Does M&A create value in the pharmaceutical sector?

A case study of the Sanofi-Aventis merger

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Executive Summary

Along decades and until nowadays, companies have been engaging themselves in M&A transactions driven by multiple objectives and needs. Precisely, M&A is seen as a means to achieve economies of scale, reach vertical or horizontal integration, widen the product portfolio, obtain geographic diversification or access new markets and technologies. However, throughout time many have asked themselves if, despite the existence of these M&A drivers, value is created at all from M&A transactions?

Therefore, does M&A create or destroy value? According to previous studies, value-creation through M&A depends on several factors such as the deal's size, acquisition premium, valuation multiples, acquirer's approach or the financing structure. But a consensus seems to have been reached on the academic side, where academics sustain that M&A delivers value to target shareholders, while it is still ambiguous whether value is created for the acquirer's shareholders.

Concretely, this research paper focuses on M&A value creation within the pharmaceutical sector. Two unique M&A incentives have been found in the industry: (i) sharing the risk associated to the R&D stage and (ii) acquiring *blockbuster drug* owners in order to capture the huge revenue potential of these drugs. Taking this into account, one can say that if M&A creates value, value-creation is expected to be even more accentuated in the pharmaceutical sector.

Furthermore, in order to test M&A value creation in the pharmaceutical sector, a case study of the Sanofi-Aventis merger has been made. The merger took place on April 2004, a time when the pharmaceutical landscape was changing significantly. The main trends of the industry at the time were the increasing importance of generic drugs, consolidation among players and decreasing R&D productivity. Therefore, Sanofi-Synthélabo's approach to merge with Aventis can be considered a defence move so as not to be acquired by others.

A particularity of the deal was the fact that Aventis was much bigger than Sanofi-Synthélabo in terms of revenues and headcount. Even so, the deal came forward and has been considered to be successful. Value creation has been measured through four different perspectives: (i) transaction's accretive or dilutive nature, (ii) financial value creation, (iii) stock market value creation and (iv) relative performance to peers.

Finally, geopolitics has been found to be an important external factor that influenced the deal, namely, the French government's intervention in the negotiation process managed to build a pharmaceutical national champion, which ultimately benefited French citizens.

Structure of the Research Paper

The present research paper is structured in 3 sections that aim to tackle the research question: *Does M&A create value in the pharmaceutical sector?*

Section I presents a literature review on the topic. Starting with an overview of the pharmaceutical sector (players, products and supply chain), it then focuses on M&A value creation both in general terms and within the pharmaceutical sector.

Section II comprises a case study that illustrates the merger of Sanofi-Synthélabo and Aventis, which resulted in the combined entity Sanofi-Aventis on 2004. The case study is divided in 3 parts: an introduction to the pharmaceutical industry at the time of the merger, a detailed description of the merger process and the assessment of value creation from the merger.

Finally, Section III wraps up the conclusions extracted from the literature review (Section I) and the case study (Section II).

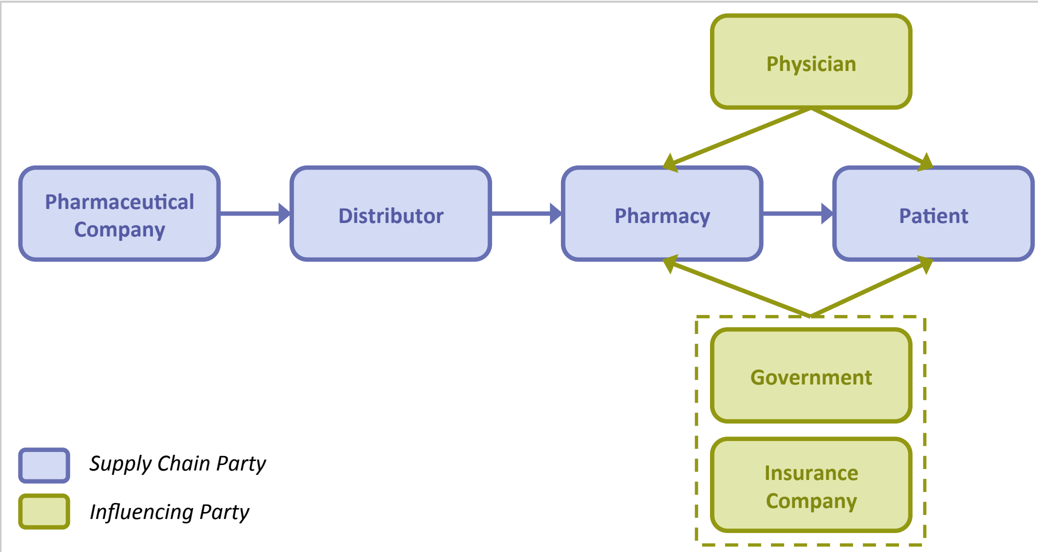
<u>Section I: Literature</u>

1. Overview of the pharmaceutical industry

1.1. Main players

The pharmaceutical sector is characterized by some features that make it unique with respect to other sectors. Two of its distinctive traits are the different players present in the industry and the way they interact (Figure 1).

Figure 1 Main players in the pharmaceutical sector (*Source: ESADE MBA, BCG*)



First there is the <u>pharmaceutical company</u> that takes care of discovering, developing and producing the drugs. For instance, Sanofi-Synthélabo and Aventis, the firms whose merger will be studied in the present paper, were both pharmaceutical companies. The drugs produced by pharmaceutical firms are distributed by the <u>distributor</u> to the <u>pharmacy</u>, which hands the product to the end user or so-called <u>patient</u>.

Furthermore, there are three additional players that are considered influencing parties and have a strong impact in the dynamics of the industry. In most cases, either the <u>government</u> or an <u>insurance company</u> reimburse the patient (partially or entirely). This depends on whether his or her disease is covered by public healthcare or by a healthcare insurance contracted by the patient himself. The fact that drugs are not entirely paid by the patient implies price inelasticity in the industry.

The third influencing party is the <u>doctor or physician</u>, who is in charge to make the prescription of certain drugs for the patient, given that many drugs cannot be accessed by citizens without a medical prescription. The importance of medical prescriptions is more important in developed countries, where there is a stricter regulatory environment.

Another particular characteristic of the pharmaceutical sector is the strong importance of intellectual property in the form of <u>patents</u>. Pharmaceutical companies tend to spend a significant part of their budget in Research and Development (R&D), which enables them to discover new drugs for the market. Once a new drug is discovered the company can protect its findings with a patent, a fact that creates supply limitation in the sector because one sole product cures a certain disease. Hence, the patent owner is in a privileged position in which it gains a very high margin for the particular drug until the patent expires.

Regarding pharmaceutical companies, they can be divided in two categories depending on their size:

- Small players: normally they do not own a patent right, so they have to pay royalties to the patent holder of the particular products they want to produce and sell.
- Major players: these are huge corporations that spend a significant amount in R&D, so they are the ones that hold the patent rights and the biggest market shares globally. Even if these players have a big market share, they bear a lot of risk through R&D expenses, which are considered a sunk cost. That is, this cost does not always pay out, since many discovered drugs do not comply with regulation or simply do not deliver the expected result. Therefore, there is a low rate of success regarding explored drugs and R&D.

From the categorisation above, one can see that the industry is also characterized by very high barriers to entry related to the huge R&D expenses and patent holding in the industry (Sol & Kirchner, 2011).

1.2. Product categories and pricing method

Pharmaceutical products represent an important portion of healthcare expenditures, a percentage that varies depending on the country and region. According to the Office of Health and Consumer Goods, the pharmaceutical industry presents the following product categories:

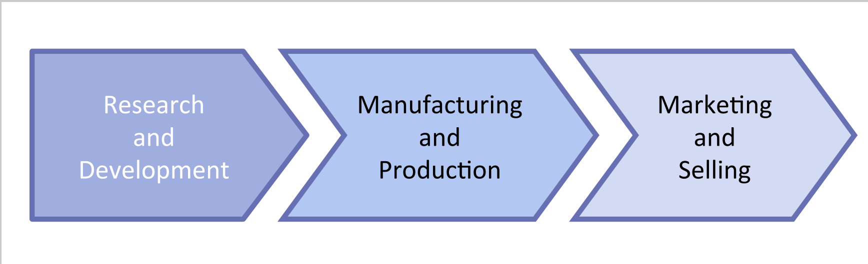
- Originator chemically-synthesized drugs: products developed by a pharmaceutical company after extensive R&D efforts and clinical trials with both animals and humans. Once the drug is approved by national or regional regulators, the originator company protects the drug with intellectual property rights (patents). 2010 US data show that only 0,1% of the drugs entering a preclinical test make it to clinical trials with humans, only 20% of the drugs in human clinical trials are approved and only 20% of marketed drugs cover for the R&D expenses related to its discovery.
- Generic drugs: are duplicative copies of the aforementioned drugs, namely, they have the same active ingredient and present the same dosage form, power and administration route. They become legal once the patent of the originator chemically-synthesized drugs expires.
- Over-The-Counter (OTC) drugs: patients do not require a physician's prescription in order to buy these kinds of products in the pharmacy. These medicines are considered safe for the patient, since it is the patient himself or herself the one who makes the diagnosis and medicates himself.
- Pharmaceutical substances (APIs and excipients): Active Pharmaceutical Ingredients (APIs) are the ingredients of the drug that make it effective (e.g. paracetamol), while excipients are the substances that give the drug its form (e.g. liquid or tablet).
- Biologicals or biopharmaceuticals: these drugs are derived from plant, animal, microorganism or human materials, which are living materials. Many vaccines are developed as biological drugs and are administered (injected) by doctors in their offices.
- Biosimilars or follow-on biologics: are developed versions of biological products that have to be approved by regulatory institutions.

Finally, as for the pricing method, it also works very differently than in other industries. On the one hand, pharmaceutical companies need to cover elevated R&D expenses, but on the other hand, the offered product is related to the population's health and must be accessible. Hence, there are numerous price regulations that cap drugs prices, while the less regulated drugs present prices much higher than their production cost. In addition, government subsidies in some countries are an additional tool to make essential medicine accessible to the public.

1.3. Supply chain description

The supply chain of a pharmaceutical drug production is done in three steps (Figure 2). As a reminder, the drug is produced by the pharmaceutical company and handed to the distributor, who is in charge to distribute it to the pharmacies.

Figure 2 Supply chain of the pharmaceutical sector



Supply chain process:

1. Research and Development (R&D): According to the Office of Health and Consumer Good, pharmaceutical companies spend around 20% of their revenues in R&D. This part of the supply chain is done both by the pharmaceutical firm itself as well as through strategic alliances with university laboratories. The fact that R&D expenses are so high implies high barriers to entry in the sector, but brings additional risk for the incumbents as well. Indeed, from the billions spent in R&D only a small percent of the tested drugs become marketable.

2. Manufacturing and Production: Once a drug is approved to be launched to the market comes the stage of manufacturing and production. Here, quality control is of outmost importance, since what is at stake is an essential matter: the patient's health. Precisely because of this need of free-of-error drug manufacturing, the industry presents little outsourcing opportunities. Indeed, trusting the production to a third party with such strict quality control patterns comes across as very risky.

3. Marketing and Selling: the final step is the one related to being able to launch successfully the discovered and produced drug. As it has been mentioned in subsection I.1.1., the doctor or physician plays a key role in the pharmaceutical industry, due to the fact that it is him or her who prescribes most of the drugs to the patient. Pharmaceutical companies must take this into account in order to approach physicians in the right manner and gain their confidence with the drug they are trying to sell.

   As for the OTC drugs, the marketing campaign works similarly as in other sectors: advertising and promotions that aim to reach and capture the end user (patient). Both for prescription and OTC drugs it is the pharmacy that acts as retailer or wholesaler. Thus, in the case of OTC drugs, sales agents in the pharmacies are essential given that they are the ones that need to transmit the pros and cons of each drug to the patient.

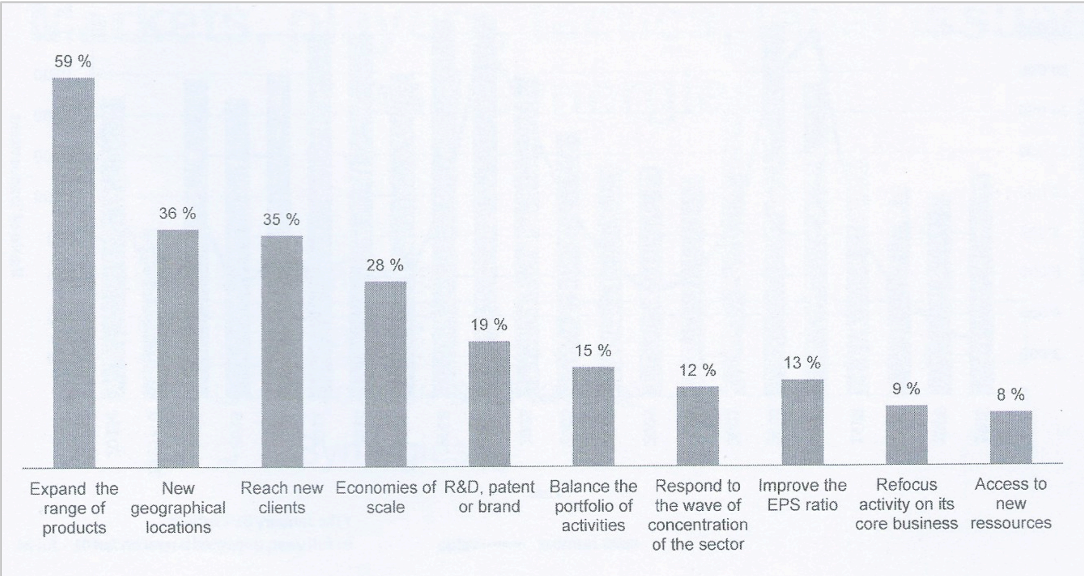
It is important to mention that the time lapse between the drug's discovery and its presence in the market, known as *time to market*, is known to be more than 10 years.

2. M&A and value creation

2.1. In general terms

Across industries, companies use mergers and acquisitions (M&A) as a common tool to expand faster than they would do organically. Indeed, M&A enhances: achieving economies of scale, reaching vertical or horizontal integration, widening the product portfolio, obtaining geographic diversification and accessing new markets and technologies (Ceddaha, 2015; Mourdoukoutas, 2011).

Figure 3 Drivers of M&A transactions (*Sources: UBS, BCG, Majeure Finance Course in M&A)*

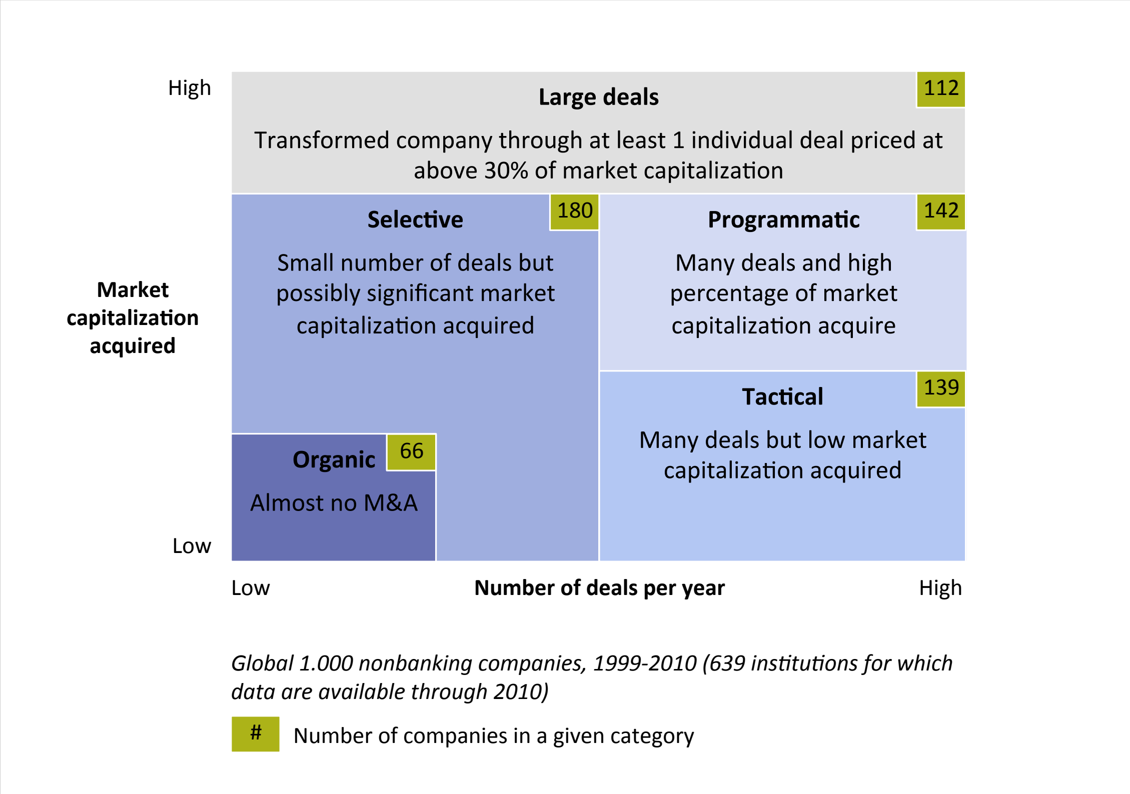


Even if these are reasonable drivers for a company to engage in M&A, one must ultimately question if shareholder value is being created or destroyed from a particular M&A transaction. The purpose of the present report is to analyse value creation (destruction) in M&A transactions, an analysis that will be taken into the scope of the pharmaceutical industry in the following subsections.

Long-term returns in M&A

A consulting report carried out by McKinsey&Company in 2012 analysed more than 15.000 deals carried out by the world's top 1.000 non-banking firms. The study revealed that long-term results fluctuate considerably depending on the company's industry and the transaction's pattern (Werner, Uhlaner, & West, 2012). For this reason, they defined 5 company profiles depending on the frequency and size of the deals undertaken (Figure 4).

Figure 4 Company profiles by deal frequency and transaction size (*Source: McKinsey&Company analysis)*



After exploring the outcome for each company profile, the report presents results that vary significantly from one profile to another:

1. Large Deals: Companies within mature and slow-growing sectors are the ones that seem to be the most successful ones in large deals. The highlighted reasons are: performance improvement, reduction of excess capacity and the fact that a lengthy post-merger integration is not as disruptive. In contrast, companies that enter large deals in fast-growing sectors tend to underperform, since they do not have time to properly focus on the post-merger integration and product upgrades at the same time.
2. Programmatic deals: The study found a so-called *volume effect* indicating that the more transactions a firm completed, the greater the probability to earn long-term returns. Moreover, evidence showed that the success of the *volume effect* does not depend on the type of sector the company is in, but on its particular corporate skills.
3. Tactical Deals: This type of profile is not as influenced by the combined effect of all the undertaken deals, but the deals are still an essential part of the company's strategy. This strategy is followed mostly by industrial and tech companies (e.g. Microsoft), since it permits to fill channel and product gaps that ultimately enhance long-term returns.
4. Selective Deals: This profile applies for companies that follow an organic growth strategy with timely inorganic actions. Hence, long-term returns have very low correlation with M&A strategy.
5. No deals (organic): Purely organic growth strategy presents risks and takes time to deliver results, a fact that makes it very difficult for a company to survive within consolidated industries (bcg.perspectives.com, 2007). Therefore, a growth strategy

based on small deals can actually bring less risk to the company than trying to avoid M&A by growing only organically (Werner et al., 2012).

