and this would help to de-leverage the balance sheet in the future. Particularly, the leverage is expected to be below 3.5x within 12 months.

Based on the discussed analysis, the final deal price belonged to the high-range. The question naturally falling next is: Did Actavis overpay for Allergan's shares, as the numbers above seem to suggest?

As a starting point for the discussion, one must note that the fact that Actavis paid beyond the amount suggested by the valuation analysis does not necessarily imply that it overpaid.

On one hand, the circumstances surrounding the deal negotiation process significantly affected the deal final price. In the case of Actavis-Allergan's merger, one of the particularities was Valeant's hostile takeover running in parallel. Because of Actavis' determination to close the deal, the company needed to come up with an offer such that Valeant and Pershing Square could not exceed. Allergan's management also seemed to push Actavis to play the winner's course (effect which tends to make the winner overpay in an auction) as they did not want Valeant to succeed. Moreover, Actavis had significant strategic interest in Allergan. Organic growth was difficult to achieve given the big challenges the industry was facing in 2014. Hence, Actavis' management preferred to opt for inorganic growth through a M&A operation. Among the big players, Allergan seemed the best fit for Actavis, it complemented Actavis' successful generic franchise with Allergan's patented blockbusters (i.e., BOTOX®). All these reasons seem to support the idea that Actavis had room to increase the offer price beyond what the valuation numbers showed, while still ensuring value creation to its shareholders.

On the other hand, one can also find literature suggesting that M&A overpayment exists and is particularly large for mega-deals and contested deals. A BCG report holds that mega-deals destroy nearly twice as much value relative to smaller transactions (The Boston Consulting Group, 2007). Moreover, it also seems to be the case that over-confident management, management who overestimates their ability to realise synergies, tend to bid for larger targets (Roll, 1986; Hayward and Habrick, 1997; Malmendier and Tate, 2008). Finally, according to Harford and Li (2007), CEOs might support larger deals disregarding the price paid because they generally provide high private benefits for the management. (G. Alexandridis, 2011)

6. What happened?

6.1 EPS analysis based on post-merger figures

The present analysis aims to assess whether the merger was effectively accretive by looking at pre and post-merger EPS figures. The section compares two different time periods. The first period, from 2010 to 2014, looks at the standalone EPS of Actavis and Allergan. The second period corresponds to 2015 and 2016 and considers the combined entity's EPS.

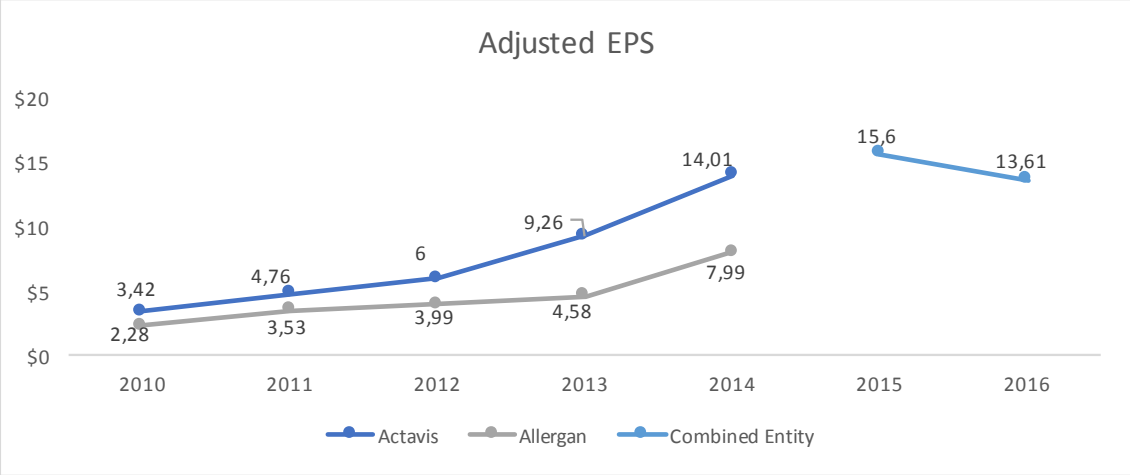

Figure 20: Adjusted EPS for Actavis, Allergan and the Combined Entity

Actavis had a higher EPS than Allergan consistently from 2010 to 2014. The difference between both metrics actually increased overtime.

Regarding the second period, from 2015 to 2016, the combined entity EPS experienced a downward trend. Even though the deal was EPS accretive in its first year, it was not in the following. At first glance, it seems counterintuitive for a deal to be accretive at first and then dilutive. However, there was an external reason that pushed EPS on the merger first year: the company sold one part of its generic business to Teva for $15 Billion after tax.

Moreover, when comparing the figures with the ones on JPMorgan's report, the results seem quite disappointing for Actavis' shareholders. Estimations for 2016 assumed 11% EPS accretion for Actavis shareholders and, as noted above, the combined entity did not manage to deliver that EPS as Figure 21 shows.

Accretion	2016 E	2017 E
ACT EPS	$ 18.39	$ 20.37
New Co EPS	$ 20.49	23.7
Accretion	$ 2.10	$ 3.35
% above ACT standalone	11%	16%

Figure 21: Accretion/Dilution analysis. (JPMorgan, 2014)

6.2 Post-merger Peer Analysis

This subsection will cover the comparison of the post-merger evolution of Allergan PLC (the merged entity name) and its peers, both in terms of share price and multiple comparable evolution.

Allergan's performance is compared to three different peer groups, each one of them accounting for the there different R&D models outlined in chapter 7.1, which are based on Allergan's mapping of the industry (Allergan PLC, 2015): group A (Traditional), group B (Open Science) and group C (Low-Cost).