From the above, the McKinsey&Company report concludes that the success of large deals depends on more than one factor (firm's leadership, corporate capabilities and sector's structure), while the right corporate skills can make a company succeed through a pattern of small deals. In addition, the report suggests that the larger a company becomes, the more it relies on M&A to grow.

In any case, it is of outmost importance to bear in mind that statistical studies base their results on headline averages, which can be inaccurate and misleading (bcg.perspectives.com, 2007). Hence, while it is true that patterns emerge from available data, one must be aware that results vary significantly from case to case. Therefore, averages can be taken as a reference, but cannot answer the question of whether a specific company must engage in an M&A transaction in a particular sector and timeframe (Werner et al., 2012).

The M&A market: M&A waves and market breakdown

Regarding the timeframe, it shall be remarked that the M&A market is a cyclical one. That is, M&A transactions tend to occur in what is known as *M&A waves*: during a certain period there is a boom of M&A transactions, which is then followed by a period of stability and lack of transactions (Ceddaha, 2015).

Figure 5 Seven historical M&A waves over the past century (*Source: Majeure Finance Course in M&A)*

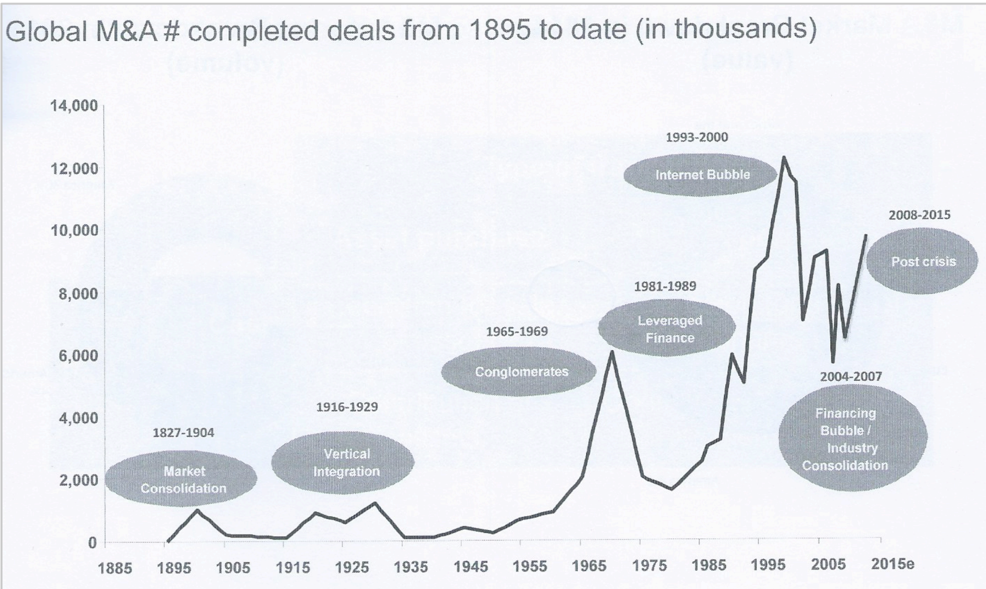


Figure 5 shows the seven M&A waves that have taken place from 1895 until 2015, a behaviour that goes in line with the results found in a report by The Boston Consulting Group (BCG): M&A value creation or destruction varies widely depending on the time the deal takes place (bcg.perspectives.com, 2007). BCG's report analysed M&A transactions within ten sectors and demonstrated that both the timeframe taken for the analysis and the sector influenced the results obtained:

- 1992-2006 timeframe: they found that one three sectors created value, this being relatively small.

- 2004-2006 timeframe: they found that four sectors created substantial value. Figure 5 shows that precisely, from 2004 until 2007, there was an M&A wave related to the *Financing Bubble/Industry Consolidation*.

Finally, it is known that M&A strategy is more present in some regions than in others, thus, before entering in a transaction, a company must not only take into account the sector and timing, but also the geographical region (Ceddaha, 2015). Concretely, Europe and North America are the regions that close more M&A deals, followed by Asia (Figure 6).

Figure 6 Worldwide M&A market breakdown (*Sources: Statista, William Blair and Majeure Finance Course in M&A)*

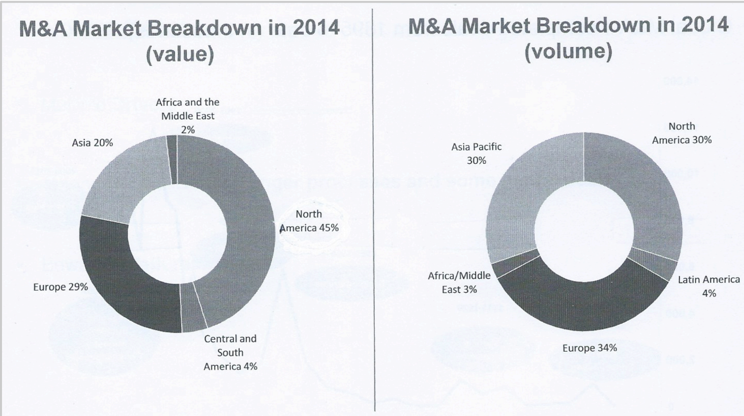
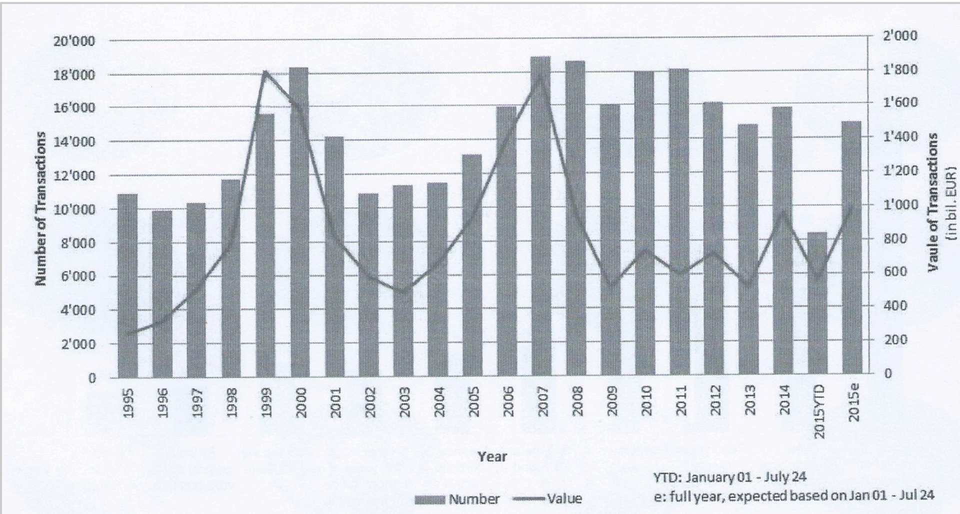


Figure 7 Value and volume of M&A transactions in Eurozone (1995-2015e) (*Sources: Thompson and Majeure Finance Course in M&A)*



A detailed evolution of the M&A market in the Eurozone for the last two decades is provided in Figure 7, where certain cyclicality can be observed.

Influence of the deal's characteristics

Even if each deal is unique, multiple studies have been done in order to find common patterns in those that were successful. Results seem to converge in the idea that certain deal characteristics make it more likely for an M&A transaction to succeed.

In the first place there is the **acquisition premium**, which often impacts the acquirer's decision to buy a target company. The common belief is that the higher the acquisition premium, the more difficult it is to create value from a certain M&A deal. This belief is based on the fact that the sole financial rationale to justify the premium paid is the synergies from which the acquirer expects to create value. However, a consulting report from The Boston Consulting Group (BCG) demonstrated that this is not necessarily the case, namely, a high acquisition premium does not imply value destruction (bcg.perspectives.com, 2007).

In this sense, BCG's report sustains that during periods of intense activity, paying a higher acquisition premium seems to be significantly valuable. The explanation they find for this is that in periods of strong competition among sector players, acquirer companies are forced to concentrate on the strategic fit and fundamentals of the target firm. This exclusive focus on the target's performance leaves on the background the negotiation of the acquisition premium, which might end up being higher than expected. Therefore, BCG supports that it is the combination of the target's improved fundamentals and a successful post-merger integration what boosts value creation. In the end, paying a higher premium means sharing the upside potential with the target company.

Further on, both the mentioned report and a follow-on study also carried out by BCG (bcg.perspectives.com, 2007; Gell, Kengelbach, & Roos, 2008) demonstrated that another important factor to take into account is the level of **valuation multiples**. Both analysis demonstrated that value-creating transactions tend to be those that present low valuation multiples. The conclusion that can be extracted is that paying a high acquisition premium is not detrimental as long as the valuation multiples are low. Thus, there is evidence to believe that companies that are able to engage in M&A activity during a downturn will be more likely to create value (Gell et al., 2008).

Second, there is the **acquirer's approach** that can be either friendly or hostile. Data from previous studies suggest that there is being a shift of mentality by investors from friendly bids towards hostile ones. The reason they find for this is the fact that the deals that have taken place in the past decade have been mostly consolidation ones, where the main goal is to achieve cost synergies. In this sense, cost synergies do not require as much harmonization as revenue synergies, in which both companies must be perfectly synchronised (bcg.perspectives.com, 2007).

Finally, there is the **financing structure** of the deal, which can be in cash, equity or mixed. Several studies reveal that the payment method that yields the best outcome is paying in cash (bcg.perspectives.com, 2007; Ferri & Petitt, 2013; Gell et al., 2008).

<u>Previous academic research papers</u>

Besides financial, banking and consulting reports it is also important to consider the conclusions of previous academic research papers. It appears to be that academics' answer to M&A value creation converges: while value is delivered to target shareholders, shareholder value creation for the acquirer firm is ambiguous.

Four relevant citations are provided below that are supported by the vision of many other researchers that have reached similar conclusions such as Datta et al. (1992), Hassan et al. (2007) and Gell et al. (2008).

"*Recent empirical research on mergers has consistently documented that bidding firms pay large premiums for target firms. At the same time most of the broad-based, risk-adjusted studies on mergers show that the stockholders of bidding firms either gain a small statistically insignificant amount or, (…), lose a small significant amount from the announcement of a merger bid.*"(Asquith, Bruner, & Mullins, 1983)

"*Extensive research has shown that shareholders in target firms gain significantly and that wealth is created at the announcement of takeovers (i.e. combined bidder and target returns are positive). However, we know much less about the effects of takeovers on the shareholders of acquiring firms. Evidence suggests that, these shareholders earn about an average zero abnormal return at the announcement of acquisitions, though there is tremendous variation in returns.*" (Fuller, Netter, & Stegemoller, 2001)

"*The mass of research suggests that target shareholders earn sizable positive market-returns, that bidders (with interesting exceptions) earn zero adjusted returns, and that bidders and targets combined earn positive adjusted returns. On balance, one should conclude that M&A does pay. But the broad dispersion of findings around zero return to buyers suggests that executives should approach this activity with caution.*"(Bruner, 2003)

"*An abundance of studies show that the share price of almost all targets increases around the announcement of a merger or an acquisition. However, the share price of acquirers rarely follows the same trend. (…) equity markets are sceptical about the ability of acquirers to create shareholder value*." (Ferri & Petitt, 2013)

2.2. In the pharmaceutical sector

As mentioned in the previous subsection, the focus of this research paper revolves around the research question: *Does M&A create value in the pharmaceutical sector?* The interest in the pharmaceutical sector resides in the fact that it is a global industry that relies extensively on M&A activity (Hassan, Patro, Tuckman, & Wang, 2007). For this reason, findings related to this topic have wide applicability. Thus, in the present subsection previous studies as well as academic literature about M&A and the pharmaceutical sector will be reviewed.

<u>M&A drivers in the pharmaceutical sector</u>

Over the past decades, the pharmaceutical sector has experienced an extensive concentration: in 1985 the top-10 companies accounted for 20% global revenues, while in 2002 the top-10 companies accounted for 48% global revenues. The major part of this consolidation trend resulted form mergers: in the 1988-2000 timeframe the value of M&A activity surpassed 500 bUSD (Danzon & Epstein, 2004).

The pharmaceutical sector has a distinctive trait that makes it different from any other sector: R&D expenditure. That is, the sector accounts for significant R&D expenses related to the cost of delivering a new drug to the market (Hassan et al., 2007). Related to this, there seems to be consensus among researchers, who think that the mergers that have led to consolidation have to do with economies of scale in R&D expenditures (Danzon & Epstein, 2004). Indeed, R&D expenditure is regarded as an additional risk for the sector's players, since it is known that the rate of success of explored drugs is low. Therefore, this feature represents an additional incentive for firms in the sector to engage in M&A activity in order to share the risk associated with early stage research.

In addition, previous research has also revealed that the pharmaceutical firms have an M&A driver that is not present in other sectors: acquisition of companies that own *blockbuster drugs*, which are those drugs that are expected to provide huge revenues and are initially protected by a patent. An example would be the acquisition of Lipitor, a drug to control cholesterol, by Pfizer that produced 12 bUSD sales in 2005. Taking into account the potential for highly positive returns from these *blockbuster acquisitions*, it makes sense to believe that if M&A creates value, value-creation should be even more accentuated in the pharmaceutical sector (Hassan et al., 2007).

One of the McKinsey&Company reports mentioned in the previous subsection (Werner et al., 2012) found evidence supporting the view of value-creation being more accentuated in the pharmaceutical industry. As a reminder, the report analysed the long-term returns to M&A for five company profiles. Concretely, they studied 1.000 nonbanking companies that belonged to eight different sectors: consumer discretionary, telecom, pharmaceutical, high-tech, consumer goods, materials, manufacturing and insurance.

While most sectors presented negative or null long-term returns for the different company profiles, the pharmaceutical industry presented positive long-term results for three out of the five company profiles and overperfomed the average of the other sectors. The study stands out that many large pharmaceutical companies engage in small M&A transactions with companies that not yet have global footprint. In this way, the large pharmaceutical companies are able to capture growth opportunities. For instance, in the late 90's, the German BASF decided to focus on chemicals, which was its area of expertise, so they opted to grow fast through the programmatic acquisition of specialised chemical companies (Werner et al., 2012).

Megamergers within the pharmaceutical sector

It is known that *megamergers*[1] have shaped the global pharmaceutical sector in the past decades: the majority of the worldwide top-20 pharmaceutical firms took part in a megamerger from 1995 to 2005 (Myoung & Lorriman, 2014).

McKinsey&Company studied 17 large deals that took place within the 1995-2011 timeframe and reached the conclusion that megamergers have been essential for acquirers' survival in a consolidating industry. In addition, they concluded that pharmaceutical large deals and megamergers have created significant shareholder return compared to that of other industries (Myoung & Lorriman, 2014; Werner et al., 2012). Findings showed that, indeed, acquired companies significantly contributed to total and new revenues, as well as improved EBITDA margins and returns in a 2-year time horizon (Myoung & Lorriman, 2014).

Related to the described above M&A drivers for the pharmaceutical industry, McKinsey analysts divided the M&A transactions in two types: (i) consolidation transactions, understood as *megamergers*; (ii) growth-oriented transactions, understood as *blockbuster deals*. They found that consolidation transactions have generated more economic profit[2] than growth-oriented transactions. The former being more common in the late 90's due to the meaningful revenue and cost synergies they provided and the latter being more typical recently even if they are more expensive and allow less synergies.

However, results seem to be opposite if one takes into account valuation multiples instead of economic profit. That is, growth-oriented transactions had a significant positive impact on valuation multiples while consolidation transactions did not. The explanation provided for this behaviour is that growth-oriented transactions enhance investors' long-term growth expectations for the firm, while consolidation transactions create uncertainty and do not necessarily imply growth expectations. In any case, the report gives evidence that shareholder value has been created in both types of M&A transactions (Myoung & Lorriman, 2014).

Finally, it is important to remark that event studies base their conclusions on averages that are a good proxy to understand the global pharmaceutical landscape, but cannot predict how a specific M&A transaction will turn out. In fact, this will depend on several factors, such as the timing, the deal's characteristics, the company's financial position or the company's leadership, among many others (bcg.perspectives.com, 2007; Werner et al., 2012).

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[1] *M&A transaction larger than 10b$, in which the target company accounts for at least 10% of the acquirer's revenues and 20% of its market capitalization.*
[2] *Economic profit = net operating profit – cost of capital (defined by the McKinsey report)*

Previous academic research papers

Regarding previous academic research papers on M&A value creation (destruction) within the pharmaceutical sector, limited studies have been made (Hassan et al., 2007). However, two event studies have been considered relevant literature for this research paper:

- *Mergers and acquisitions in the pharmaceutical and biotech Industries* – The Wharton School: this academic paper sustain that large companies in the pharmaceutical sector merge to prevent patent expiration dates and to fill production gaps, while small players with lack of sales force tend to align with larger players as an exit strategy (Danzon, Epstein, & Nicholson, 2003).
- *The outsourcing of R&D through acquisitions in the pharmaceutical industry* – Journal of Financial Economics: this event study examines the outcome of 160 acquisitions inside the pharmaceutical sector in the period 1994-2001. Their findings sustain that acquirers generate significant positive returns, which they relate to previous access of the acquirer to R&D information and an acquirer's privileged negotiation position in the deal. They, thus, conclude that R&D can be successfully outsourced through acquisitions (Higgins & Rodriguez, 2006).

Section II: Case Study – The Sanofi-Aventis Merger

1. Industry trends at the beginning of the century

1.1. Size and scope of the industry

In the months prior to the merger between Sanofi-Synthélabo and Aventis, in year-end 2003, the main players within the global pharmaceutical industry were the ones seen in Table 1.