Group A: Traditional		
Peer	**Headquarters**	**Logo**
GlaxoSmithKline PLC	Brentford, London, United Kingdom	
Merck & Co., Inc.	Kenilworth, New Jersey, United States	
Novartis AG	Basel, Switzerland	
Pfizer Inc.	New York City, United States	
Roche Holding AG	Basel, Switzerland	
Sanofi	Gentilly, France	

Table 17: Peer group A (Traditional)

Group B: Open Science		
Peer	**Headquarters**	**Logo**
Biogen Inc.	Cambridge, Massachusetts, United States	
Celgene Corp.	Summit, New Jersey, United States	
Shire PLC	Dublin, Ireland	

Table 18: Peer group B (Open Science)

Group C: Low-Cost		
Peer	**Headquarters**	**Logo**
Endo International PLC	Dublin, Ireland	
Mallinckrodt PLC	Surrey, United Kingdom	

Mylan N.V.	Canonsburg, Pennsylvania, United States	Mylan
Teva	Petah Tikva, Israel	TEVA PHARMACEUTICAL INDUSTRIES LTD.
Valeant Pharmaceuticals Inc.	Laval, Quebec, Canada	VALEANT

Table 19: Peer group C (Low-cost)

Share prices vary widely from company to company. Hence, the right approach to enable comparability among peers is to analyse the relative change in share price (% change) with respect to the same start date. The chosen reference or start date selected is 20th March 2015, the day after Allergan and Actavis merger concluded.

Peer Group A (Traditional) - Share Price Evolution

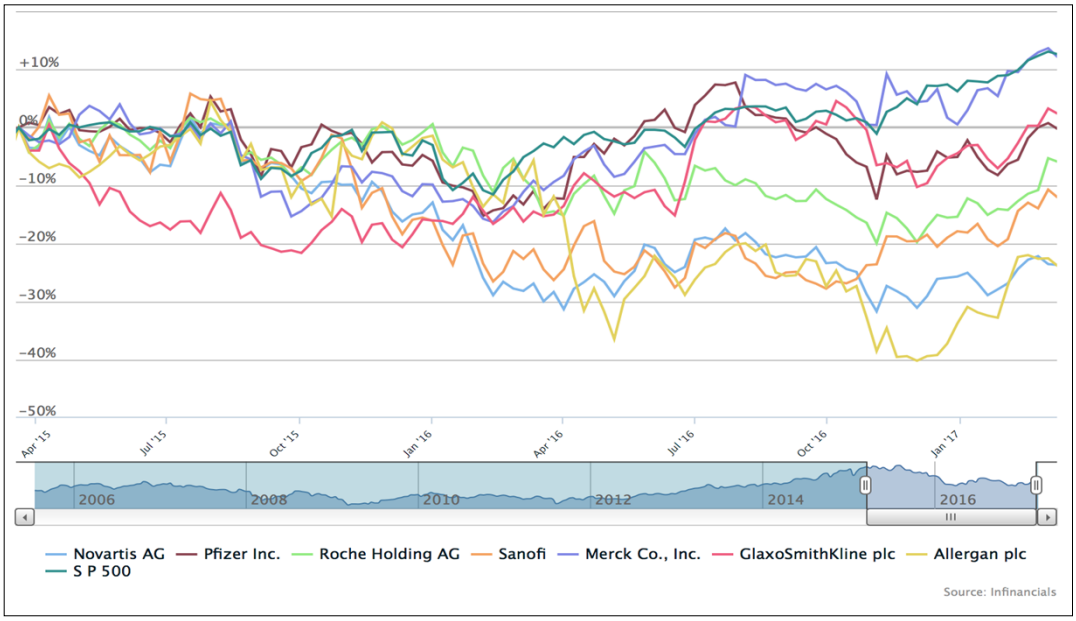

Figure 22: Peer group A - Share price evolution

Figure 27 shows how Allergan had seen its share price increase over 1200% in less than 8 years (2007-14), outperforming growth figures for the Top 10 Big Pharma Companies (all of them belonging to the Traditional Group, except for Teva). This exponential growth, propelled by Actavis continuous M&A policy, enabled the company to qualify for this top-notch group by 2015, after Actavis-Allergan merger had been concluded.

However, Allergan's post-merger performance relative to its peer shows a picture considerably different to that of the pre-merger period. On the first-year post-merger, Allergan's performance remained paired to that of the overall group, which experimented a share price fall between a 10 to 20%. After this first year, Allergan's share price continues to fall heavily and beyond that of the average of the group. As of today, Allergan's share price has decreased 20% on the whole period.

Peer Group B (Open Science) - Share Price Evolution

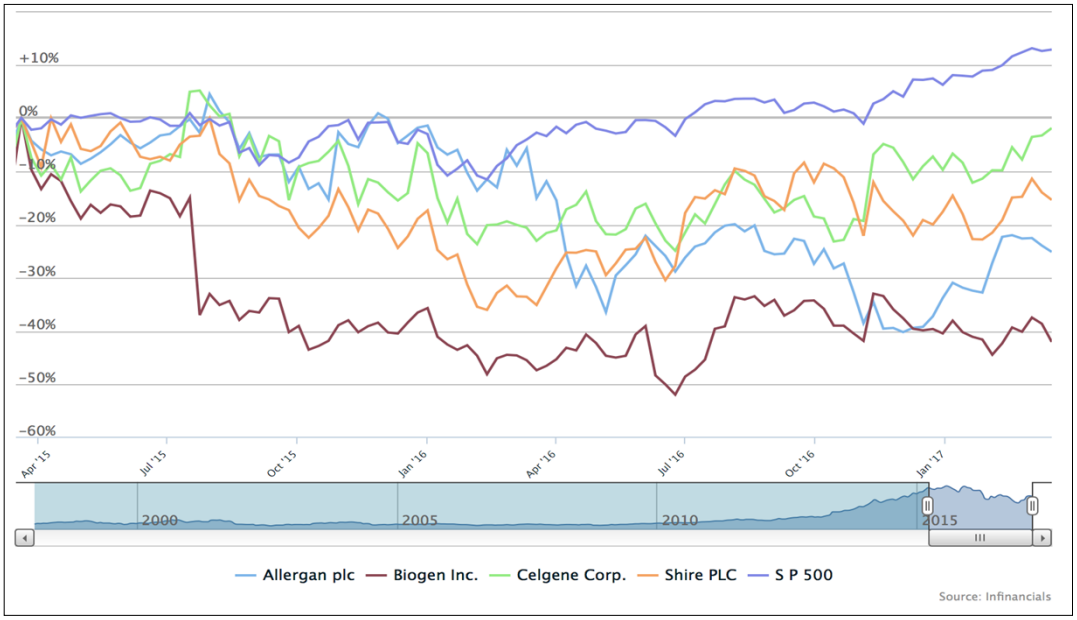

Figure 23: Peer group B - Share price evolution

Peer Group B is composed of Biogen Inc., Shire PLC and Celgene Corp., companies which are considered to have a comparable business model to that of Allergan, the so called "Open Science" R&D approach. Within this group, one observes larger disparity and overall worst performance compared to that of Group A (Traditional Pharma). Celgene Corp. is the best performer in the group followed by Shire PLC, Allergan and finally, Biogen Inc.