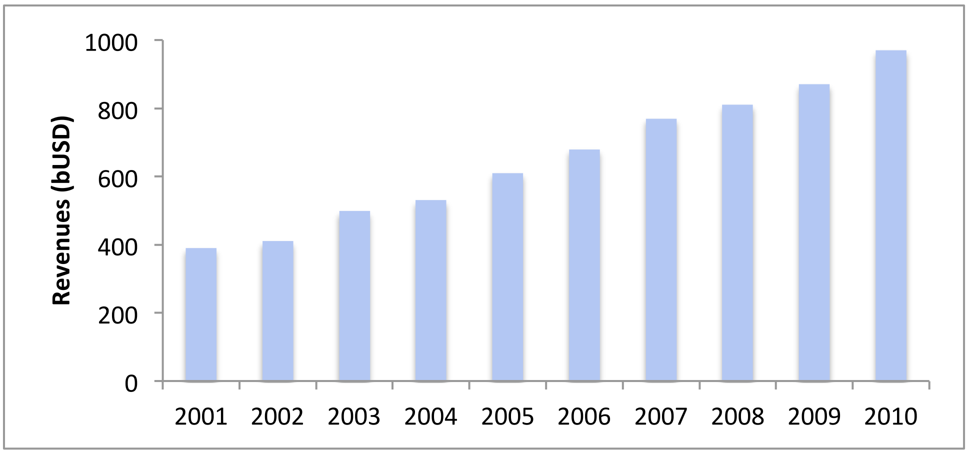
	Company		Revenues	R&D expenditure
1.	Pfizer	M USD	28288	5176
2.	GlaxoSmithKline	M USD	27060	4108
3.	Merck	M USD	20130	2677
4.	AstraZeneca	M USD	17841	3069
5.	J&J	M USD	17151	3957
6.	**Aventis**	M USD	**16639**	**3235**
7.	Bristol-Myers Squibb	M USD	14705	2218
8.	Novartis	M USD	13547	2799
9.	Pharmacia	M USD	12037	2359
10.	Wyeth	M USD	10899	2080
11.	Lilly	M USD	10385	2149
12.	Abbott	M USD	9700	1562
13.	Roche	M USD	9355	2746
14.	Schering Plough	M USD	8745	1425
15.	Takeda	M USD	7031	1020
16.	**Sanofi-Synthélabo**	M USD	**7045**	**1152**
17.	Boerhringer-Ingelheim	M USD	5369	1304
18.	Bayer	M USD	4509	1014
19.	Schering AG	M USD	3074	896
20.	Sankyo	M USD	2845	641

Table 1 Top-20 2003 pharmaceutical companies by revenue (*Source: Contract Pharma)*

Remarkably, Aventis and Sanofi-Synthélabo were the 6th and 16th players of the industry, respectively. This is of paramount importance for the present case study, since it suggests that the analysed merger was indeed one of the so-called *pharmaceutical megamergers* (see section I.2.2.) that contributed to the further consolidation of the sector.

Concerning the pharmaceutical sector's size, overall revenues accounted for roughly 500 bUSD in year-end 2003. In addition, the sector experienced significant revenue growth since year 2000. Concretely, between 2000 and 2005 the sector's growth trend changed meaningfully: from being mainly concentrated in Europe and United States to a more heterogeneous growth shared with Japan and the rest of the world (Statista, 2005). These figures imply that the pharmaceutical industry's landscape was moving towards internationalization and, in turn, experiencing important shifts.

Figure 8 Worldwide revenues for the pharmaceutical sector (*Source: Statista*)



1.2. A changing pharmaceutical framework

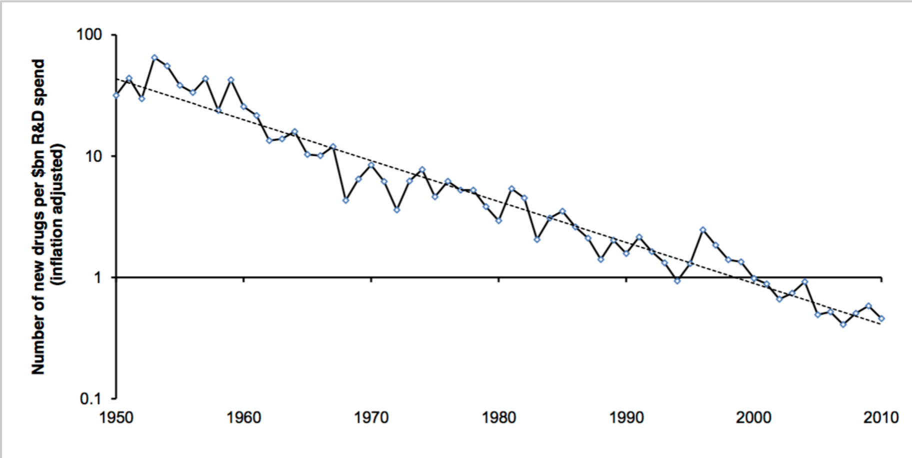
As it has been mentioned in the previous subsection, the pharmaceutical sector's landscape was experiencing important changes at the moment of the merger between Sanofi-Synthélabo and Aventis. As expected, these changes had a strong influence on the merger, thus, it is relevant to consider the trends of the industry at that moment:

- Generic drugs leading to price war: When a patent expires, other pharmaceutical companies can offer the same drug (chemical ingredient) at a much lower price and with seldom marketing efforts given that the drug is already well-known in the market (Gilbert, Henske, & Singh, 2003). In the past, physicians used to prescribe a drug by the brand of the former patent holder, a habit that undermined generic drugs. However, this tendency changed in the 21st century when doctors became more cost-conscious about healthcare and started prescribing the active ingredient instead of the brand (Scherer, Culyer, & Newhouse, 2000). Therefore, the increasing importance of such generic drugs triggered a war price that is still on-going nowadays.

- Increasing R&D expenses: It is known that a huge part of existing patents were developed during the 1960's, meaning that in the early 2000's many of these were about to expire. Patent expiration accelerated the emergence of generic drugs, which increased competition in the market. Consequently, pharmaceutical companies were more pressured to find *blockbuster drugs* to keep their market share and revenues. So the heightened competition and aforementioned war price gave place to increasing R&D expenditure by pharmaceutical companies.

  A common tool to measure R&D productivity is the *number of new drugs* for *each dollar invested in R&D*. As it can be observed in Figure 9, nowadays a much higher R&D investment is needed to discover a new drug. This can be explained by the fact that the essential drugs have already been developed, so more sophisticated drugs need more extensive R&D efforts to be discovered.

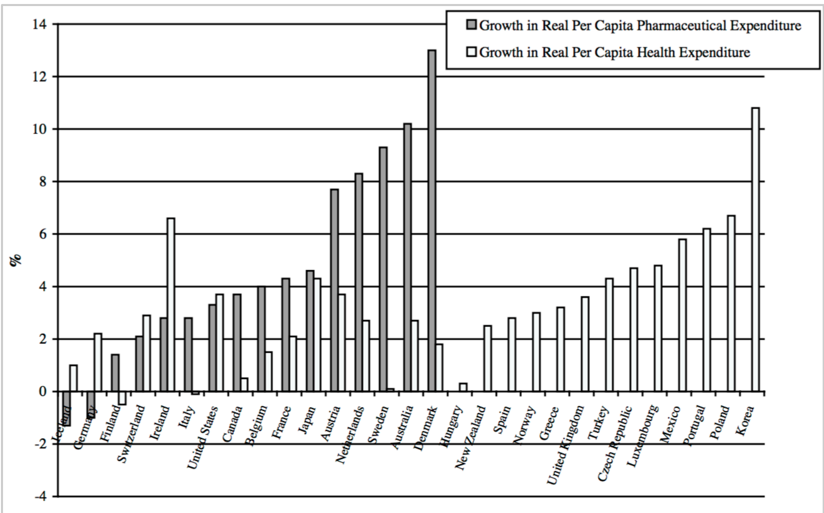
Figure 9 R&D productivity measured as number of new drugs for each dollar invested in R&D (*Source: Upadhyay, 2015)*



- Stricter regulatory framework: The trend of consolidation among companies of the sector and the progressive maturing of the industry called for an improvement in the regulatory environment. Hence, stricter regulation was put in place in the 21st century, mostly in all issues that were related with patent protection and drug safety. The OCDE divided the regulatory efforts in 3 main issues: (i) ensure consumers' safety; (ii) incentive preservation so as to enhance innovation and (iii) drug quality control.

- Aging population: Growth projections for the pharmaceutical sector were very optimistic taking into account an increasingly elderly population in the developed world. Indeed, this demographical situation boosted the pharmaceutical expenditure per capita in developed countries (Figure 10).

Figure 10 Growth in pharmaceutical expenditure per capital in developed countries from 1990-1997 (*Source: Biggar*)



- Growing demand driven by emerging markets: emerging countries had more budget to spend in the pharmaceutical industry. The most relevant examples are China, Russia, Turkey and Brazil (KPMG, 2011).

- <u>Technological advances</u>: Despite a lower R&D productivity (Figure 9), important steps were being done in terms of healthcare innovation thanks to technological advances.

1.3. The French pharmaceutical market

In the Sanofi-Synthélabo Aventis transaction both parties were French firms, thus, a brief description of the French pharmaceutical industry is of interest in this case study. At the moment of the merger France was ranked 21st in population volume, while they were the 4th country with the highest R&D expenses, which were specially focused on the pharmaceutical industry. In the early 2000's the industry presented high growth, most of it being related to exports. France accounted for 6,5% of the pharmaceutical's worldwide production which was destined both to the domestic and global markets.

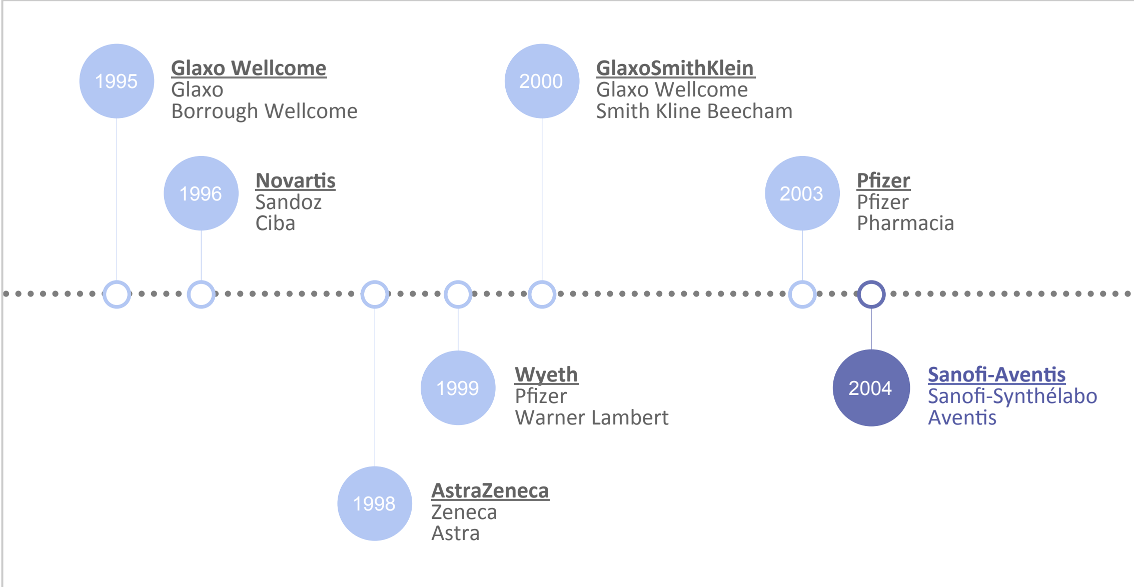
In terms of sales, Aventis was the biggest French pharmaceutical company followed by Sanofi-Synthélabo and Lilly (GlaxoKlineSmith's French division). As in many other countries, patents associated to drugs developed in the 1960's were starting to expire, so French pharmaceutical firms were suffering from higher competition and an accelerated emergence of generic drugs within the industry. In addition, these companies were also affected by a consolidating trend among pharmaceutical companies that went from being more than 1.000 in the 1950's to roughly 300 in the early 2000's worldwide.

Finally, the pharmaceutical industry was a very important sector for the French government that was concerned with the growth in elderly population characteristic of developed countries (Scherer et al., 2000). In this manner, they promoted innovation acts to incentivize R&D activities and allow tax savings. Indeed, the French government had a key role in the merger between Sanofi-Synthélabo and Aventis as it will be described in further subsections.

1.4. Key M&A transactions in the industry

In the Literature Part of the report the intense M&A activity in the pharmaceutical sector has been described. In order to contextualize the merger between Sanofi-Synthélabo and Aventis it is important to consider the previous M&A deals that too place in the sector. Figure 11 shows that from 1995 until 2004 numerous M&A deals were closed, a fact that highlights the consolidation trend within the sector at the time (Danzon et al., 2003).

Figure 11 Key M&A transactions in the pharmaceutical industry (1995-2004)



In 1995, the company Glaxo Wellcome was born as a result of the merger between Glaxo and Borrough Wellcome. At the time it was considered the biggest deal in the pharmaceutical sector (14 bUSD bid from Glaxo to Borrough Wellcome) and the combined company became the largest player in terms of market share (5,3% worldwide).

In 1996, the combination of Sandoz and Ciba created the global Swiss-based company Novartis. The transaction amounted to roughly 30 bUSD and the underlying reason for it was to complement the portfolio of healthcare products between both companies. Again, the deal was considered the biggest deal in the pharmaceutical sector at the time.

In 1998, another important European transaction took place between the British Zeneca and the Swedish Astra. The deal was closed for 35 bUSD. Although Zeneca was part of an agrochemical company in the past, the combined AstraZeneca entity focused on pharmaceuticals and biotech.

In 1999, one of the largest M&A deals worldwide started its negotiation process, when American Home Products made a friendly bid for Warner Lambert. The deal was though to be almost closed when Pfizer appeared in the scenario by making a hostile counteroffer to acquire Warner Lambert. Pfizer beat American Home Products, but a huge sanction was put on them (they had to pay almost 2 bUSD to American Home Products). The intense and lengthy negotiation process ended in 2000, when Pfizer finally acquired the company at the exorbitant price of 89 bUSD. The huge interest of Pfizer for Warner Lambert resided in the acquisition of the latter's *blockbuster product*: Lipitor, a drug to control cholesterol.

In 2000, two pharmaceutical firms from the United Kingdom merged as equals: Glaxo Wellcome (created in 1995) and Smith Kline Beecham. Even if both companies were British, it was not a smooth negotiation process. In addition, some problems arose regarding regulatory competition, for which the new company (GlaxoSmithKline) had to sell assets in order to comply with the established monopoly policies.

Finally, in 2003, Pfizer acquired the Nordic pharmaceutical firm Pharmacia in an equity transaction valued at 61 bUSD. This was the large deal prior to that of Sanofi-Synthélabo and Aventis that took place on April 26th 2004.

2. Description of the Sanofi-Aventis merger

2.1. Analysis of the acquirer – Sanofi-Synthélabo

The acquirer of the deal, Sanofi-Synthélabo, was a French pharmaceutical group whose majority shareholders were the French energy group Total (24,35% stake) and the French cosmetics group L'Oréal (19,52% stake). As the name Sanofi-Synthélabo implies, the group was also the result of a merger between two French healthcare companies in 1999 (Backup 1). On the one hand, there was Synthélabo, a biopharmaceutical firm that was acquired by L'Oréal in 1973 with the aim be present in the pharmaceutical sector. On the other hand, there was the historical pharmaceutical company Sanofi, also rooted in France.

Before the creation of Sanofi-Synthélabo in 1999, both Sanofi and Synthélabo presented a long history of inorganic growth (Backup 1), a fact that clearly defined the combined entity's DNA insofar as a natural acquirer.

Finally, at the moment of the merger with Aventis, Sanofi-Synthélabo was the second largest pharmaceutical group in France and was among the top-10 and top-20 in Europe and worldwide, respectively.

FINANCIAL ANALYSIS

1. Margins analysis

		2003	2002	2001	2000	1999
Net Consolidated Sales	*M€*	**8048**	**7448**	**6488**	**5963**	**2658**
Growth	*%*	*8,1%*	*14,8%*	*8,8%*	*124,3%*	
COGS	*M€*	-1428	-1378	-1253	-1442	-769
R&D Expenses	*M€*	-1316	-1218	-1031	-945	-455
SG&A expenses	*M€*	-2229	-2238	-2098	-1999	-903
Operating Profit[3]	*M€*	**3075**	**2614**	**2106**	**1577**	**531**
Financial Income (expense)	*M€*	155	85	102	18	-3
Taxes and other items	*M€*	-1154	-940	-623	-610	-186
Net Income	*M€*	**2076**	**1759**	**1585**	**985**	**342**
Operating margin	*%*	38%	35%	32%	26%	20%

Table 2 Financial Data (*Source: Annual report 2003)*

Sanofi-Synthélabo's Net Consolidated Sales experienced consistent organic growth (higher than 8%) from 2001 onwards. This growth was supported by the company's international footprint (Figure 12), as well as by their focus on four main therapeutic areas of expertise: cardiovascular/thrombosis, central nervous system, internal medicine and immune-oncology (Figure 13). Concretely, Sanofi-Synthélabo's 4 flagship products (Aprovel, Eloxatine, Plavix, and Stilnox) accounted for more than 50% of the company's Net Consolidated Sales (Figure 14).

[3] *Operating profit before amortization and impairment of intangibles, also named EBITA*

Figure 32 Net Consolidated Sales by Geographical Region (*Source: Annual report 2003*)

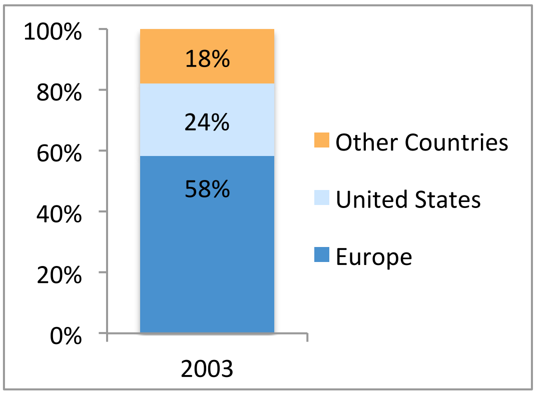


Figure 13 Net Consolidated Sales by Therapeutic Area (*Source: Annual report 2003*)

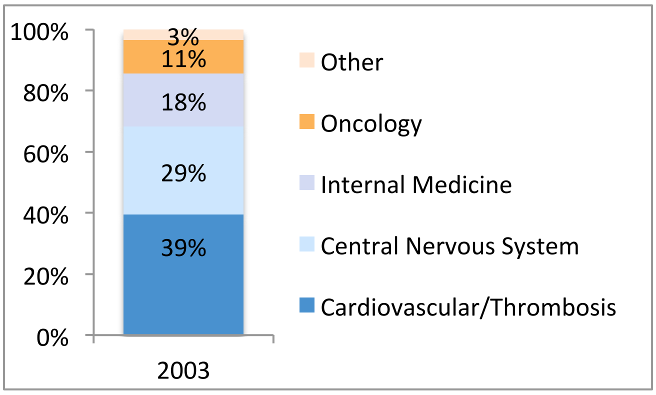
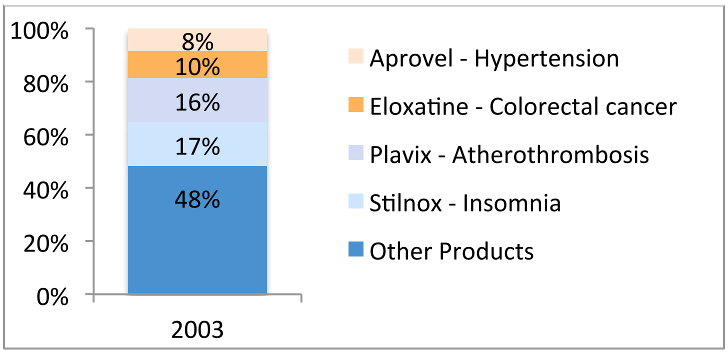


Figure 14 Net Consolidated Sales by Product (*Source: Annual report 2003*)



Regarding Sanofi-Synthélabo's expenses throughout the period, R&D expenses were at the same level than COGS, representing roughly 16% of Net Consolidated Sales. This does not appear as a surprise taking into account that R&D is a core activity in the pharmaceutical sector, since it is the fuel to discover new drugs that will eventually bring returns for the firm.