Peer Group C (Low-Cost) - Share Price Evolution

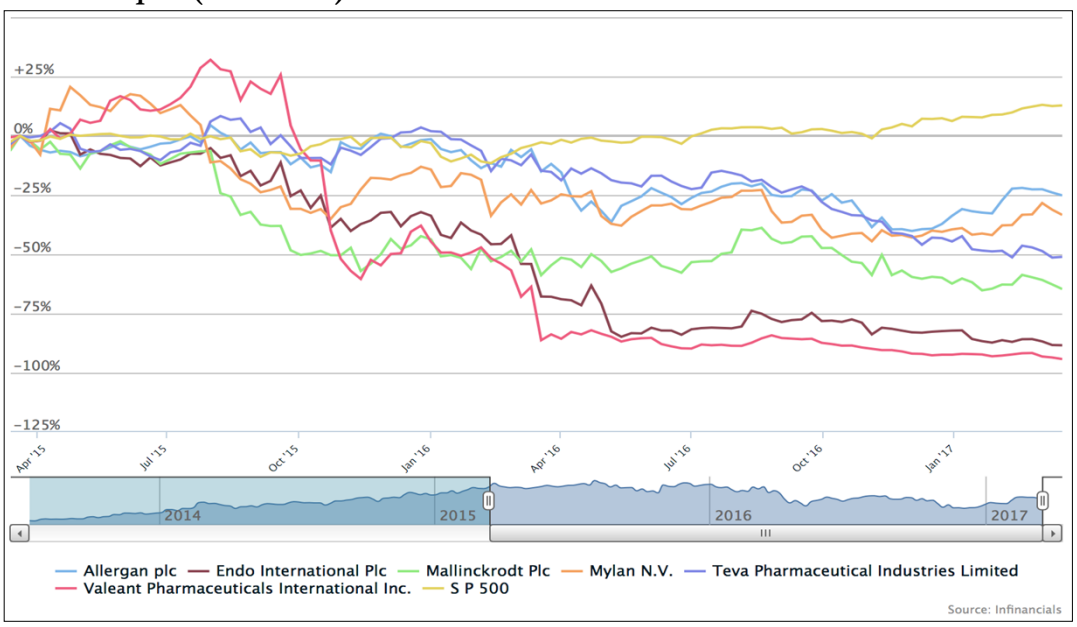

Figure 24: Peer group C - Share price evolution

Peer Group C corresponds to the "Low-Cost" players within the Pharmaceutical industry. According to Allergan's classification, this group is composed by those companies which invest a very low percentage of their Sales in R&D and mainly source their pipeline externally through acquisitions. Looking at share price evolution, one can conclude that this group has been the one mostly hit by market expectations in the past two years. Among the worst performers: Valeant and Endo, which have seen their share price decrease more than 80% over the past two years. Within the group, Allergan is the one showing better performance with an accumulated 25% decrease in value.

Section III: Deep dive into Growth Pharma

7. Growth pharma vs traditional pharma

7.1 1990s to 2000s: The emergence of a new R&D Approach: Growth Pharma

On its article "Why pharma megamergers work", McKinsey classifies megamerger deals into two broad types: *Consolidation* and *Growth-oriented* deals.

As explained in the article, throughout the mid to late 1990s, consolidation deals were the most popular. They involved the consolidation of existing players which owned businesses with significant overlaps. In this way, the deals aimed to create meaningful economic profit for acquirers through both accelerated revenue growth and cost synergies (e.g. reduction on overhead costs, COGS improvement, R&D rationalization and consolidation etc.). Pfizer's acquisition of Warner-Lambert or Roche's acquisition of Genentech stand as an example of these type of consolidation deals.

On the other side, as of 2000, growth-oriented megamergers started to become more common. These deals were aimed to become a growth platform for the acquiring company by expanding drug pipelines, or enabling an entry into new geographies or new markets. Contrary to Consolidation deals, most of the economic benefit of growth deals came from trading-multiple expansion, rather than changes in fundamental operating performance due to the lack of business overlap.

Building on these M&A trend, a new Pharma Business Model emerged called *Growth Pharma. Growth Pharma* diverged from existing Traditional Pharma companies in their R&D business model.

Traditional Pharma companies (such as Pfizer, Novartis or Roche) continued to bet on R&D expenditure and in-house innovation as its main engine to foster growth. Hence, they were relying on M&A activity to a much lesser extent targeting companies for specific strategic purposes.

On the other hand, *Growth Pharma* companies grew their drug pipeline inorganically by means of continuous acquisitions. To some extent, their approach seemed closer to that of a Deal-making company specialized in the Pharmaceutical industry rather than that of a Pharmaceutical company. Valeant or Allergan are two of the most well-known exponents of the *Growth Pharma* model. Despite both being highly M&A-intensive and relatively adverse to R&D, they still show differences in the intensity of their approach. Whereas Valeant opted for a more aggressive model cutting costs to the absolute bone, Allergan maintained R&D expenditure to fuel a certain level of organic growth capabilities (Bloomberg, 2016).

All in all, this new R&D disruptive strategies led to a new mapping of the pharmaceutical industry. At an Investor Press event (Allergan PLC, 2015), Allergan illustrated their view of the market with the following market map. As discussed above, "Open Science" and "Low Cost" models would belong to the two different approaches take by *Growth-Pharma* companies.