The Operating Profit doubled from 2000 to 2003, a trend driven by the increase of Net Consolidated Sales and the control of SG&A expenses, which were quite stable. This trend is also reflected in the Operating Margin that increased significantly during the period. It is worth noting that compared to other industries, operating margins in the pharmaceutical sector are much higher. This is because the pharmaceutical sector presents high barriers to entry, a fact that enhances an oligopolistic market ruled by a few big firms. In turn, as seen before, these firms have to cope with high R&D expenses in order to keep delivering value to the market, so their measure to compensate for these expenses if to price drugs highly.

As for Sanofi-Synthélabo's Net Financial Income, it is a positive figure, indicating that the company had more financial income than expense, namely, the company had Net Cash. Finally, the firm's profitability can be seen through its positive and increasing Net Income.

2. Capital investment analysis

		2003	2002	2001	2000
Working Capital	*M€*	910	793	200	557
Fixed Assets	*M€*	2712	2899	2296	2045
D&A	*M€*	390	379	301	241
CAPEX	*M€*	381	1435	619	465

Table 3 Financial Data (*Source: Annual report 2003*)

In the first place, one can see that Sanofi-Synthélabo was a capital-intensive business, since its Fixed Assets were much higher than Working Capital. Concretely, the comparison between CAPEX and D&A shows that Sanofi-Synthélabo was expanding, as it invested in assets (CAPEX) more than these depreciated (D&A). For instance, the CAPEX figure in 2002 corresponds to the acquisition of Pharmacia's 51% interest in the US Lorex Pharmaceuticals joint venture. Finally, Working Capital presents a somewhat volatile trend.

3. Financing analysis

		2003	2002	2001	2000	1999
Cash Flow from Operations (CFO)	M€	2265	1676	1818	1199	509
Cash Flow from Investments (CFI)	M€	-350	-1409	-113	-389	1113
Cash Flow from Financing (CFF)	M€	-1615	-1607	-480	-470	-16
Increase (Decrease) in Cash and Equivalents	M€	**300**	**-1340**	**1225**	**340**	**1606**
Net Debt (Cash)	M€	-3010	-2672	-3885	-2467	

Table 4 Financial Data (*Source: Annual report 2003)*

Although the variation of cash flows from year to year was very volatile, the amount of Cash and Equivalents was recurrently increased throughout the period. In years 1999 and 2001 there was a huge increase in Cash and Equivalents, driven by a positive CFI (asset disposals) in 1999 and a combination of high CFO and low CFI in 2001. On the contrary, the acquisition of Pharmacia's 51% Lorex Pharmaceuticals' in 2002 resulted in a negative cash flow for the year.

In any case, what is most relevant from Table 4 is the fact that Net Debt is negative, meaning that the company was in a very healthy financial position at the moment by holding a big amount of Net Cash on its Balance Sheet. This is of outmost importance given that Sanofi-Synthélabo was the acquirer within the Sanofi-Aventis deal and it might be a sign that the company was preparing itself for a big acquisition.

4. Returns analysis

		2003	2002	2001	2000
Operating Profit[4]	M€	3075	2614	2106	1577
ROCE	%	***31,5%***	***27,6%***	***21,1%***	***20,1%***
Net Income	M€	2076	1759	1585	985
ROE	%	***32,8%***	***29,1%***	***27,5%***	***22,9%***
Cost of Equity (ke)	%	12,0%			
Cost of Capital (WACC)	%	11,0%			

Table 5 Financial Data (*Source: Annual report 2003)*

Both ROCE and ROE had very similar values and followed the same trend. The figures show that the company had excellent returns, which can be seen by the comparison ROCE-WACC and ROE-ke. Where ROCE and ROE represent the real return for shareholders & debtholders and shareholders, respectively; and WACC and ke represent the required return by shareholders & debtholders and shareholders, respectively. Hence, both shareholders and debtholders were delivered more return than required during the period.

[4] *Operating profit before amortization and impairment of intangibles, also named EBITA*

2.2. Analysis of the target – Aventis

The target of the deal, Aventis, was a pharmaceutical group also headquartered in France and built from the earlier combination of a French pharmaceutical company (Rhône-Poulenc Rorer) and a German one (Hoechst Marion Roussel). Both Rhône-Poulenc Rorer and Hoechst Marion Roussel were built from several M&A transactions, which resulted in the creation of Aventis in 1999 (Backup 1).

Although the shareholder structure of Aventis was much more fragmented than that of Sanofi-Synthélabo, there was a majority shareholder, the Kuwait Petroleum Corporation, which held a 13,5% stake of Aventis.

FINANCIAL ANALYSIS

1. Margins analysis

		2003	2002	2001	2000
Net Consolidated Sales	*M€*	**17815**	**20622**	**22941**	**22304**
Growth	*%*	*-13,6%*	*-10,1%*	*2,9%*	
COGS	*M€*	-5377	-6578	-7943	-8469
R&D Expenses	*M€*	-2924	-3420	-3481	-3479
SG&A and other operating expenses	*M€*	-5364	-6773	-7228	-8987
Operating Profit[5]	*M€*	**4150**	**3851**	**4289**	**1369**
Financial Income (expense)	*M€*	-151	-309	-704	-805
Taxes and other items	*M€*	-2098	-1451	-2080	-711
Net Income	*M€*	**1901**	**2091**	**1505**	**-147**
Operating Margin	*%*	23%	19%	19%	6%

Table 6 Financial Data (*Source: Annual report 2003)*

Aventis' Net Consolidated Sales decreased steeply from 2001 until 2003, experiencing more than a 13% decline in 2003. A possible explanation for this decline might be the heterogeneity of the firm, which did not seem to be clearly focused on a few therapeutic areas (Figure 16). This can also be seen in the fact that its four flagship products represented less than 35% of their revenues (Figure 17), compared to 52% for Sanofi-Synthélabo. In any case, Aventis had a relevant international footprint, being present in many European countries and the US, among others (Figure 15).

Figure 15 Net Consolidated Sales by Geographical Region (*Source: Annual report 2003*)

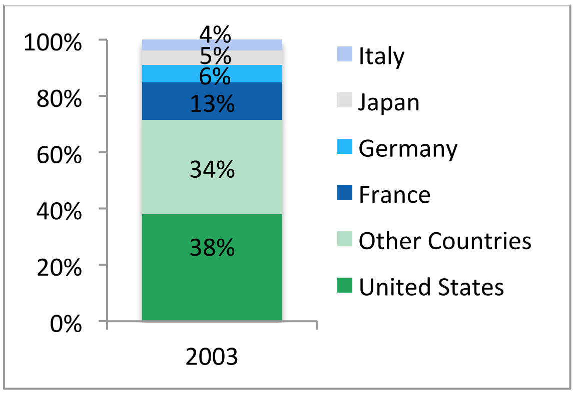
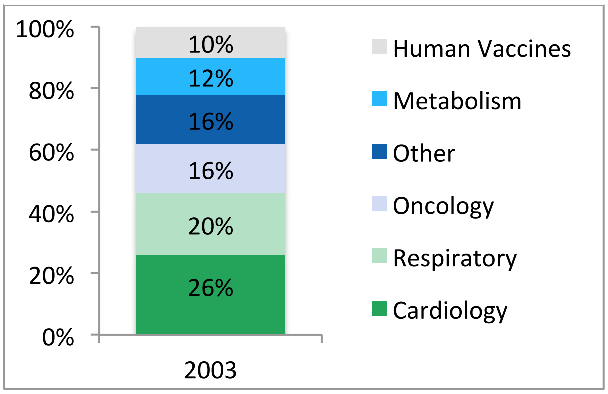
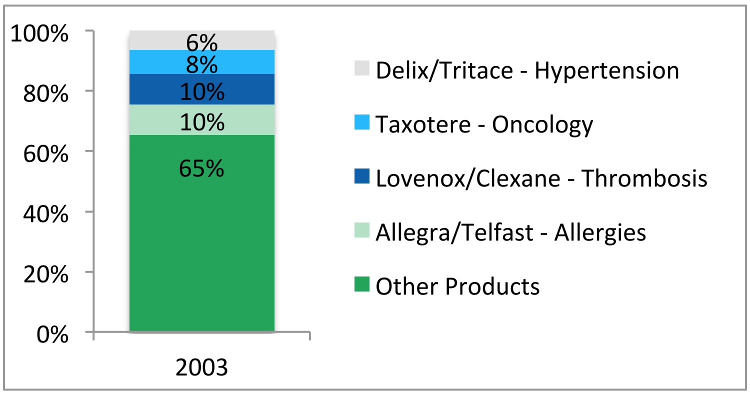


Figure 16 Net Consolidated Sales by Therapeutic Area (*Source: Annual report 2003*)



[5] *Operating profit before amortization and impairment of intangibles, also named EBITA*

Figure 17 Net Consolidated Sales by Product (*Source: Annual report 2003*)



Aventis' R&D expenses represented roughly 16% of Net Consolidated Sales (same level as Sanofi-Synthélabo), thus, it decreased accordingly with the revenues of the firm. In fact, the decrease in Net Consolidated Sales went hand in hand with a decrease in all expenses (COGS, R&D and SG&A). This trend resulted in an increasing operating profit and operating margin, although the latter was significantly lower than that of Sanofi-Synthélabo.

A decreasing financial expense reflects the decrease in Aventis' Net Debt over the period. Finally, the firm was profitable, but Net Income level seemed to be stagnated.

2. Capital investment analysis

		2003	2002	2001	2000
Working Capital	*M€*	619	-832	-1154	-1099
Fixed Assets	*M€*	4130	4455	5740	7498
D&A	*M€*	390	379	301	241
CAPEX	*M€*	1142	1459	1731	2502

Table 7 Financial Data (*Source: Annual report 2003)*

Like Sanofi-Synthélabo, Aventis was a capital-intensive business, since its Fixed Assets were much higher than Working Capital. Concretely, the fact that CAPEX was significantly higher than D&A shows that Aventis was expanding. However, it should be remarked that this expansion trend was smoothened throughout the period: D&A keeps raising, while CAPEX is halved from 2000 to 2003.

Regarding Working Capital, the company manages to have negative values at the beginning of the period. This denotes a good management of their inventories, accounts receivables and accounts payable, since the company is able to enjoy extra cash from receiving its receivables early and paying its payables late. However, this privileged position ends in 2003, when WC turned to be positive.

3. Financing analysis

		2003	2002	2001	2000
Cash Flow from Operations (CFO)	*M€*	1386	1859	3113	1271
Cash Flow from Investments (CFI)	*M€*	-284	3239	-720	-1441
Cash Flow from Financing (CFF)	*M€*	-1058	-5008	-2197	-460
Increase (Decrease) in Cash and equivalents	*M€*	**37**	**30**	**211**	**-626**
Net Debt (Cash)	*M€*	3960	3453	9195	13133

Table 8 Financial Data (*Source: Annual report 2003)*

CFO from operations was positive during the whole period, but still the amount was halved from 2001 to 2003 due to a significant increase in Working Capital Needs. Regarding CFI, yearly investments were fully covered by positive CFO (except for year 2000).

As for CFF, the figure was very volatile mainly because of a restructuring of the company's debt position. Indeed, it can be seen that Net Debt significantly decreased in 2002. Particularly, in 2002 Aventis divested its non-core agricultural branch for roughly 4700M€ (positive CFI), the proceeds of which were used to repay existing debt (negative CFF).

4. Returns analysis

		2003	2002	2001	2000
Operating Profit[6]	M€	4150	3851	4289	1369
ROCE	%	***14,7%***	***12,4%***	***10,9%***	***3,2%***
Net Income	M€	1901	2091	1505	-147
ROE	%	***18,2%***	***18,4%***	***12,5%***	***-1,4%***
Cost of Equity (ke)	%	12,0%			
Cost of Capital (WACC)	%	11,0%			

Table 9 Financial Data (*Source: Annual report 2003)*

ROE values are higher than ROCE ones due the leverage effect, namely, Aventis' indebtedness enabled the company to achieve a higher Net Income.

$$\text{ROE} = \frac{\text{Net Income}}{\text{SE}} \qquad \text{ROCE} = \frac{\text{EBIT}(1-\text{t})}{\text{CE}}$$

As shown above, ROE is not affected by the level of debt of the company, while ROCE contains Capital Employed, which accounts for a company's indebtedness. From this, we infer that ROCE is a more reliable metric than ROE.

By the comparison ROCE-WACC and ROE-ke, one sees that Aventis met its investors' expectations, since it delivered more return than the one initially required.

2.3. Rationale for the merger

On January 26th 2004, Sanofi-Synthélabo's CEO (Jean-François Dehecq) launched the first hostile takeover in the pharmaceutical sector's history, by bidding 48.500 M€ for the control of Aventis. The drivers for this aggressive move on behalf of Sanofi-Synthélabo were the higher level of competition among pharmaceutical companies and an increasing movement towards consolidation within the industry.

As Mr.Dehecq described it: "*I had a very strong feeling that if we didn't do this deal now then one of our international competitors would have bought either Aventis or Sanofi*" (Alscher, 2006). So as far as Sanofi-Synthélabo's CEO was concerned, a deal at this level was needed in order to assure that the company he managed could keep up with its international competitors, which were merging both in Europe and the US. Therefore, Mr.Dehecq's approach could be conceived as an attack move in order to defend Sanofi-Synthélabo.

The combination of Sanofi-Synthélabo and Aventis would result in the world's 3rd largest pharmaceutical company by sales, after GlaxoSmithKline (GSK) and Pfizer. It is important to remark that the trend towards consolidation that took place in the pharmaceutical sector at the time is characteristic of mature markets, in which only the biggest players end up being profitable and sustainable in the long-term.

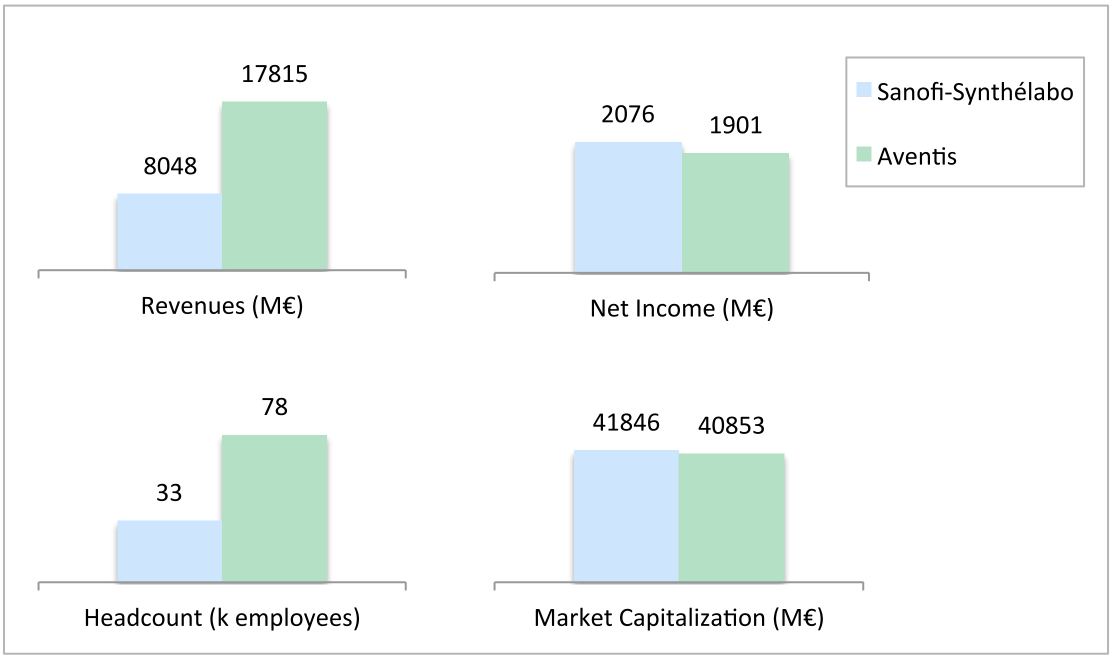
[6] *Operating profit before amortization and impairment of intangibles, also named EBITA*

Like in the major part of M&A transactions, the biggest motivation for the acquirer is the achievement of relevant synergies that will justify the premium paid for a particular target. Concretely, the targeted synergies amounted to 1.600 M€ with year-end 2006 as time horizon. These were to be mainly cost synergies that were expected to come from reducing staff and administrative costs from the headquarter offices.

Another reason that took Sanofi-Synthélabo to make a takeover offer for Aventis was the possibility to build a broader drug portfolio, which would enable risk diversification. This feature is highly valued in M&A transactions, since it adds high value to the entity while it does not require completely unknown skills from the acquirer in order to unlock the value.

Regarding the size of the transaction, the case of Sanofi-Synthélabo and Aventis is extremely particular given the fact that the firm launching the takeover bid (Sanofi-Synthélabo) was much smaller than the target company (Aventis).

Figure 18 Size comparison between Sanofi-Synthélabo and Aventis (*Source: annual reports 2003)*



As shown in Figure 18 Sanofi-Synthélabo's Net Consolidated Sales and Headcount were less than 50% that of Aventis, figures that made it somewhat unrealistic to believe that Sanofi-Synthélabo was the actual acquirer in the deal.

Nevertheless, as seen in Subsections II.2.1. and II.2.2., Sanofi-Synthélabo was in a better position than Aventis to become the acquirer of the deal. First, its flagship products were much more profitable. Second, its accumulated net cash located it in a very healthy financial position for an acquisition. Third, while Sanofi-Synthélabo had two major shareholders (Total and L'Oréal) holding almost 45% stake of the company, Aventis' shareholder structure was highly fragmented. Finally, Sanofi-Synthélabo was much better valued in the stock market (converging market capitalizations for companies of completely different revenue levels).

To end with, there is not much ground to analyse why Aventis accepted Sanofi-Synthélabo's offer, since this came from a hostile takeover bid. As it will be seen in the next subsection, it is believed that the factor that made Aventis accept the offer was the French Government's insistence on the fact that it was of best interest to create a "National Champion" in the pharmaceutical sector.