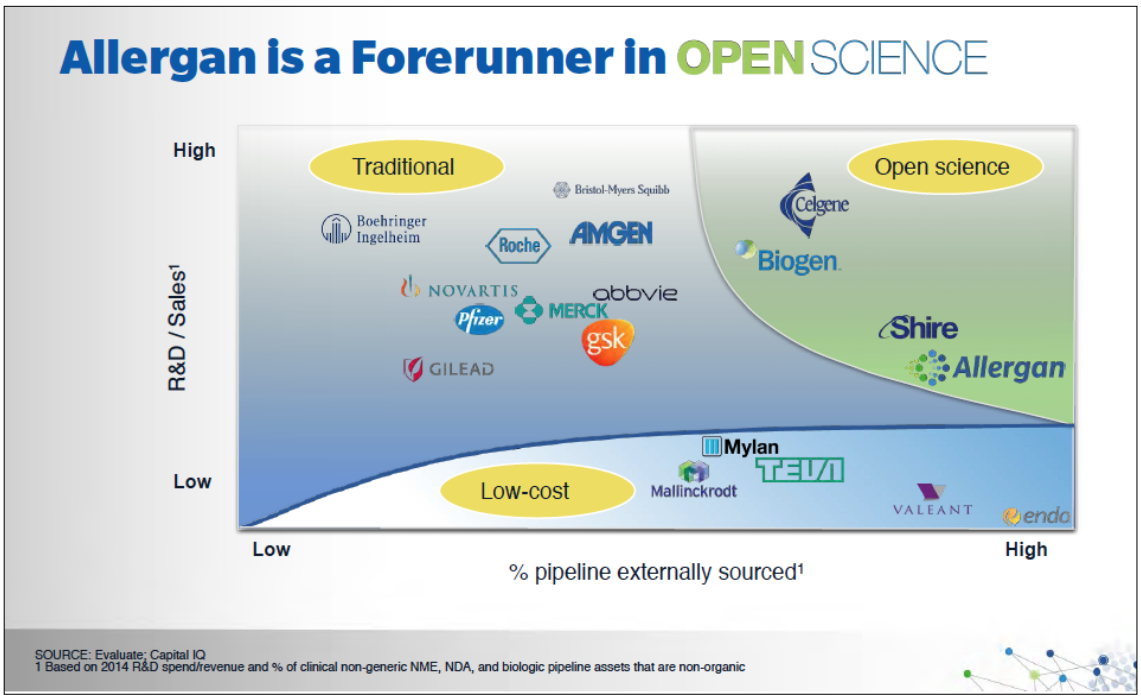

Figure 25: Pharmaceutical companies' classification according to R&D sales and % externalised pipeline (Allergan PLC, 2015)

7.2 2000s till 2015: Market's enthusiasm with Growth Pharma

Throughout the 2000 and 2010s, the overall market reaction on *Growth Pharma* firms was initially extremely positive. Allergan and Valeant, both exponents of the *Growth Pharma* model, saw their stock price increase more than 800% in less than eight years. When compared to the performance of the Top 10 Big Pharma companies (all of them positioned as Traditional Pharma companies, except for Teva), these results seem even more striking. Over the same period, all Top 10 Big Pharma companies experienced an overall share price increase below 100%.

Allergan and Valeant vs. Top 10 Big Pharma, development of share price (Jan 2007=100)

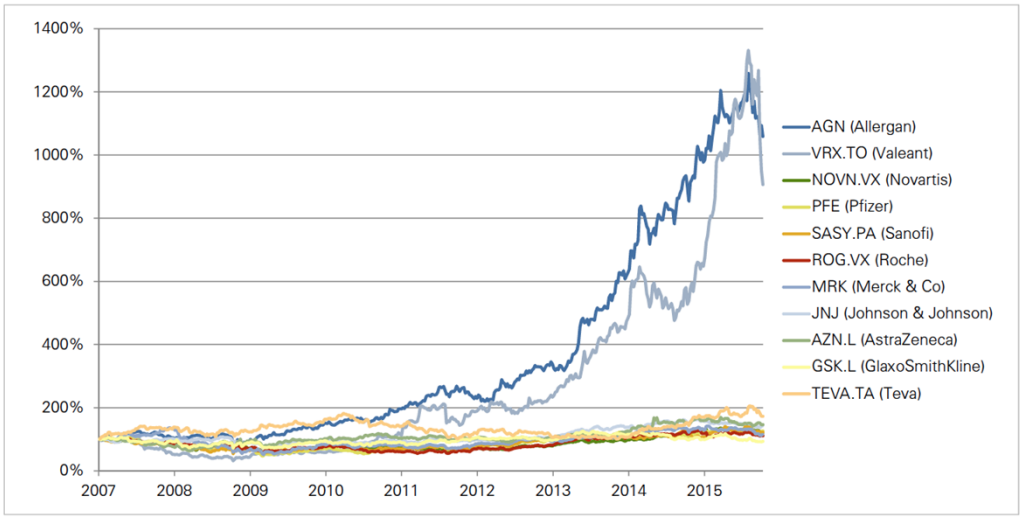

Figure 26: Allergan and Valeant vs. Top 10 pharmaceutical companies - Share price evolution (Kurmann Partners, 2015)

It seemed like *Growth Pharma* players were managing to deliver substantial shareholder return solely through "serial M&A" (Kurmann Partners, 2015).

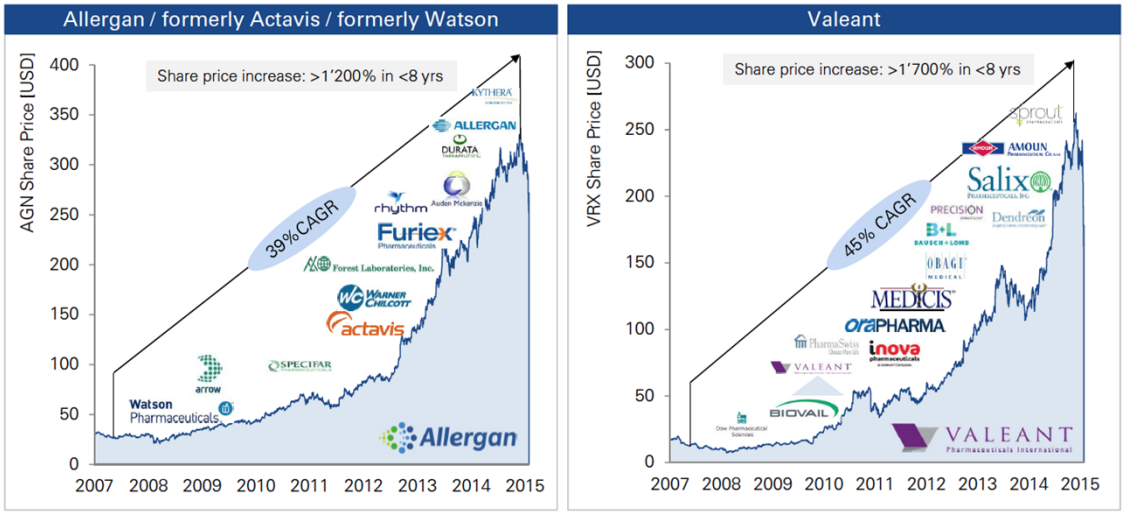

Figure 27: Allergan-Actavis vs Valeant - Share price evolution (Kurmann Partners, 2015)

7.3 2015 till today: Raising concerns. The fall of Valeant, is Allergan next?