2.4. Merger negotiation process

This subsection will describe the negotiation process that took place from January until April 2004. The process involved Aventis as the target company, Sanofi-Synthélabo as the hostile bidder and Novartis as the friendly bidder. The negotiation process ended on 26th 2004, when the two former finally agreed to merge (Alscher, 2006).

Figure 19 Summary of the merger negotiation process (*Source: Alscher, 2006*)

A Hostile takeover bid	The White Night (Novartis)	A National Champion	Novartis - Aventis?	Sanofi - Aventis
January 2004	March 2004	March 2004	April 2004	April 2004

<u>A Hostile Takeover Bid (January 2004)</u>

On January 26th 2004, Sanofi-Synthélabo's CEO (Jean-François Dehecq) launched a hostile takeover for the control of Aventis. The initial offer included both cash (19%) and equity (81%), and valued Aventis' shares at 60,43€/sh, implying a price of 48.500 M€ for the acquisition of Aventis (Table 10).

Table 10 Initial offer from Sanofi-Synthélabo for Aventis – January 26th 2004 (*Source: annual report 2004)*

Financial Data		
Share Price		
Sanofi-Synthélabo[7]	€/sh	58,72
Aventis	€/sh	59,25
Market Capitalization		
Sanofi-Synthélabo	M€	41265
Aventis	M€	47536
Net Income (Dec 31st 2003)		
Sanofi-Synthélabo	M€	2076
Aventis	M€	1901
Number of shares		
Sanofi-Synthélabo	M sh's	702,75
Aventis	M sh's	802,29
Earnings per share (EPS)		
Sanofi-Synthélabo	€/sh	2,95
Aventis	€/sh	2,37
Miscellaneous		
Pre-Tax Synergies[10]	M€	1600
Pre-Tax cost new debt	%	4%
Tax rate (effective)	%	34%
Post-Tax cost new debt	%	3%

Transaction Details		
Acquisition's financing structure		
% shares (equity)	%	81%
% cash (debt)	%	19%
Equity and cash offer		
Acquired asset (Aventis shares)	sh's	6
Equity offer (S-S shares)	sh's	5
Cash offer	€	69,00
Implied values for the acquisition		
Exchange ratio[8]	-	1,03
Implied value Aventis share[9]	€/sh	60,43
Premium on share price	%	2%

[7] *Share price based on the 1-month average until January 21st 2004*
[8] *Exchange ratio = (Sanofi-Synthélabo Share Price x Equity offer + Cash offer)/(Acquired Asset x Sanofi-Synthélabo Share Price)*
[9] *Implied value per Aventis share = (Sanofi-Synthélabo Share Price x Equity offer + Cash offer)/Acquired Asset*
[10] *Targeted synergies for 2006 year-end*

The offer was rejected by Aventis on the day after with the support of Kuwait Petroleum Corporation (Aventis' major shareholder) as they pledged that: (i) they believed that Aventis' stock was undervalued at the time, so the premium offered was not enough; (ii) an equity offer of 81% transferred risk to Aventis shareholders given the uncertainty of the market's reaction; (iii) the transaction would entail important headcount reduction.

However, Sanofi-Synthélabo was eager to take forward the deal, so they focused on broadcasting the advantages that the transaction would entail for all stakeholders. This is why the company presented its financial results on February 16th 2004, which displayed very promising outcomes in terms of drugs portfolio as well as important R&D advancements. The idea was to transmit the message that a merger between Sanofi-Synthélabo and Aventis would result in the biggest European pharmaceutical player and, in turn, support these promising results.

Novartis: the White Night (March 2004)

Even though Aventis' initial idea was to remain as an independent entity, the movement towards consolidation in the pharmaceutical market challenged their ability to stay competitive in the long-term. Facing this situation, Aventis decided to seek an acquirer by themselves so as to escape Sanofi-Synthélabo's hostile offer.

The consolidation trend had also arrived to Switzerland, where the Swiss pharmaceutical company Novartis had been considering its merging options with Aventis or even with Sanofi-Synthélabo. Novartis' CEO, Daniel Vasella, seemed particularly keen on the merger with Aventis, which presented great potential for both firms:

i. Novartis-Aventis would become the 2nd biggest pharmaceutical firm in the world
ii. Their strong combined sales force would help boosting Aventis' growth, which was stagnated
iii. Achievement of a diversified drug portfolio combining both firms' flagship products
iv. Novartis' patents had longer average life than that of Sanofi-Synthélabo
v. Tax advantages within Switzerland
vi. Synergies were estimated to be 3 times the ones that Sanofi-Synthélabo could complete

Despite Mr.Vasella's interest in the merger with Aventis, the stock market did not react positively for Novartis upon the news, meaning that investors were sceptic about the success of the deal.

A National Champion (March 2004)

In the first place, the German and French governments had agreed not to intervene during the course of the negotiation process between Aventis, Novartis and Sanofi-Synthélabo. However, the president of the French Republic, Jacques Chirac, could not help giving his viewpoint on the matter by stating that the presence of a National Champion in the pharmaceutical industry would favour the country. Hence, he was exercising indirect pressure towards the merger of Aventis with Sanofi-Synthélabo. This move was criticised by many, but at the same time it made sense that the French president supported a French combined entity, given the high intervention of the state in the pharmaceutical industry through subsidies (see section I.1.1.).

After Mr.Chirac's statements, Novartis disclosed its interest in bidding for Aventis only under certain conditions that included the French government remaining neutral on the matter. Nevertheless, by the end of March Novartis had not yet submitted an offer for Aventis, a fact that drove Aventis' CEO (Igor Landau) to meet with the French Prime Minister in order to ensure their neutrality on the matter. It is important to mention that the European

Commission could not act against the French government's intervention on the deal because Aventis had not received a formal offer from Novartis at the time.

Aventis makes a step towards Novartis (April 2004)

Given Novartis' quietness, Aventis opted for taking the initiative on the negotiations with Novartis for a friendly takeover. The insistence of Aventis on closing a deal with Novartis was based on the fact that they relied on protecting their employees from staff reduction if a friendly takeover was agreed and in the better outcome from their merger with Novartis than with Sanofi-Synthélabo.

Furthermore, Aventis also tried to keep Sanofi-Synthélabo apart by disclosing their plan to issue special warrants to protect shareholders from the potential patent loss of one of Sanofi-Synthélabo's flagship products (Plavix).

Despite Aventis' stubbornness to avoid Sanofi-Synthélabo as their acquirer, the latter continued with the objective of merging with them. For instance, Sanofi-Synthélabo tried to take forward a takeover offer over the portion of Aventis' capital located in the US (around 20%). Moreover, to show its seriousness about the merger with Aventis, they divested in assets that were not compatible with the merger according to European regulators. The reason why Sanofi-Synthélabo could not keep these assets if they merged with Aventis was related to competitive regulation in the thrombosis therapeutic area, which would have granted the combined entity too much market share.

In the meanwhile, Novartis seemed fond of Aventis' initiative to start merger negotiations, so they decided to start the negotiation process on April 22nd 2004. Nonetheless, Novartis remained firm on their requirement to keep the French government aside from any negotiation process. But the French government could not help giving their perspective on the matter: Nicolas Sarcozy organised a meeting with Sanofi-Synthélabo's and Aventis' CEOs so as to put pressure for a Sanofi-Synthélabo Aventis merger. These events signalled uncertainty about the deal Novartis-Aventis succeeding among Novartis' investors.

Novartis was definitely ousted from the deal on April 23rd 2004, when the *Autorité des Marchés Financieres* (AMF) announced that Aventis' warrants against Sanofi-Synthélabo Plavix patent were illegal. Arrived to this point, Sanofi-Synthélabo has no longer to compete against Novartis for Aventis, but it indeed had to improve their offer if they wanted to close the transaction.

Merger of Sanofi-Synthélabo and Aventis (April 2004)

On April 25th 2004 a final takeover offer was presented from Sanofi-Synthélabo to Aventis (Table 11). This time, Aventis' management team had changed their mind about the nature of the takeover, and now considered it rather friendly given the improved financial conditions included in the offer (e.g. higher premium and higher cash percentage).

Table 11 Final offer from Sanofi-Synthélabo for Aventis – April 25th 2004 (*Source: annual report 2004)*

Financial Data			**Transaction Details**		
Share Price			**Acquisition's financing structure**		
Sanofi-Synthélabo[11]	*€/sh*	58,72	% shares (equity)	%	71%
Aventis[12]	*€/sh*	59,25	% cash (debt)	%	29%

[11] *Share price based on the 1-month average until January 21st 2004*
[12] *Aventis' share price as of January 26th 2004, given that the final offer was an amendment to the initial offer*

Market Capitalization				**Equity and cash offer**		
Sanofi-Synthélabo	M€	41265		Acquired asset (Aventis shares)	sh's	6
Aventis	M€	47536		Equity offer (S-S shares)	sh's	5
Net Income (Dec 31st 2003)				Cash offer	€	120,00
Sanofi-Synthélabo	M€	2076		**Implied values for the acquisition**		
Aventis	M€	1901		Exchange ratio[13]	-	1,17
Number of shares				Implied value Aventis share[14]	€/sh	68,93
Sanofi-Synthélabo	M sh's	702,75		Premium on share price	%	16%
Aventis	M sh's	802,29				
Earnings per share (EPS)						
Sanofi-Synthélabo	€/sh	2,95				
Aventis	€/sh	2,37				
Miscellaneous						
Pre-Tax Synergies[15]	M€	1600				
Pre-Tax cost new debt	%	4%				
Tax rate (effective)	%	34%				
Post-Tax cost new debt	%	3%				

For the reasons mentioned above, Aventis accepted the takeover bid and a deal was closed between both companies. It is important to stand out that the deal was not presented as an acquisition, but as a merger between equals. The following features were agreed upon:

i. Jean-François Dehec, Sanofi-Synhtélabo's former CEO, would be CEO and Chairman
ii. The Board of Directors would consist of 16 executives (50% of each company)
iii. The Management Board would also consist of 50% Sanofi-Synthélabo members and 50% Aventis members
iv. Creation of an Integration Committee that would monitor the post-merger integration process
v. 1.600 M€ were announced in synergies (2006 time horizon), but the forecasted staff cost reductions should be mainly focused on the German division of Aventis, as required by the French government.

<u>Stock price evolution during the negotiation process</u>

In terms of stock price analysis, it is important to remark that the negotiation process had a negative effect over Sanofi-Synthélabo's share price, while Aventis increased its value in the stock market (Figure 20). The inflection point took place on January 26th 2004, when the hostile takeover bid was launched. The explanation for Sanofi-Synthélabo's share price drop is the uncertainty that the deal would not end being completed, which would mean a failed attempt by Sanofi-Synthélabo. On the other hand, the interest of Sanofi-Synthélabo on Aventis is what boosted the latter's share price, since it gave a signal that Aventis was a key asset for Sanofi-Synthélabo and that it might have been undervalued at the moment.

A second drop on Sanofi-Synthélabo's share price can be observed on April 23rd 2004, when Novartis took the initiative to merge with Aventis and started a negotiation process. Finally, on

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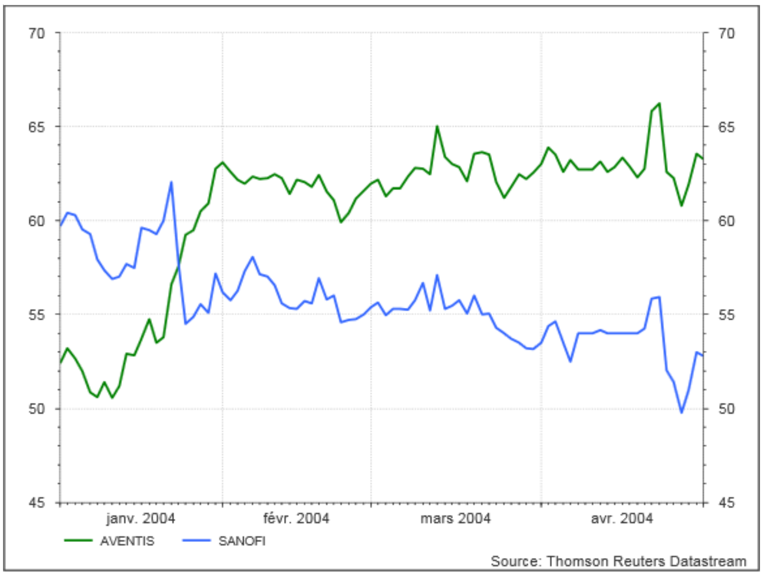
[13] *Exchange ratio = (Sanofi-Synthélabo Share Price x Equity offer + Cash offer)/(Acquired Asset x Sanofi-Synthélabo Share Price)*
[14] *Implied value per Aventis share = (Sanofi-Synthélabo Share Price x Equity offer + Cash offer)/Acquired Asset*
[15] *Targeted synergies for 2006 year-end*

April 26th Sanofi-Synthélabo's stock price recovers partially because of the closing of the deal with Aventis.

Figure 20 Pre-merger share price evolution of Sanofi-Synthélabo and Aventis



2.5. Post-merger integration process

The closure of the merger deal between Sanofi-Synthélabo and Aventis resulted in the new combined entity Sanofi-Aventis that, in terms of sales, had become Europe's largest pharmaceutical player and third worldwide following Pfizer and GlaxoSmithKline (GSK). As mentioned above, for France as a nation this implied the creation of a National Champion within the pharmaceutical industry, which was very positive for the country.

The post-merger integration process revolved around 7 main issues presented below:

i. Synergies: the 1.600 M€ planned synergies for 2006 included 1.000 M€ as cost synergies and 600 M€ as revenue synergies. The previsions were to achieve 10% of the in 2004, a figure that was exceeded by far on December 31st 2004.

ii. Reduction of staff costs: the achievement of the 1.600 M€ of synergies strongly relied on cost-cutting, but this was a delicate topic given than it entailed firing employees. Moreover, Sanofi-Synthélabo had agreed with the French government on cutting jobs abroad and not in France. This brought additional pressure, since by year-end 2004 almost 4k employees had been fired, a fact that triggered strikes in France.

iii. Restructuring the drug portfolio: Sanofi-Aventis divested roughly 1.500 M€ on Aventis' less profitable products with a view to focus on the flagship products of the combined entity. In addition, a new focus on the expansion of the generics branch was added.

iv. R&D productivity: a lot of effort was put in the integration of both R&D departments, since it was known that Sanofi-Synthélabo's R&D division was more productive than that of Aventis. This rose concerns about a possible decrease in productivity and this is why it was one of the main focuses of the post-merger integration process.

v. Integration Committee: this new committee was created to monitor the compliance of the post-merger integration objectives within the different divisions.

vi. Parisian headquarters: Sanofi-Aventis located its headquarters in Paris and managed to attain important synergies regarding administrative expenses.

vii. Cultural integration: there is no evidence on important cultural shocks between former Sanofi-Synthélabo and former Aventis, but as in any merger the cultural integration of both firms had to be followed closely. For instance, the “Fil Bleu” mechanism was introduced to allow employees ask any doubts they might have had to more senior circles within the company.

3. Merger's value creation (destruction)

3.1. Transaction's nature: accretion (dilution) analysis

The present subsection presents an analysis on whether the Sanofi-Synthélabo and Aventis merger was accretive or dilutive. This analysis has been done through two different approaches: (i) based on the merger's expectations and (ii) based on actual figures after the merger.

EPS analysis based on a pre-merger estimation

Based on the combination of the pre-merger data and the initial (Table 10) and final (Table 11) offers of Sanofi-Synthélabo for Aventis, an estimation of the accretion (dilution) of the transaction for Sanofi-Synthélabo's shareholders has been made. This estimation shows the EPS computation of the combined entity (Sanofi-Aventis) taking as time horizon year-end 2006, when the 1.600 M€ synergies were expected to be achieved.

Pre-Merger EPS Estimation for 2006		**Initial Offer** *January 26th 2004*	**Final Offer** *April 25th 2004*
Premium on Share price	*%*	**2%**	**16%**
Offer Price for Aventis	*M€*	**48485**	**55305**
Debt issued	*M€*	9212	16038
Equity issued	*M€*	39273	39266
Number of shares (S-S + Aventis)	*M sh's*	**1371,56**	**1371,45**
Post-Tax impact of synergies	*M€*	1056	1056
Post-Tax impact of new debt	*M€*	-243	-423
Proforma Net Income (S-S + Aventis)	*M€*	**4790**	**4610**
EPS (S-S + Aventis)	*€/sh*	**3,49**	**3,36**
Accretion (dilution)	*%*	*18,2%*	*13,8%*

Table 12 Pre-merger EPS and accretion (dilution) estimation for 2006

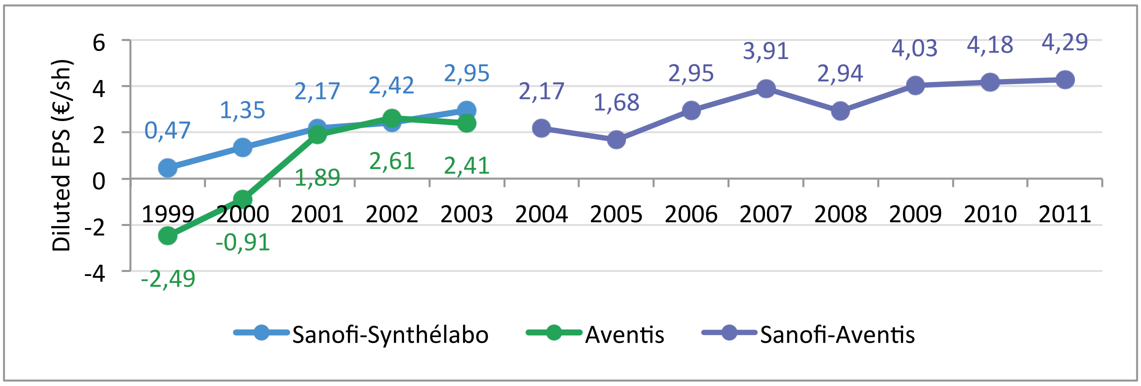
As it can be observed in Table 12, the transaction was accretive for Sanofi-Synthélabo's shareholders both for the initial and the final offer made for Aventis. On the one hand, the accretion is much more accentuated in the first offer, since Sanofi-Synthélabo offered a very low premium (2%) and this lowered significantly the cost of the transaction, which was partially financed by equity (81% - Table 10). On the other hand, the final offer results in a slightly lower accretion. This can be explained by two reasons: (i) the premium has increased to 16% making the transaction cost higher; (ii) a higher portion is financed by cash (29% - Table 11) increasing the post-tax impact of new debt.