Concerns on an overall Pharma Bubble

As shown by IMAP 2016 Industry Report (IMAP, 2016), a long-term analysis of EBITDA multiples for pharmaceutical transactions shows a recent strong increase in valuations, particularly for larger deals (>$2.5 billion). These trend starts to raise a question on the potential existence of a Pharma Bubble.

Looking closer to the sample's deals, once notices that this increase in valuations has mainly been driven by Growth Pharma deals. TEVA's acquisition of RIMSA, a Mexican branded generics provider, (10x revenues) or Baxalta's acquisition of Sigma Tau's oncology division (9x revenues), serve as examples of these transactions. (IMAP, 2016)

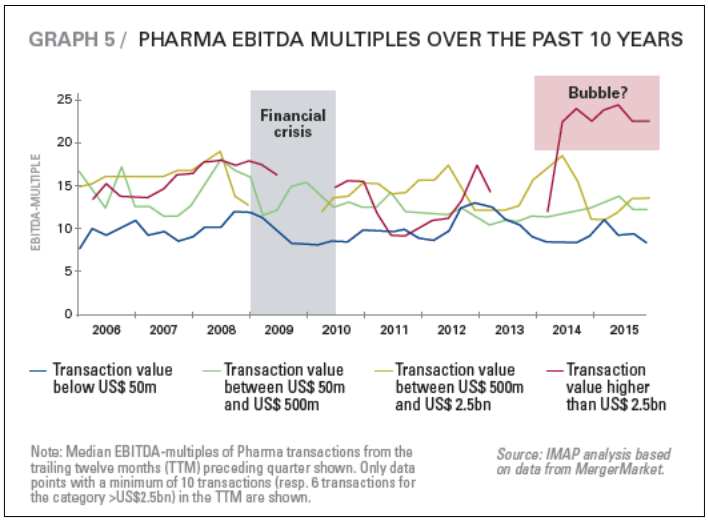

Figure 28: Pharmaceutical EV/EBITDA multiples (IMAP, 2016)

Growth Pharma model particularly hit by the market

The possibility of a *Growth Pharma* Bubble is what may now be driving market expectations down. As noted in chapter 6.2 peer analysis, since 2014 the pharmaceutical industry has experienced an overall decrease in share prices. This fall has been particularly pronounced for Growth Pharma companies, experiencing an average cumulative 50% decrease since April, 2015. Particularly "Low-Cost Pharma" firms (such as, Valeant, Endo and Mylan), have seen their valuations fall due to their deteriorating financials and/or drug pricing scrutiny.

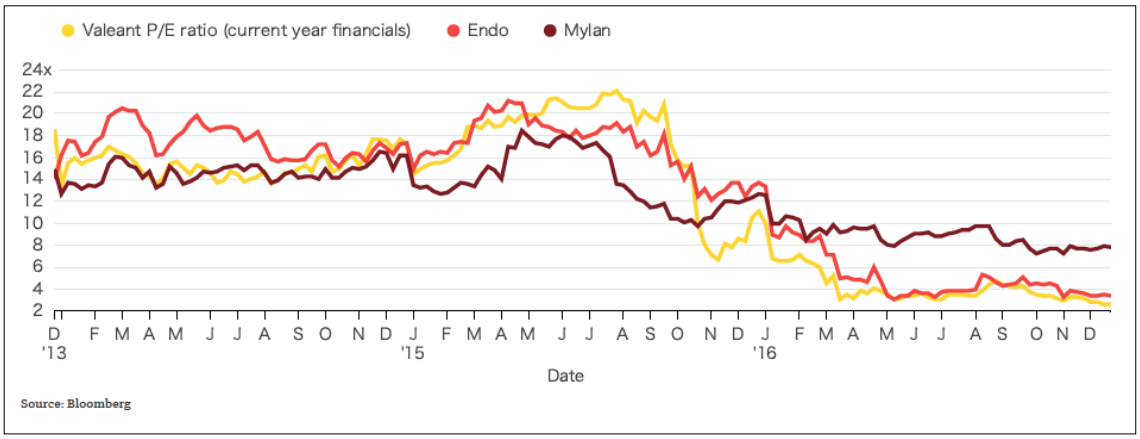

Figure 29: Endo, Mylan and Valeant's P/E ratio. (Bloomberg, 2016)

The most re-known Growth Pharma crash: The fall of Valeant

During 2008 to 2015, under Michael Pearson CEO leadership, Valeant Pharmaceutical became a serial acquirer, doing more than 100 M&A transactions. (The New Yorker, 2016) Valeant focused on external growth through the acquisition of what it called "mispriced" assets, that is, companies whose value could "easily" be increased by: increasing its drug prices, benefiting from Valeant's low tax rate regime and finally, by cost cutting. On the other hand, the company invested almost nothing in the organic growth of its core business. Valeant R&D spending stood at 3% of its sales in 2016, far from the 13.4% average of the industry (EvaluatePharma, 2016).

Moreover, it was very extreme with bringing up drug prices. According to an analysis of 2014 to 2015 changes in drug prices, Valeant's average price hike per drug was of 75.6%. Over the same period, the company's biggest price increase was of 608% for Cuprimine, a drug treating Wilson's disease. (Bloomberg, 2016)

The company also engaged in accounting and financial engineering. In 2010, Valeant merged with the Canadian company Biovail for the sole purpose of lowering its tax rate. It continued to pursue tax benefits by sheltering its intellectual property in tax havens like Luxembourg. Valeant also used opaque accounting methods to hinder analysts' and investors' judgement on the effectiveness of its own performance and that of its acquisitions.

This aggressive strategy summed up with a public pressure over Valeant's price hikes, ended up by impacting the company's stock price. Since July 27, 2015, Valeant's latest all-time high record of 257.53 $/share, the company has seen its share price decrease dramatically with a cumulative 2900% drop and reaching a single digit share price of 8.51 $/share as of April 21, 2017.

Figure 30: Valeant share price. (Yahoo Finance,2017)

Should one expect the same for Allergan? How do both firms compare

Bloomberg's report "How Allergan rose and Valeant fell" (Bloomberg, 2016) seems to shed some light on the reasons behind the similar starts, but potential different outcomes for both companies. So, how do both firms compare?

As shown by the figures below, Valeant has taken by far a more extreme approach on its business. Valeant has engaged in fewer large deals than Allergan. Most of the transactions targeted small companies complying with the company's "mispriced asset" criteria previously described. This has enabled the company to pay for overall lower multiples. On the other hand, Allergan has gone for higher premiums for bigger and arguably higher quality assets. From 2010-15, Valeant closed 50 deals worth $35 billion, paying a median of 3x revenue. Throughout the same period, Allergan invested $105 billion on just 22 deals, paying a median of 6x revenue. (Bloomberg, 2016)

Moreover, both companies have been involved in tax inversion deals in its aim to exploit tax benefits from lower-tax structure countries. Biovail-Valeant merger in 2010 enabled the company to move its operations to Canada, a low-tax regime country, resulting in the company's current 10-15% corporate tax rate. As for Allergan, its deal with Actavis (the report's case study) granted the merged entity access to Ireland's low-tax regime, with the company's 2016 tax rate forecasted at 14%.

Despite both betting on external growth, Allergan continued to invest to some extent in R&D and internal drug discovery. In 2015, R&D as share of sales stood at 16% for Allergan, below the 20-25% range for Traditional Pharma firms, but still above the industry average of 13.4% in 2016. (EvaluatePharma, 2016) On the other hand, Valeant's spending considerably lagged at an industry-bottom 3% of sales.

Regarding drug pricing, both companies have benefited from questionable price hiking practices. Nevertheless, Allergan has not been as aggressive as Valeant. According to an analysis of 2014 to 2015 changes in drug prices, Valeant's average price hike per drug was of 75.6% compared to an

8.47% for Allergan. Over the same period, Valeant's biggest price increase was of 608% for Cuprimine, whereas for Allergan it was of 185% for a topical skin cream. (Bloomberg, 2016)

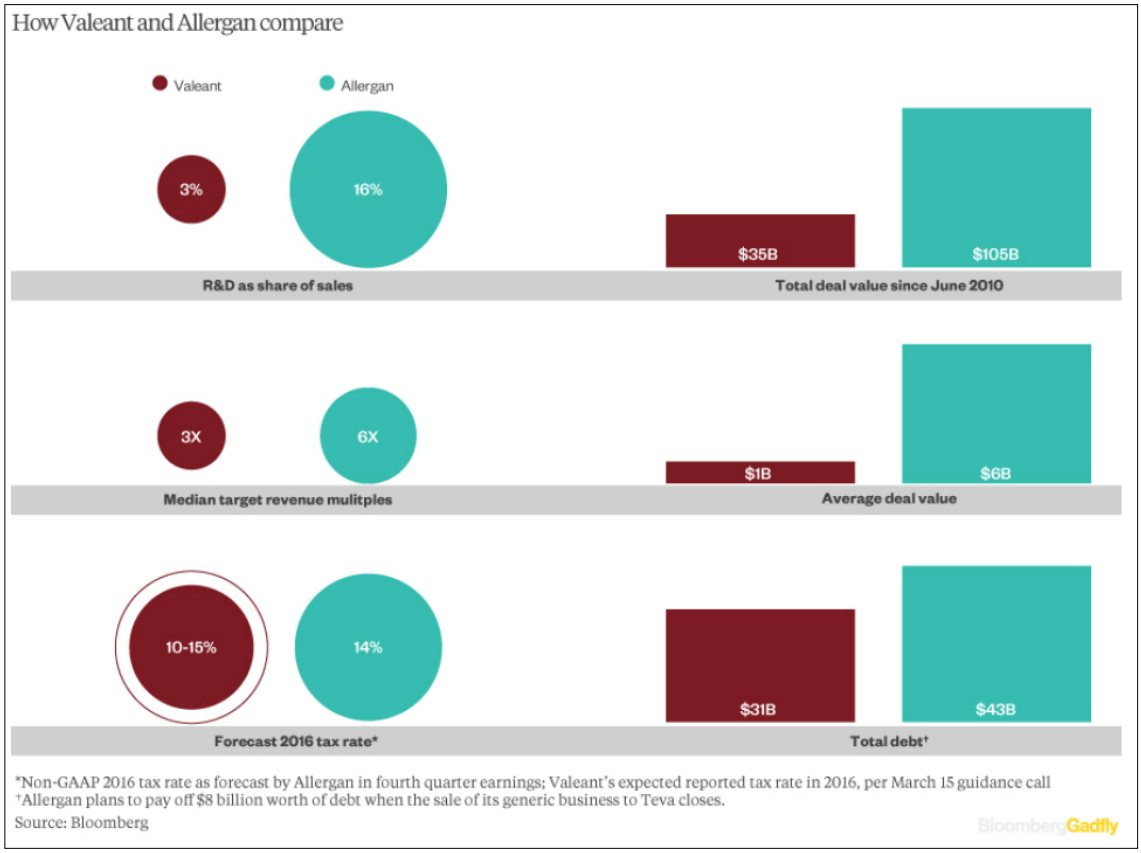

Figure 31: Valeant vs Allergan comparison. R&D, target's revenue multiple and tax rate (Bloomberg, 2016)