In any case, one can see that the pre-merger EPS estimation indicates a clearly accretive transaction. From this one can infer that the merger of Sanofi-Synthélabo with Aventis was expected to create value for Sanofi-Synthélabo's shareholders. However, it is important to bear in mind that the figures shown in Table 12 are only an estimation and do not correspond to the real EPS that resulted from the merger. This assumption makes sense due to the fact that even if the merger is the factor that most affects the Net Income of the combined entity, there are other factors that come into play during the period 2004-2006.

EPS analysis based on post-merger figures

An EPS evolution analysis of both the separate (1999-2003) and combined entity (2004-2011) will be undertaken in what follows. The objective of this analysis is to determine whether the transaction was actually accretive (based on real figures) and, if so, if it reached the expected level of accretion for Sanofi-Synthélabo's shareholders.

Figure 21 EPS evolution for Aventis and Sanofi-Synthélabo (1999-2003) and Sanofi-Aventis (2004-2011)
(Source: annual reports Aventis, Sanofi-Synthélabo and Sanofi-Aventis)



The first timeframe of Figure 21 (1999-2003) shows the EPS evolution of Sanofi-Synthélabo and Aventis. The former has higher EPS than the latter, a fact that is not surprising given the healthier financial position that Sanofi-Synthélabo had at the time and led it to bid for Aventis.

Regarding the second timeframe (2004-2011), one observes that, compared to Sanofi-Synthélabo, the EPS of Sanofi-Aventis were lower in 2004 and 2005. This can be explained by the fact that an acquisition takes time to consolidate: costs are immediately taken over, while synergies are achieved within months or years. Precisely, this is the case of the Sanofi-Aventis merger, that targeted its 1.600 M€ synergies for year-end 2006. Consequently, if one focuses on 2006, Sanofi-Aventis' EPS (2,95 €/sh) are indeed higher than that of Sanofi-Synthélabo at the time of the merger (2,41 €/sh).

In addition, regarding the 2006 year-end Sanofi-Aventis EPS, it is worth noting that the pre-merger estimation that was made (3,36 €/sh) is higher than the one really achieved (2,95€/sh). As mentioned before, this is due to the fact that during the period 2004-2006, Sanofi-Aventis made investments and financial decisions that affected the earnings of the company. For instance, it is known that the merger gave rise to important intangible amortization and restructuring charges, which justify a lower EPS figure than expected.

Therefore, one can conclude that the Sanofi-Aventis merger was accretive by year-end 2006 and, hence, created value for the acquirer's shareholders.

3.2. Post-merger financial analysis

This subsection covers an analysis of the financial performance of Sanofi-Aventis after the merger that took place on April 25th 2004. The objective of this study is to determine the financial outcome of the merger and whether value was created from the Sanofi-Synthélabo and Aventis merger.

FINANCIAL ANALYSIS

1. Margins analysis

		2011	2010	2009	2008	2007	2006	2005	2004
Net Consolidated Sales	M€	**33389**	**32367**	**29306**	**27568**	**28052**	**28373**	**27311**	**14871**
Growth	%	*3,2%*	*10,4%*	*6,3%*	*-1,7%*	*-1,1%*	*3,9%*	*83,7%*	
COGS	M€	-10902	-9398	-7880	-7337	-7571	-7587	-7566	-4439
R&D Expenses	M€	-4811	-4547	-4583	-4575	-4537	-4430	-4044	-2389
SG&A expenses	M€	-10158	-9594	-8020	-7474	-7476	-7483	-9006	-4898
Operating Profit (EBITA)	M€	**9187**	**10497**	**10266**	**9431**	**9623**	**9989**	**7897**	**4007**
Financial Income (expense)	M€	-412	-362	-300	-232	-139	-80	-245	-115
Taxes and other items	M€	-2841	-4414	-4275	-4907	-3802	-5510	-5059	-1651
Net Income	M€	**5934**	**5721**	**5691**	**4292**	**5682**	**4399**	**2593**	**2241**
Operating margin	%	*28%*	*32%*	*35%*	*34%*	*34%*	*35%*	*29%*	*27%*

Table 13 Financial Data (*Sources: Annual reports 2006, 2009, 2011)*

As it can be seen, after the merger and consolidation of accounts, sales were almost doubled from 2004 to 2005. Over the period, consolidated sales grew organically with the exception of 2008, when sales decreased from the previous year. This slowdown can be explained by: (i) a substantial crisis affecting the global economy, which put pressure on pricing and reimbursement; (ii) high competition in generics within the US (Table 14), (iii) a negative effect of exchange rate movements, mostly coming from the USD.

Country		**2008**	**2007**
Europe	M€	12096	12184
United States	M€	8609	9474
Other	M€	6863	6394
Total Sales	M€	**27568**	**28052**

Table 14 Sales break-down (*Source: annual report)*

On the other hand, COGS were proportional to sales level, a fact that smoothened the effect on the company's margins on 2008 despite lower sales that year. As for R&D expenses, these were coherent with the figures that have been analysed in the past for the separate entities (Sanofi-Synthélabo and Aventis) accounting for between 14,5% and 16,5% of net consolidated sales.

Concerning operating profit and margins, these fluctuated to some extent but remained significantly high (roughly 30%), indicating that the company had strong margins that resulted in a positive Net income throughout the whole period.

Figure 22 Net Consolidated Sales by Geographical Region (*Source: Annual report 2006*)

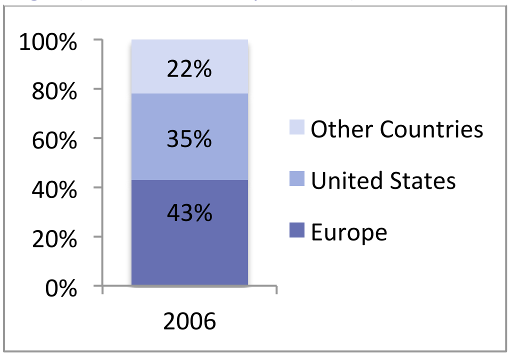


Figure 23 Net Consolidated Sales by Therapeutic Area (*Source: Annual report 2006*)

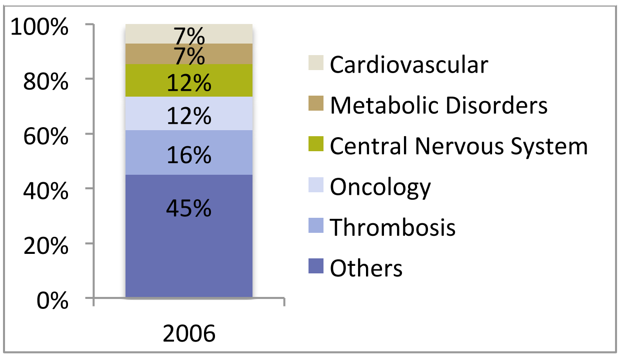
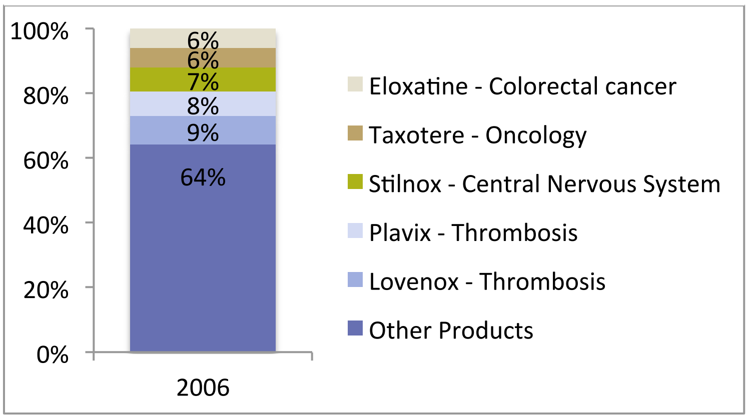


Figure 24 Net Consolidated Sales by Product (*Source: Annual report 2006*)



Finally, figures 3 years after the merger (2006) show how the company had been able to become more diversified geographically: shifting from European dependence (58% sales in Europe) to 43% in Europe, 35% in the United States and 22% elsewhere (Figure 22).

In addition, it was able to boost its strength in more therapeutic areas by combining the expertise of Sanofi-Synthélabo (oncology, cardiovascular, thrombosis and central nervous system) and Aventis (metabolism, oncology and cardiovascular) (Figure 23). In turn, this permitted the promotion of 5 flagship products: Eloxatine[16], Taxoterre[17], Stilnox[16], Plavix[16] and Lovenox[17] (Figure 24).

2. Capital investment analysis

		2011	2010	2009	2008	2007	2006	2005	2004
Working Capital	M€	6090	5103	4464	3262	3297	3066	2149	1685
Property, Plant and Equipment (PPE)	M€	10750	8155	7830	6961	6538	6219	6184	5892
D&A	M€	5553	5129	5011	5985	4664	6113	5951	2244
CAPEX	M€	15372	3321	7348	2267	1824	1967	1839	15126

Table 15 Financial Data (*Sources: Annual reports 2006, 2009, 2011)*

In the first place, as for the separated entities, one can see that Sanofi-Aventis was a capital-intensive business, with Fixed Assets higher than Working Capital.

In terms of CAPEX, the cash outflow associated to the merger with Aventis can be clearly observed in 2004. In the period that follows (2005-2008), Sanofi-Aventis entered in a strategy of very low CAPEX in order to recover from the huge financial effort that the Aventis merger had meant for the company.

In 2009, the company resumed its inorganic growth strategy by making several minor acquisitions (Table 16). This is an important inflexion point, since resuming acquisitions did not only mean that Sanofi-Aventis had financially recovered from the merger in 2004, but also that they believed that the strategy of inorganic growth was a successful one for them. In other words, the fact that they decided to continue acquiring pharmaceutical companies, implied that the merger move that they made towards Aventis in 2004 was perceived as value creating for shareholders.

[16] *Former Sanofi-Synthélabo product*
[17] *Former Aventis product*

A fact that confirms this hypothesis is the acquisition of the American biotechnology company Genzyme Corporation for 13.590 M€ in 2011. This acquisition was at the level of the Aventis merger in terms of volume and purchase price and meant a step forward towards the US market, where Sanofi-Aventis was already present (Table 16).

	Acquired Company	Purch. Price	Origin Country	Pharmaceutical Area
2009	Interest of Merck in Merial Ltd[18]	2.600 M$	United States	Animal health
	Zentiva	1.200 M€	Czech Republic	Generics
	Shantha Biotechnics	571 M€	India	Biotechnology
	Medley Pharma	348 M€	Brazil	Generics
2010	Chattem	1.640 M€	United States	Consumer healthcare
	Nepentes Pharma	104 M€	Poland	Consumer healthcare
2011	BMP Sunstone Corporation	521 M€	China	Pharma and healthcare
	Genzyme Corporation	13.590 M€	United States	Biotechnology

Table 16 Sanofi-Aventis 2009-2011 acquisitions (*Sources: Annual reports 2009, 2010, 2011)*

Finally, D&A was somewhat constant and Working Capital increasing although not alarming, since it grew in accordance to the company's size. Hence, it makes sense that they had higher inventories and A/R requirements, leaving less cash available for the company.

3. Financing analysis

		2011	2010	2009	2008	2007	2006	2005	2004
Cash Flow from Operations (CFO)	*M€*	9319	9859	8515	8523	7106	6604	6398	4049
Cash Flow from Investments (CFI)	*M€*	-14701	-3475	-7287	-2154	-1716	-790	-1101	-14173
Cash Flow from Financing (CFF)	*M€*	2893	-4646	-787	-3809	-4820	-5854	-5985	9222
Increase (Decrease) in Cash and Eq.	*M€*	**-2341**	**1793**	**466**	**2515**	**558**	**-96**	**-591**	**-925**
Net Debt (Cash)	*M€*	11315	1795	4135	1780	4230	5791	9926	14202

Table 17 Financial Data (*Sources: Annual reports 2006, 2009, 2011)*

The financing analysis goes hand in had with capital investment: net debt increase when acquisitions were made and net debt decrease on the so-called *recovery years.*

Following this rationale, there is a huge increase in Net Debt in 2004, representing the part of the Aventis merger that was financed with cash. From 2005 until 2008, cash flow from investments (CFI) was very low, so cash flow from operations (CFO) permitted the repayment of debt (negative CFF) and, thus, the reduction of Net Debt. In 2009 and 2011 Net Debt goes up again due to the acquisitions described in Table 16.

4. Returns analysis

		2011	2010	2009	2008	2007	2006	2005	2004
Operating Profit (EBIT)	*M€*	5731	6535	6366	4394	5911	4828	2888	2426
ROCE	*%*	***5,7%***	***7,7%***	***8,0%***	***6,1%***	***8,2%***	***6,2%***	***3,3%***	***2,8%***
Net Income	*M€*	5934	5721	5691	4292	5682	4399	2593	2241
ROE	*%*	***10,6%***	***10,8%***	***11,8%***	***9,6%***	***12,8%***	***9,6%***	***5,6%***	***5,5%***

Cost of Equity (ke)	*%*	12,0%
Cost of Capital (WACC)	*%*	11,0%

Table 18 Financial Data (*Sources: Annual reports 2006, 2009, 2011)*

[18] *Granting Sanofi-Aventis 100% control of the animal healthcare company Merial Limited*

Both ROCE and ROE increased gradually until the global crisis and the generics threat hit the United States market in 2008. Afterwards returns decreased until 2011, when the acquisition of Genzyme Corporation took place. In addition, one observes that ROE is higher than ROCE due to the leverage effect (see Section II.2.2.4. as a reminder of the rationale).

It is important to notice that in terms of returns, Sanofi-Aventis showed significantly lower figures than that of Sanofi-Synthélabo in the past. In order to understand this performance, it is useful to take a look into the ROCE and ROE formulas:

$$\mathrm{ROE} = \frac{\text{Net Income}}{\mathrm{SE}} \qquad \mathrm{ROCE} = \frac{\mathrm{EBIT}(1-t)}{\mathrm{CE}}$$

On the one hand, the value of Shareholders' Equity (SE) was significantly increased given that the merger with Aventis was partially (71%) financed through an Equity Issuance (E_{issue}):

$$SE_{post\text{-}merger} = SE_{pre\text{-}merger} + E_{issue} = 6.323 \text{ M€} + 39.266 \text{ M€} = 45.589 \text{ M€}$$[19]

On the other hand, each time an acquisition is made earnings remain somewhat stagnant in the short-term, given the time it takes to consolidate synergies in comparison to the immediate takeover of costs. For this reason, one can observe that the ROE value decreased significantly after the merger.

The same rationale applies for ROCE, where Capital Employed (CE) is higher due to higher Net Debt and Shareholders' Equity and margins are lower as a consequence of the post-merger integration process.

3.3. Post-merger stock market analysis

This subsection focuses on the stock market performance of Sanofi-Aventis after the merger of 2004. The aim is to determine whether the transaction was perceived as successful by investors, who were the ones concerned by the value creation (destruction) related to the merger's outcome.

		2011	2010	2009	2008	2007	2006	2005	2004
Stock Price (Po)	€/sh	56,2	48,65	55,06	44,15	63,92	70,4	75,3	59,05
Diluted EPS	€/sh	4,29	4,18	4,03	2,94	3,91	2,95	1,68	2,17
P/E	-	**13,10x**	**11,64x**	**13,66x**	**15,02x**	**16,35x**	**23,86x**	**44,82x**	**27,21x**
DPS	€/sh	2,5	2,42	2,22	2,07	1,75	1,52	1,2	1,02
Dividend payout	%	23%	55%	51%	63%	42%	47%	62%	33%
Market Cap	M€	75329	63779	72484	58062	87134	95576	105095	82214
Equity Book Value (SE)	M€	56219	53097	48188	44866	44542	45600	46128	40810
Price to Book Value	-	**1,34x**	**1,20x**	**1,50x**	**1,29x**	**1,96x**	**2,10x**	**2,28x**	**2,01x**
Beta	-	0,8							

Table 19 Financial and stock market data (*Sources: annual reports 2006, 2009, 2011 and Thomson Reuters)*

[19] *This figure does not take into account the increase in Shareholders' Equity due to Retained Earnings (RE)*

The **Stock Price evolution** of Sanofi-Aventis, which can be seen in Table 19 and Figure 25, is a good indicator of how investors reacted just after the transaction and in the following years. Taking 2011 as time horizon, one can see that the share price of the company has ups and downs during the period, indicating volatility in the investors' opinion about the company.

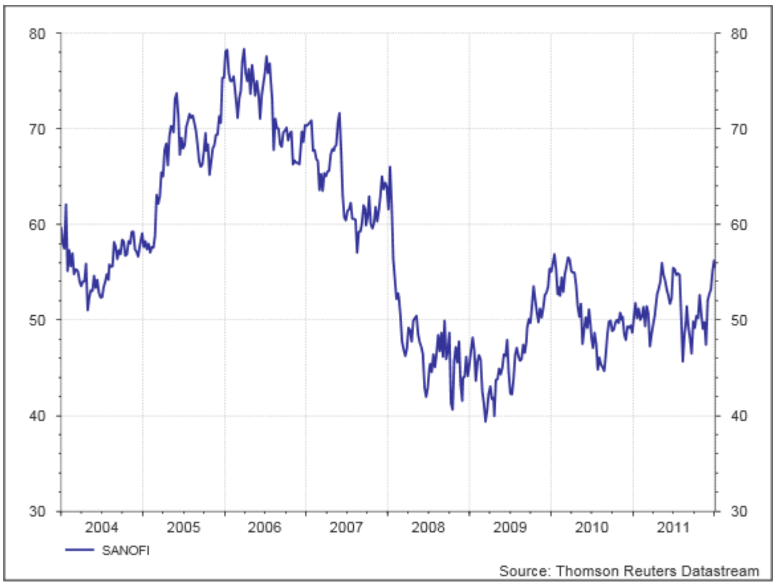
In the years following the transaction Sanofi-Aventis' share price presented a steep upward trend, with roughly 30% increase from 2004 to 2006. This performance denotes high satisfaction and confidence on behalf of the stock market after the merger, two factors that boosted the firm's share price.

In the mid-term, from 2007 until 2010, there was a significant decline in the company's share price and two arguments for this have been considered:

- The pronounced slump in 2008 was related to the high competition in generics that hit the US market that year, added to a negative effect of USD exchange rate movements. In addition, the global economic crisis also put pressure in pricing and reimbursement.
- Besides the obstacles of 2008, the stock price was also smoothened due to the end of the post-merger momentum. That is, while the Sanofi-Synthélabo Aventis merger in 2004 represented a huge boom in the pharmaceutical sector, the stock market could not keep going up forever without significant milestones being met. Thus, in the midterm it started to stabilize in 2007.

In 2011 the company's share price starts to increase again, a recovery that comes hand in hand with the acquisition of Genzyme Corporation. This makes sense, since the acquisition represented a boom in the stock market and re-boosted investors' confidence for Sanofi-Aventis, a reaction they reflected by increasing the stock price.