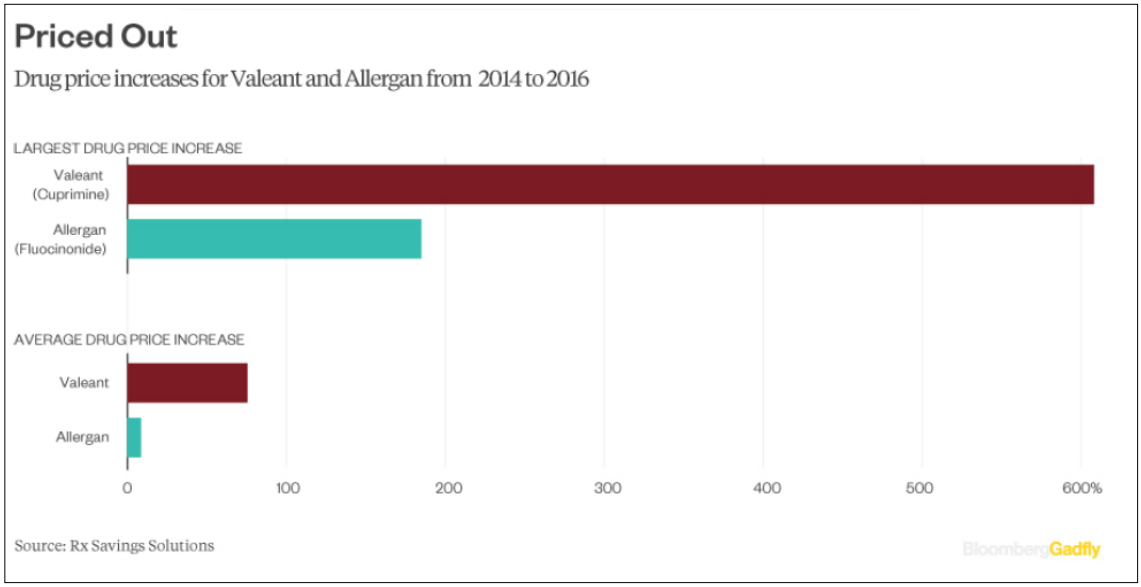

Figure 32: Valeant vs Allergan price comparison (Bloomberg, 2016)

Despite the noted differences in approach, Allergan is also suffering from falling market expectations

Since July 27, 2015, Allergan's latest all-time high record (331.15 $/Share), the company has seen its share price decrease reaching an overall 40% drop as of April 21, 2017(236.35 $/share).

Figure 33: Allergan stock price. (Yahoo Finance, 2017)

Tying in with the facts described throughout the chapter, the following factors seem to explain Allergan's decreasing share price evolution.

Market concerns on a potential Pharmaceutical Bubble are pushing down valuations for pharmaceutical companies, as noted in previous peer group 2014-17 share price evolution graphs. Moreover, the collapse of Pfizer's $160 billion merger with Allergan also impacted negatively on Allergan's stock price. The deal termination on April 6, 2016 came after a US tax rule change aimed to curb tax inversion deals, which was the merger's main rationale with the combined entity domiciling in Ireland (Allergan's incorporation country).

Allergan' share price particularly suffered from Valeant fall due to their similarities as *Growth Pharma* exponents. *Growth Pharma's* practice of regularly increasing prices for drugs and marketing new drugs with exorbitant prices is now being strongly criticized by public attention. New governmental policies are also expected to be issued to stop pricing abuses placing additional pressure on Allergan sales and margins' perspectives.

With current *Growth Pharma* model under question, Allergan has already shown signs to dissociate from this now apparently unfavourable label. In September, 2017, Allergan released a note to investors on its new "Company's Social Contract With Patients": the company compromised to keep price increases on its drugs to less than 10% a year and to moderate pricing generally.

So, is Allergan going to be the next crash or the proven formula for Growth Pharma?

All in all, it is still not clear whether Allergan will be the next *Growth Pharma* failure case or it will manage to stand firm as the proven formula for this model. Finding the right balance to external and internal growth will likely be the key to resolve this uncertainty.

For the moment, market's view on Allergan is still positive. Analyst still expect healthy growth from Allergan over the next few years. Bloomberg consensus figures point at a 6.5% revenue CAGR for 2016-19, far above that of other Traditional Pharma companies such as Novartis (4%) or Sanofi (2%). (Bloomberg, 2016)

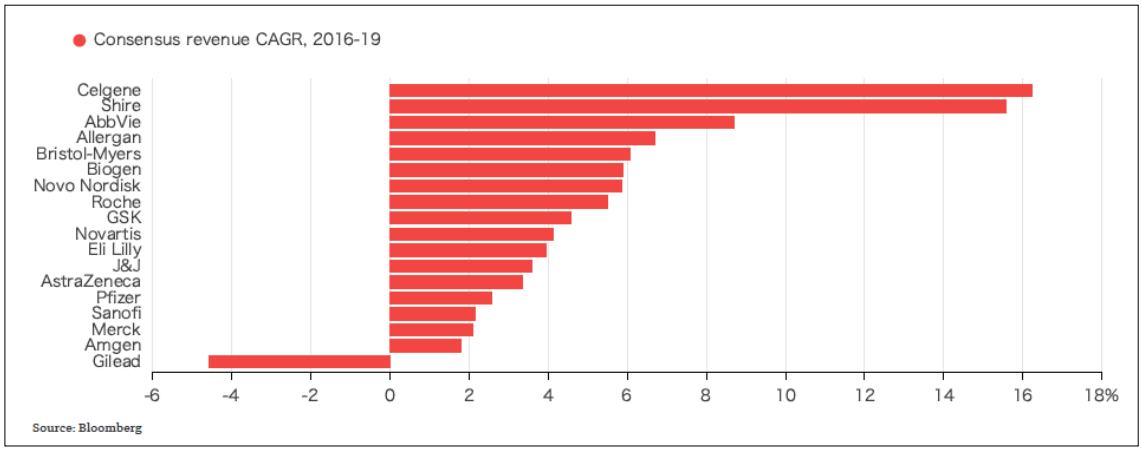

Figure 34: Pharmaceutical companies - revenue CAGR (Bloomberg, 2016)

Moreover, Bloomberg's report also points at a large undervaluation of Allergan stock price. As of December 30, 2016, analyst consensus would estimate a fair share price of $260, while Allergan would be trading at around $195.

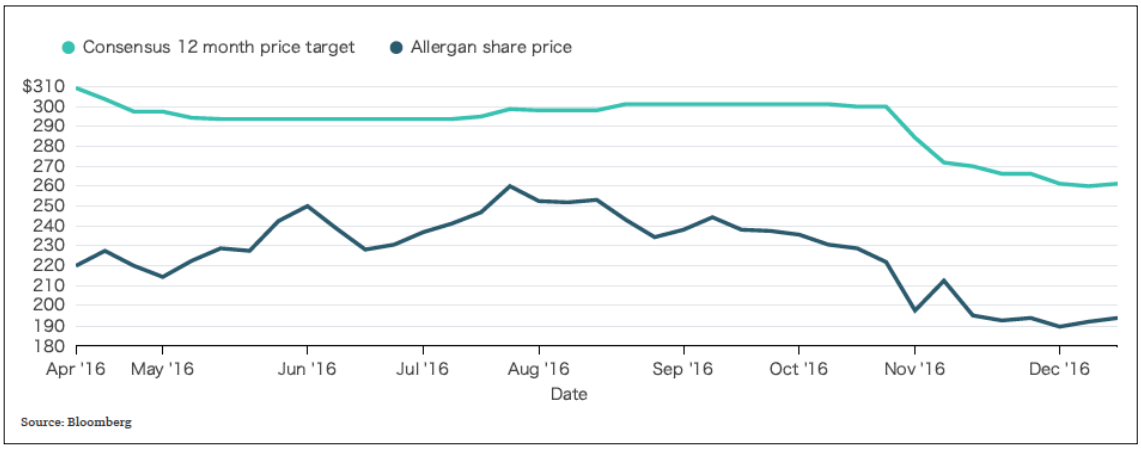

Figure 35: Allergan stock - Actual share price vs consensus 12 month price target (Bloomberg, 2016)

8. Conclusions

The pharmaceutical industry has showed strong M&A activity in recent years. A decline in R&D productivity, a complex regulatory environment, margin erosion by pricing pressures and a growing demand for generic drugs have been the industry's main drivers for this trend. As a response to this challenging environment, big pharmaceutical companies found in M&A a way to: access new branded products, expand into international markets, reach new therapeutic categories and gain economies of scale.

Brent Saunders, Actavis's CEO, played a key-role in changing industry-dynamics as an M&A catalyser. With markets rewarding companies engaging in M&A activities, Saunders bided big and succeed. Its proven track record of successfully integrated acquisitions allowed him to confidently merge Actavis and Allergan, two multi-billion-dollar companies, while granting the merged entity access to the Top 10 players by Enterprise Value. The company's main reasons to pursue this acquisition were: to get access to Allergan's blockbuster franchises, to benefit from tax synergies by integrating Allergan's operations into Actavis lower tax regime and to reach +100 countries to diversify its revenue source. Within one year, the new entity was expecting to benefit from $1.8 billion in operating and financial synergies, excluding additional revenues or manufacturing synergies. Moreover, tax synergies were obtained as Actavis P&L effectively moved from a 26% to a 15% tax rate.

Despite Actavis-Allergan merge was finally announced in November 17, 2014, Allergan faced a hostile takeover sooner that year by another important player of the industry: Valeant. To do so, Valeant partnered with Pershing Square, a New York based Hedge Fund. Together, they built a stake in Allergan's stock and acted as an activist shareholder to convince Allergan's board of directors to sell Allergan to Valeant. However, they refused as they did not believe that Valeant was the best future owner for Allergan. Finally, after months of back and forth, Actavis's CEO closed a deal to acquire Allergan for $66 billion.

Based on a JPMorgan estimates (JPMorgan, 2014), a deal valuation analysis was undertaken to compare the actual transaction consideration effectively paid by Actavis with the expected value created by the merger. The DCF analysis (including synergies) yields a central value per Allergan's stock of $220.3 which almost matches the $219 per share final offer that Allergan accepted. Moreover, precedent transaction multiples show that similar figures were paid in comparable transactions: deals closed for multinational pharmaceutical companies with more than 5 billion dollars in Enterprise Value over the last 10 years. Even though EV/EBITDA and P/E ratios yielded a valuation in the lower range, between $130 and $173, Allergan had intangibles such as brand-awareness and a strong R&D know-how which supported a higher valuation. JPMorgan buy-side survey also provided a standalone valuation between $150-$200. Furthermore, when asked for a price acceptable for Allergan considering synergies, buy-side pool yielded a price between $190 and $220.

When looking at the company post-merger figures, the deal results were not as positive as expected. JPMorgan pre-merger valuation estimated a first-year 11% 2016 EPS accretion for Actavis

shareholders. However, the combined entity did not manage to deliver that figure and eventually resulted dilutive at a -3%.

All in all, Actavis-Allergan merge stands as a first-class example of *Growth Pharma*, the new business model which disrupted the pharmaceutical industry introducing a new approach on how to pursue R&D and build drug development pipelines. *Growth Pharma* companies were relatively averse to R&D expenditure and in-house new drug discovery. On the contrary, they sought to expand drug portfolios inorganically by means of continuous acquisitions of other companies with promising "mid-to-late development stage" and already successful "in-the-market" drugs.

Growth Pharma emerged in the early 2000s with Valeant and Allergan as its most-renown exponents. It shined through the 2000s and early 2010s delivering skyrocketing returns to its investors. Allergan and Valeant investors saw their share price increase more than 800% in less than eight years, while same figures were below 100% for the other Top 10 Big Pharma companies. However, market's enthusiasm seems to have sharply cooled down since 2015.

Public backlash against the aggressive drug price hike practices or the extensive abuse of financial and accounting engineering are some of the reasons behind the now pejorative shed over the *Growth Pharma* label. Moreover, the model itself starts to show its inevitable limits. As noted in The New Yorker article "The Roll-Up Racket" (The New Yorker, 2016), some of these players have become roll-ups: companies that buy lots of other companies, trusting that they will be worth much more together than apart. However, the big challenge for roll-ups is obvious: «you need to keep feeding the beast: if you grow by buying, you have to keep buying to thrive.» (The New Yorker, 2016) However, the bigger and famous you get, the higher the premiums demanded by the sellers and the fewer the deals left that can truly boost your returns.

Valeant is already a fallen angel. The question now is whether Allergan will follow or it will manage to stand firm as the proven formula for the Growth Pharma model. Finding the right balance between organic and inorganic growth will likely be the key to resolve this uncertainty.

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