Figure 25 Stock price evolution Sanofi-Aventis (*Source: Thomson Reuters)*



Taking a look at **Diluted Earnings Per Share (EPS)**, one sees that these increase progressively during the period, excluding 2008 for the reasons mentioned above. Concretely, this means that the company was able to keep growing and multiply its earnings, which went from 2,17 €/sh just after the merger until 4,29 €/sh in 2011.

The **Price to Earnings ratio (P/E)** represents the combination of the Stock Price and EPS, and gives a sense on how the company is perceived by the stock market relative to its actual performance. From the discussion above one can distinguish two periods:

- Abnormally high P/E ratio (2004-2006): characterized by a very high stock price and low EPS due to the not yet completed post-merger integration (synergies).
- Stabilized P/E ratio (2007-2011): the stock price momentum had smoothened and EPS had risen significantly, since targeted synergies had been reached.

Regarding dividends, **Dividends Per Share (DPS)** were consistently increased over the period, no matter what the earnings evolution was. It is important to remark that the **Dividend Payout** was significantly high (around 50%), a fact that denotes the maturity of the pharmaceutical industry. However, this point is somewhat surprising given that neither Sanofi-Synthélabo nor Aventis distributed as many of their earnings as dividends in the past.

Finally, the **Price to Book Value ratio** was always greater than 1, meaning that the Shareholders' Equity of the company had a higher value in the stock market than in the books. This was positive because it implied that the company was well valued in the stock market. Concretely, the Price to Book Value ratio followed the exact same trend than the P/E ratio, namely, a first stage of very high values due to the high stock price and a second stage of stabilization, where Market Capitalization and Equity Book Value came closer.

To sum up, from the different stock metrics it can be concluded that Sanofi-Aventis experienced a first phase of overvaluation in the stock market followed by a stabilization phase. Moreover, the company was well perceived by the market and was able to distribute high dividends to its shareholders over the period. Overall, it can be said that existing **shareholders could have extracted positive value from the merger** in two different ways:

- By selling their shares in the period that went from 2004 to 2006, when the Sanofi-Aventis share price skyrocketed.
- By keeping their shares and: (i) receiving high yearly dividends; (ii) holding shares of a firm that had demonstrated to be able to increase its EPS year per year (accretive).

3.4. Post-merger peers analysis

This subsection will cover an exhaustive comparison between Sanofi-Aventis and its peers, both in terms of **share price evolution** and **multiple comparables**. Considering the sector, size (by sales volume and market capitalization) and markets penetrated by Sanofi-Aventis, the following peers have been selected as the most relevant:

Peer	Headquarters	Logo
Novartis	Switzerland	NOVARTIS
Roche Holding	Switzerland	Roche
Pfizer	United States	Pfizer
AstraZeneca	United Kingdom	AstraZeneca
GlaxoSmithKline (GSK)	United Kingdom	gsk GlaxoSmithKline

3.4.1. Share price evolution

Although all companies follow temporary trends in terms of share price evolution, it is know that share prices vary widely from company to company and this makes it very difficult to extract conclusions from the comparison of companies' share prices in absolute value.

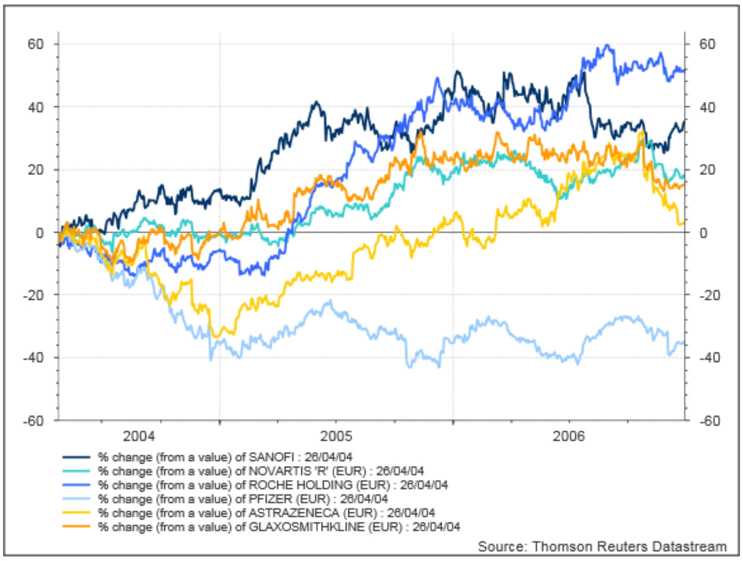
In order to tackle this issue, what has been done in this subsection is analyse how the share price of Sanofi-Aventis and its peers changed with respect to a same *start date* for a given period. The *reference or start date* that has been established is April 26th 2004 (26/04/2004), the day after the merger of Sanofi-Synthélabo and Aventis took place.

Therefore, the subsequent graphs show how a given peer's share price changed (% change) with respect to their share price on April 26th 2004. Three periods with different length have been considered (2004-2006, 2004-2011 and 2004-2016).

<u>Short-term share price evolution (2004-2006)</u>

Notably, a year and a half after the merger, in mid-2005, Sanofi-Aventis experienced a 40% share price increase, a figure that was comfortably held until the end of 2006. Indeed, Sanofi-Aventis outperformed all of its peers in terms of share price evolution until mid-2006, when Roche Holding managed to take the lead from them. This fact discloses the stock market's confidence in the merged company's potential and their renewed strength against competitors at that moment. On the other edge, companies such as Pfizer or AstraZeneca experienced a share price drop, which in the case of Pfizer was not recovered during the period.

Figure 26 Peers' share price evolution (as percent change) from 2004-2006 (*Source: Thomson Reuters)*

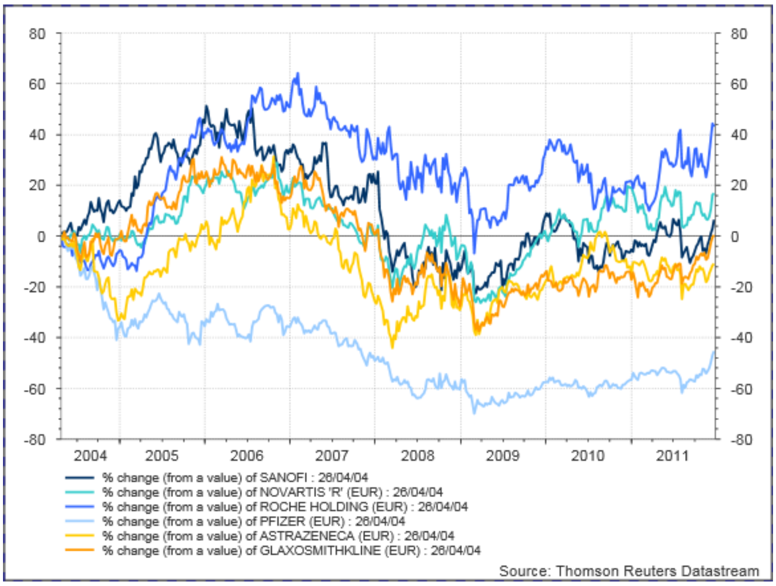


<u>Medium-term share price evolution (2004-2011)</u>

Taking a look into a larger time horizon, one observes how all the pharmaceutical players were affected by the slowdown that took place in 2007 and 2008. In fact, except for Roche Holdings, all of them had lower share prices than that on 26/04/2004 (*reference date*).

But even if it is surprising to see that their stock values were in a worse position than 4 years before, the crisis came across as an opportunity for some. For instance, Novartis and Sanofi-Aventis were two of the first to start recovering in 2009. Concretely, Novartis overtook Sanofi-Aventis in that race, leaving the stock market podium in 2011 as follows: Roche Holdings, Novartis and Sanofi-Aventis. GSK and AstraZeneca partially recovered, while Pfizer continued at the lower end.

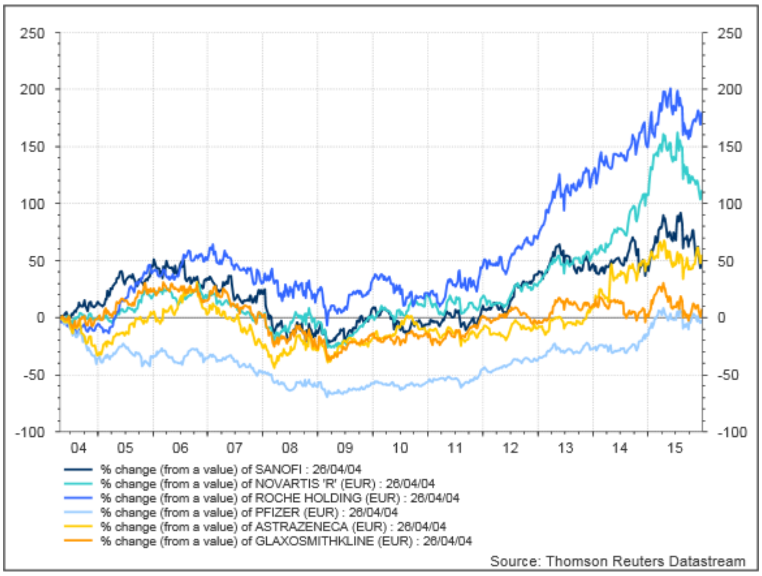
Figure 27 Peers' share price evolution (as percent change) from 2004-2011
(*Source: Thomson Reuters)*



Long-term share price evolution

Finally, a long-term analysis has been done, taking as time horizon year-end 2015. Not surprisingly, the position of the different players does not vary with respect to the mid-term picture. More precisely, the positions remained and distances among players widened within time. One can clearly see Roche Holdings as the outperformer of the pharmaceutical market, which had increased its share price +200% by 2016, followed by Novartis (+100%) and Sanofi-Aventis (+50%).

Figure 28 Peers' share price evolution (as percent change) from 2004-2016
(*Source: Thomson Reuters)*



To conclude, Sanofi-Aventis was able to notably outperform its peers in the years following the merger (2004-2006), indicating that the merger had a very positive impact on the company's perception within the stock market, which boosted its reliability and growth expectations. As for the mid and long run it is difficult to link Sanofi-Aventis' performance to a merger that occurred in 2004. But it is clear that even if many factors enter into place, the merger and subsequent acquisitions have given the firm some of the tools and strengths to remain as one of the top-3 players up to now.

3.4.2. Multiple comparables

With the aim to complete the value creation analysis, four valuation multiples have been selected to assess the valuation of Sanofi-Aventis relative to its peers in the period that goes from 2004 until 2011: EV/Sales, EV/EBITDA, EV/EBIT and P/E.

The first 3 ratios consider the company's the Enterprise Value (EV) and give a sense on how the leveraged company is perceived by the market relative to its actual performance (Sales, EBITDA and EBIT). The last ratio represents the combination of the Stock Price and EPS, and gives a sense on how the company is perceived by the stock market relative to its actual earnings.

The raw data and computations for this subsection are included in the **Backup Section** (from Backup 2 to Backup 9).

EV/Sales Multiple

	2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	**2,59x**	**2,03x**	**2,61x**	**2,17x**	**3,26x**	**3,57x**	**4,21x**	**6,48x**
Novartis	3,09x	3,04x	3,03x	3,10x	3,40x	4,26x	4,71x	2,78x
Roche Holding	2,85x	2,31x	2,97x	2,12x	2,65x	3,56x	4,05x	3,90x
Pfizer	2,63x	2,33x	3,38x	2,21x	2,99x	3,48x	3,20x	2,51x
AstraZeneca	1,76x	1,84x	2,01x	2,70x	2,54x	2,76x	3,28x	3,61x
GlaxoSmithKline (GSK)	3,02x	2,53x	2,74x	3,11x	3,39x	3,43x	4,15x	3,51x
Average	**2,67x**	**2,41x**	**2,83x**	**2,65x**	**2,99x**	**3,50x**	**3,88x**	**3,26x**
Median	**2,85x**	**2,33x**	**2,97x**	**2,70x**	**2,99x**	**3,48x**	**4,05x**	**3,51x**

Table 20 Peers' EV/Sales multiple (*Source: Thomson Reuters – see Backup Section*)

From 2004 until 2007 Sanofi-Aventis had a high EV/Sales multiple, which dropped in years 2008, 2009 and 2010 and started to recover in 2011. The explanation for this shall be done through a twofold analysis:

- Sales: Sanofi-Aventis' sales increased gradually from year to year during 2004-2011 as it was seen in the Financial Analysis (Section II.3.2.). This means that the sales sides had no special effect on the volatility of the EV/Sales multiple during the period.
- Enterprise Value (EV): depends on both Market Capitalization and Net Debt, two figures that varied widely in Sanofi-Aventis during the analysed period. As mentioned in the Stock Market Analysis subsection (Section II.3.3.), Sanofi-Aventis experienced two share price phases after the merger: (i) skyrocketing share price in 2004-2006; (ii) stabilization in 2007-2011. Therefore, with a very high market capitalization, it makes sense to see a high EV/Sales multiple in 2004-2006 that was afterwards stabilized. The slight increase in 2011 coincides with the acquisition of Genzyme Corporation that increased the share price again.

In comparison to its peers, Sanofi-Aventis outperforms most of them until 2007, but afterwards it positions itself just before the last. This performance indicates that Sanofi-Aventis delivered high value to its shareholders during the first years after the merger (2004-2006), when its valuation was far higher than its competitors. On the other hand, it was unable to maintain its abnormally high share price for longer than 4 years, when its valuation in the stock market stabilised even if it kept a healthy organic growth. Hence, one of Sanofi-Aventis' strategic move to keep attracting investors was probably to resume its acquisitions policy with the huge purchase of Genzyme in 2011.

EV/EBITDA Multiple

	2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	**10,08x**	**6,09x**	**7,06x**	**6,47x**	**9,81x**	**11,11x**	**39,76x**	**82,69x**
Novartis	10,85x	10,41x	10,79x	11,66x	12,61x	14,79x	17,73x	14,48x
Roche Holding	8,63x	6,59x	9,90x	5,41x	6,98x	9,96x	14,51x	7,64x
Pfizer	8,47x	8,64x	10,05x	6,19x	10,82x	8,90x	9,58x	11,68x
AstraZeneca	3,82x	4,34x	5,08x	6,91x	6,68x	7,10x	9,55x	8,70x
GlaxoSmithKline (GSK)	10,33x	9,13x	7,64x	8,19x	8,49x	9,91x	12,07x	10,07x
Average	**8,42x**	**7,82x**	**8,69x**	**7,67x**	**9,11x**	**10,13x**	**12,69x**	**10,51x**
Median	**8,63x**	**8,64x**	**9,90x**	**6,91x**	**8,49x**	**9,91x**	**12,07x**	**10,07x**

Table 21 Peers' EV/EBITDA multiple (*Source: Thomson Reuters – see Backup Section*)

In 2004 and 2005 Sanofi-Aventis had an uncommonly high valuation, which can be explained by two factors: (i) a very high stock price after the merger; (ii) relatively low EBITDA margins, taking into account that synergies took time to be achieved. In the following years the EV/EBITDA multiple seemed to stabilize, being at its lowest in 2008 due to the aforementioned crisis that hit the US pharmaceutical market.

In terms of peers, Sanofi-Aventis outperformed the market from 2004 until 2007 and back again in 2011. Remarkably, this outperformance is much more pronounced than for the EV/Sales multiple, which denotes that one Sanofi-Aventis' strengths in comparison to its peers was cost control.

This relative overperformance indicates that during most of the period investors were optimistic about the company's capability to generate significant EBITDA and, thus, deliver value to its shareholders.

EV/EBIT Multiple

	2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	**15,12x**	**10,03x**	**12,04x**	**13,62x**	**15,46x**	**21,00x**	**39,83x**	**39,74x**
Novartis	14,86x	12,61x	13,19x	14,77x	15,99x	18,10x	20,57x	17,11x
Roche Holding	10,36x	7,77x	12,12x	6,33x	8,14x	12,11x	17,76x	11,06x
Pfizer	8,47x	8,64x	10,05x	6,19x	10,82x	8,88x	9,58x	11,68x
AstraZeneca	4,35x	5,16x	5,80x	8,45x	7,94x	8,18x	11,40x	11,35x
GlaxoSmithKline (GSK)	13,19x	11,22x	9,03x	9,73x	9,61x	9,91x	13,04x	12,37x
Average	**10,25x**	**9,08x**	**10,04x**	**9,10x**	**10,50x**	**11,44x**	**14,47x**	**12,71x**
Median	**10,36x**	**8,64x**	**10,05x**	**8,45x**	**9,61x**	**9,91x**	**13,04x**	**11,68x**

Table 22 Peers' EV/EBIT multiple (*Source: Thomson Reuters – see Backup Section*)

The conclusions extracted from the high EV/EBIT valuation in 2004 and 2005 are very similar to that of the EV/EBITDA: (i) an abnormally high valuation driven by a very high stock price after the merger, (ii) relatively low operating margins taking into account that synergies took time to be achieved. However, from 2006 until 2010, the EV/EBIT multiple decreased progressively, a behaviour that is associated with an important rise of amortization charges over the period. Finally, in 2011 the EV/EBIT valuation went up again thanks to the share price increase related to investors' reaction to the Genzyme Corporation reaction.

Comparing the firm with its peers, in this case Sanofi-Aventis largely outperforms its competitors and positions itself at least in the Top-3 during the whole period. Therefore, it can be concluded that one of the company's core competitiveness was cost-effectiveness, since investors were very confident in the firm's capability to generate operating profits that would create value for shareholders.

P/E Multiple

	2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	**13,10x**	**11,64x**	**13,66x**	**15,02x**	**16,35x**	**23,86x**	**44,82x**	**27,21x**
Novartis	13,68x	11,81x	16,11x	14,39x	16,12x	19,08x	22,88x	18,82x
Roche Holding	16,22x	12,00x	19,82x	14,29x	19,01x	27,07x	25,64x	23,38x
Pfizer	16,96x	22,70x	15,29x	10,91x	22,93x	15,61x	20,93x	22,70x
AstraZeneca	6,46x	8,48x	9,57x	9,75x	11,89x	13,90x	19,04x	19,25x
GlaxoSmithKline (GSK)	18,84x	12,99x	11,73x	12,15x	13,68x	14,21x	19,35x	16,92x
Average	**14,43x**	**13,60x**	**14,50x**	**12,30x**	**16,73x**	**17,97x**	**21,57x**	**20,21x**
Median	**16,22x**	**12,00x**	**15,29x**	**12,15x**	**16,12x**	**15,61x**	**20,93x**	**19,25x**

Table 23 Peers' P/E multiple (*Source: Thomson Reuters – see Backup Section*)

A detailed explanation of Sanofi-Aventis' P/E ratio evolution is provided in the Post-merger Stock Market Analysis (Section III.3.3.). As a reminder, the pattern extracted was: a first period of abnormally high stock price and P/E ratio (2004-2006) followed by a stabilization period (2007-2011) that was pushed by the end of the high stock price momentum after the merger.

Compared to its peers, Sanofi-Aventis largely outperforms its competitors in the period that goes from 2004 to 2008. However, from 2009 onwards it is one of the worst valued in terms of P/E ratio. This can be understood by the fact that Sanofi-Aventis EPS increased significantly on 2009 (Backup 9), while its share price was relatively low in that moment (Backup 8). Taking a look at the competitors, one can see that no sudden change is seen in their EPS, making that Sanofi-Aventis was one of the companies that evolved the worst in terms of P/E ratio.

In this case, one can see that from 2004 until 2008 the market was very confident in the firm's ability to generate profits and create value. Nevertheless, when the company managed to accomplish the expected increase in earnings (high EPS), the market did not react as positively. This was probably because investors thought that there was little space for further improvement.

Multiple Comparables Conclusion

As a conclusion, after the Multiple Comparables analysis there seems to be no doubt about the value creation for shareholders in the years that followed the merger, namely, from 2004 until 2006. That is, the company outperformed its peers by being better perceived than them by the market relative to its actual performance (sales, EBITDA, EBIT and earnings).

Different outcomes can be observed by the different ratios for the subsequent sub-period (2007-2011). On the one hand, EV/Sales, EV/EBITDA and P/E indicate that Sanofi-Aventis underperformed in 2009 and 2010. On the other hand, from an EV/EBIT perspective, Sanofi-Aventis overperformed the industry throughout the whole period.

Although the four ratios give different valuation insights, the most reliable is probably the EV/EBIT multiple, for two reasons: (i) it takes into account profitability[20]; (ii) it accounts for the leverage of the company[21], since EV contains Net Debt information.

[20] *The EV/Sales ratio does not account for costs*
[21] *The P/E ratio is a pure Equity multiple*

Section III: Conclusions

The present paper's purpose is to answer the research question: *Does M&A create value in the pharmaceutical sector?* To finish, this section means to sum up the conclusions that have been extracted from the previous two sections, which focused on previous literature about the topic (Section I) and the case study of the Sanofi-Aventis merger (Section II).

Regarding M&A value creation in general terms, Section I concludes that an M&A deal's success depends on the target's size. In this vein, a company following a pattern of small deals relies almost exclusively on their corporate skills to succeed, while multiple factors (both internal and external) influence large deals' outcome. Moreover, previous studies have found common trends in successful M&A transactions, namely, it seems to be that the transaction's characteristics influence the deal's outcome. Concretely, the combination of high acquisition premium and low valuation multiples, hostile takeovers and cash-financed deals appear to be more likely to succeed. Finally, academics who have researched on M&A and value creation seem to agree on the idea that value is delivered to target shareholders, but shareholder value creation for the acquirer company is ambiguous.

Another important conclusion is the importance of being aware that headline averages can be misleading, since they do not provide an answer to whether a specific company must engage in an M&A transaction in a particular sector and timeframe. Even if each deal is unique, the patterns that emerge from available data are still a useful reference and can serve to spot mistakes not to be repeated in future deals.

As for the pharmaceutical industry, two unique M&A drivers have been found: (i) sharing the risk associated to the R&D stage and (ii) acquiring *blockbuster drug* owners in order to capture the huge revenue potential of these drugs. Taking into account these additional incentives, if M&A creates value, value-creation is expected to be even more accentuated in the pharmaceutical sector. Finally, not enough academic research has been done on M&A value creation within the pharmaceutical industry. Thus, it is difficult to find general academic conclusions on the matter.

Several conclusions can be underlined from the case study in Section II. In the first place, the transaction between Sanofi-Synthélabo and Aventis had always been described as a merger between equals. To some extent it made sense to present it as a megamerger, given that Aventis more than doubled Sanofi-Synthélabo both in revenues and headcount. However, taking a closer look at the transaction and its outcome, one can see that in reality the deal can be considered an acquisition of Aventis by Sanofi-Synthélabo. Two relevant facts that support this conclusion are: (i) Sanofi-Synthélabo's CEO becoming the CEO of the combined company and (ii) the change of name that was approved by shareholders on May of 2011 from Sanofi-Aventis to Sanofi.

In terms of value creation assessment from the Sanofi-Synthélabo Aventis merger, four different perspectives have been considered: (i) transaction's accretive or dilutive nature, (ii) financial value creation, (iii) stock market value creation and (iv) relative performance to peers.

<u>Transaction's accretive or dilutive nature</u>

Concerning the transaction's accretive or dilutive nature, a first analysis based on a pre-merger EPS estimation indicated an accretive transaction if targeted synergies were achieved on year-3. Thus, the merger of Sanofi-Synthélabo with Aventis was expected to create value for Sanofi-Synthélabo's shareholders.

A second analysis based on post-merger figures, showed that Sanofi-Aventis had lower EPS than Sanofi-Synthélabo the two years after the merger. However, from the third year onwards the transaction is considered accretive, which makes sense since synergies were targeted for year 3. The conclusion here is that an acquisition takes time to consolidate because costs are immediately taken over, while synergies are achieved within months or years. Thus, value creation cannot be expected to be observed immediately.

In addition, it is worth noting that the pre-merger EPS estimation that was made is higher than the one actually achieved. This is due to the fact that during the post-merger period, besides the merger's sheer impact on the company, the combined entity made investments and financial decisions that also affected the earnings of the company.

Financial value creation

As for financial value creation from the merger, the transaction had a positive impact on the revenues and margins of the company. Moreover, it permitted to expand their international footprint and to create a stronger drug portfolio, focusing on the former companies' most profitable flagship products.

Five years after the merger, Sanofi-Aventis resumed its inorganic growth strategy. The most relevant example is the acquisition of the American biotechnology company Genzyme Corporation that was at the level of the Aventis merger in terms of volume and purchase price. This does not only mean that Sanofi-Aventis had financially recovered from the merger, but also that they believed that the strategy of growth through acquisitions was a successful one for them.

Finally, ROE and ROCE returns were negatively affected by the merger. The underlying reasons for this are: (i) a significant increase in Shareholders Equity after financing most of the transaction by equity and (ii) a delayed earnings increase due to the post-merger integration process.

Stock market value creation

Regarding the stock market performance of Sanofi-Aventis after the merger, the combined evolution of EPS, P/E ratio and stock price metrics can be divided into 2 periods. First, a two-year period characterized by an abnormally high P/E ratio, driven by a skyrocketing stock price and low EPS due to the not yet completed post-merger integration. Then, a 4-year period characterized by a stabilized P/E ratio, justified by the fact that the stock price momentum had smoothened and higher EPS, since targeted synergies had been reached.

From this we conclude that shareholders could have extracted positive value from the merger in two different ways: (i) by selling their shares in the first period, when the Sanofi-Aventis share price skyrocketed; (ii) by keeping their shares on a firm that had demonstrated to be able to increase its EPS year per year (accretive) and receiving high yearly dividends.

Relative performance to peers

The comparison between Sanofi-Aventis and its peers has also yielded significant results regarding the transaction's value creation relative to the industry.

In terms of share price evolution, Sanofi-Aventis was able to notably outperform its peers in the years following the merger. This indicates that the merger had a very positive impact on the company's perception within the stock market, which boosted its reliability and growth expectations. As for the mid and long run it is difficult to link Sanofi-Aventis' performance to a merger that occurred so many years ago. But it is clear that even if many factors enter into place, the merger and subsequent acquisitions have given the firm some of the tools and strengths to remain as one of the top-3 players up to now.

Finally, the multiple comparables analysis presents no doubt about the value creation for shareholders in the two years that followed the merger. That is, the company outperformed its peers in terms of market perception (EV and Market Capitalization) relative to actual performance (sales, EBITDA, EBIT and earnings).

Different outcomes can be observed by the different ratios for the subsequent sub-period. Although the four ratios give different valuation insights, the most reliable one is probably the EV/EBIT multiple, for two reasons: (i) it takes into account profitability[22]; (ii) it accounts for the leverage of the company[23], since EV contains Net Debt information.

As a final answer on whether the Sanofi-Aventis merger created value, it can be concluded that from a financial and stock market point of view there are reasons to believe that the merger was successful.

Furthermore, this deal is the perfect example of the paramount importance that external factors have on M&A activity, which sometimes are more critical than the amount of value created from a particular deal. On the one hand, facing a changing pharmaceutical industry (heightened competition and consolidation trend), Sanofi-Synthélabo decided to merge with Aventis as a defence strategy. Therefore, even if the merger had not ended being as successful, it managed to save Sanofi-Synthélabo from being acquired and disappearing. On the other hand, the key role of geopolitics is also present in the Sanofi-Aventis deal, in which the French government put a lot of pressure to create a national champion in the pharmaceutical industry, to ultimately benefit the French population.

[22] *The EV/Sales ratio does not account for costs*
[23] *The P/E ratio is a pure Equity multiple*

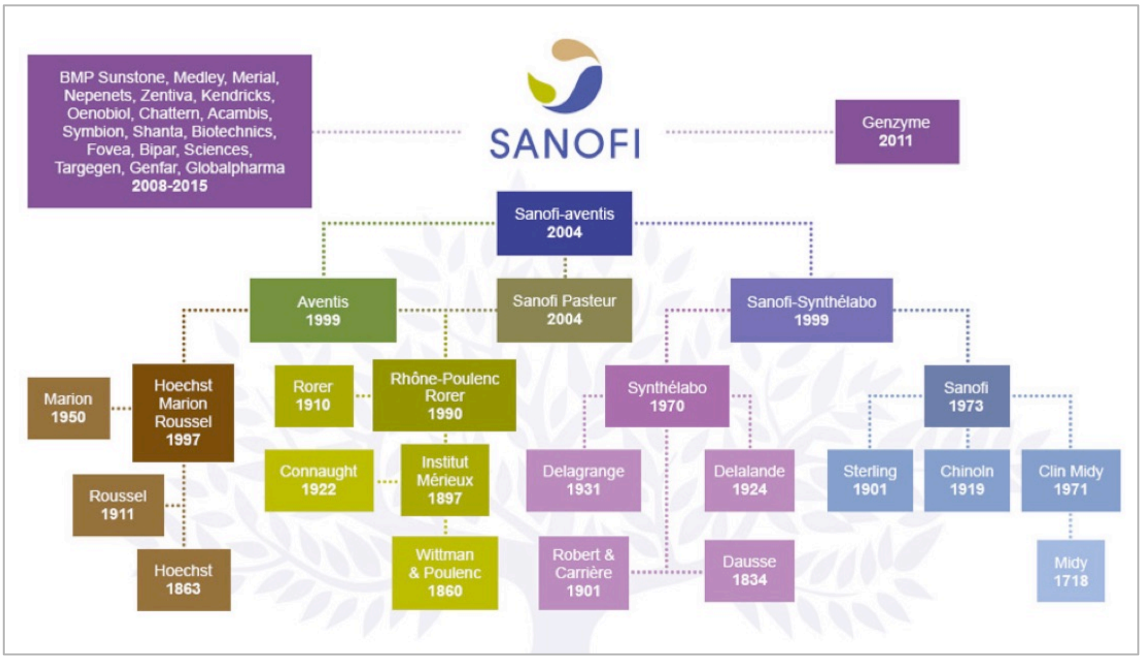
Backup Section

Section I

None

Section II

Backup 1 The history of Sanofi (*Source: Sanofi website)*



Backup 2 Peers' market capitalization (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	M€	**75329**	**63779**	**72484**	**58062**	**87134**	**95576**	**105095**	**82214**
Novartis	M€	119962	116486	100483	90748	98131	114827	116751	99047
Roche Holding	M€	91715	77357	83279	75015	82491	95915	89611	59535
Pfizer	M€	129221	105479	102309	82007	107454	143016	145940	149246
AstraZeneca	M€	45742	48428	47501	40010	43588	62748	65306	44041
GlaxoSmithKline (GSK)	M€	88632	75794	77071	66738	97204	115004	125215	101270
Median	M€	**95055**	**84709**	**82129**	**70904**	**85773**	**106302**	**108565**	**90628**
Average	M€	**91715**	**77357**	**83279**	**75015**	**97204**	**114827**	**116751**	**99047**

Backup 3 Peers' net debt (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	k€	**11315000**	**1795000**	**4135000**	**1780000**	**4230000**	**5791000**	**9926000**	**14202000**
Novartis	k€	11672400	12383700	-2372170	875074	-5068440	-498634	-2088350	-5710630
Roche Holding	k€	12547300	15006700	14908100	-11097800	-10986900	-10065100	-7325570	-3212240
Pfizer	k€	9163280	11674700	15450500	-4610260	-8599690	-15013200	-3621930	-989043
AstraZeneca	k€	-1931000	-2507420	-252909	5172020	6343600	-4980850	-4581040	-2918600
GlaxoSmithKline (GSK)	k€	10645900	10158200	10484600	9805820	7685610	3653170	1802420	2581050
Median	k€	**8419576**	**9343176**	**7643624**	**28971**	**-2125164**	**-5380923**	**-3162894**	**-2049893**
Average	k€	**10645900**	**11674700**	**10484600**	**875074**	**-5068440**	**-4980850**	**-3621930**	**-2918600**

Backup 4 Peers' enterprise value (computed as *Market Cap + Net Debt*)

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	M€	**86644**	**65574**	**76619**	**59842**	**91364**	**101367**	**115021**	**96416**
Novartis	M€	131634	128870	98111	91623	93062	114328	114663	93336
Roche Holding	M€	104262	92364	98187	63917	71504	85850	82286	56323
Pfizer	M€	138384	117154	117760	77397	98854	128003	142318	148257
AstraZeneca	M€	43811	45921	47248	45182	49931	57767	60725	41122
GlaxoSmithKline (GSK)	M€	99278	85952	87556	76544	104889	118657	127017	103851
Median	M€	**103474**	**94052**	**89772**	**70933**	**83648**	**100921**	**105402**	**88578**
Average	M€	**104262**	**92364**	**98111**	**76544**	**93062**	**114328**	**114663**	**93336**

Backup 5 Peers' sales (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	k€	**33389000**	**32367000**	**29306000**	**27568000**	**28052000**	**28373000**	**27311000**	**14871000**
Novartis	k€	42556400	42431700	32337800	29538100	27346700	26813800	24348600	22814400
Roche Holding	k€	36519400	39928700	33073500	30142700	27023800	24115700	20296200	20266500
Pfizer	k€	52679200	50283600	34856500	35045300	33045700	36759000	44433300	37976900
AstraZeneca	k€	24874900	24980400	23496200	16735400	19641100	20919900	18502000	16415600
GlaxoSmithKline (GSK)	k€	32899500	33940600	31929800	24644500	30984800	34553000	30582800	28762300
Median	k€	**37905880**	**38313000**	**31138760**	**27221200**	**27608420**	**28632280**	**27632580**	**25247140**
Average	k€	**36519400**	**39928700**	**32337800**	**29538100**	**27346700**	**26813800**	**24348600**	**22814400**

Backup 6 Peers' EBITDA (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	k€	**8595000**	**10765000**	**10859000**	**9244000**	**9315000**	**9125000**	**2893009**	**1166000**
Novartis	k€	12136700	12380900	9092000	7859410	7379910	7730990	6468590	6445660
Roche Holding	k€	12084500	14006100	9915120	11812900	10241900	8619110	5672630	7368330
Pfizer	k€	16332700	13563800	11721500	12499500	9139890	14383100	14859200	12696900
AstraZeneca	k€	11462100	10584100	9303480	6537260	7479420	8132040	6356330	4727250
GlaxoSmithKline (GSK)	k€	9613870	9417700	11453700	9344840	12353800	11975300	10520200	10315800
Median	k€	**12325974**	**11990520**	**10297160**	**9610782**	**9318984**	**10168108**	**8775390**	**8310788**
Average	k€	**12084500**	**12380900**	**9915120**	**9344840**	**9139890**	**8619110**	**6468590**	**7368330**

Backup 7 Peers' EBIT (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	k€	**5731000**	**6535000**	**6366000**	**4394000**	**5911000**	**4828000**	**2888000**	**2426000**
Novartis	k€	8859190	10217400	7436650	6202430	5819790	6315300	5573850	5454350
Roche Holding	k€	10064400	11886700	8099310	10092600	8784440	7087540	4632720	5092190
Pfizer	k€	16332700	13563800	11721500	12499500	9139890	14413000	14859200	12696900
AstraZeneca	k€	10066200	8892420	8141710	5346930	6287700	7065350	5327010	3622110
GlaxoSmithKline (GSK)	k€	7529500	7659770	9695540	7865070	10916500	11973500	9740640	8394420
Median	k€	**10570398**	**10444018**	**9018942**	**8401306**	**8189664**	**9370938**	**8026684**	**7051994**
Average	k€	**10064400**	**10217400**	**8141710**	**7865070**	**8784440**	**7087540**	**5573850**	**5454350**

Backup 8 Peers' stock price (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	*€/sh*	**56,20**	**48,65**	**55,06**	**44,15**	**63,92**	**70,40**	**75,30**	**59,05**
Novartis	*€/sh*	43,69	44,16	38,10	34,33	37,43	43,80	44,36	37,09
Roche Holding	*€/sh*	130,54	110,11	118,54	106,77	117,41	136,52	127,55	84,74
Pfizer	*€/sh*	16,81	13,17	12,68	12,16	15,73	19,83	19,80	19,82
AstraZeneca	*€/sh*	35,40	34,37	32,76	27,65	29,92	40,96	41,34	26,64
GlaxoSmithKline (GSK)	*€/sh*	17,56	14,59	14,85	12,87	17,65	19,98	21,52	17,23
Median	*€/sh*	**48,80**	**43,28**	**43,38**	**38,76**	**43,63**	**52,22**	**50,91**	**37,10**
Average	*€/sh*	**35,40**	**34,37**	**32,76**	**27,65**	**29,92**	**40,96**	**41,34**	**26,64**

Backup 9 Peers' EPS (*Source: Thomson Reuters)*

		2011	2010	2009	2008	2007	2006	2005	2004
Sanofi - Aventis	*€/sh*	**4,29**	**4,18**	**4,03**	**2,94**	**3,91**	**2,95**	**1,68**	**2,17**
Novartis	*€/sh*	3,19	3,74	2,37	2,39	2,32	2,30	1,94	1,97
Roche Holding	*€/sh*	8,05	9,18	5,98	7,47	6,18	5,04	4,98	3,63
Pfizer	*€/sh*	0,99	0,58	0,83	1,12	0,69	1,27	0,95	0,87
AstraZeneca	*€/sh*	5,48	4,05	3,42	2,84	2,52	2,95	2,17	1,38
GlaxoSmithKline (GSK)	*€/sh*	0,93	1,12	1,27	1,06	1,29	1,41	1,11	1,02
Median	*€/sh*	**3,73**	**3,73**	**2,77**	**2,97**	**2,60**	**2,59**	**2,23**	**1,77**
Average	*€/sh*	**3,19**	**3,74**	**2,37**	**2,39**	**2,32**	**2,30**	**1,94**	**1,38**

Section III

None

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