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Haute école de gestion
Genève

Synergies in Mergers & Acquisitions: a comparative sectoral analysis

**Bachelor Project submitted for the degree of
Bachelor of Science HES in International Business Management**

by

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Geneva, 3 June 2019

Haute école de gestion de Genève (HEG-GE)

International Business Management

Declaration

This Bachelor Project is submitted as part of the final examination requirements of the Haute école de gestion de Genève, for the Bachelor of Science HES-SO in International Business Management.

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Geneva, 3 June 2019.

Ayşenur ÖZTÜRK

Acknowledgements

First of all, I would like to express my sincere gratitude to my advisor Mrs. Antoinette ESPOSITO-CANO, Professor at the Haute école de gestion de Genève of the minor course Mergers and Acquisitions in Corporate Finance. This research study would not have been possible without her precious support, her priceless guidance and her infinite availability during the whole preparation of this research study.

Besides my advisor, I would sincerely thank Mr. Alain LE BERRE who kindly accepted to be juror for my thesis. Furthermore, I wish express my sincere thanks to all the Haute école de gestion de Genève professors and guest speakers who have taught and shared valuable personal business experiences and therefore made my studies very interesting and exceptional.

Finally, I would like to thank my family, my friends and all the people who have motivated me and contributed directly or indirectly to this Bachelor Project.

List of abbreviations and acronyms used in this research study:

M&As	Mergers and Acquisitions
ESMA	European Securities and Markets Authority
EFRAG	European Financial Reporting Advisory Group
IASB	International Accounting Standard Board
FASB	Financial Accounting Standards Board
US GAAP	United States Generally Accepted Accounting Principles
IFRS	International Financial Reporting Standards
U.S.	United States
U.K.	United Kingdom
R&D	Research and Development
IPR&D	In-process Research and Development
GW	Goodwill
PPA	Purchase Price Allocation
Pharma	Pharmaceutical
FMCG	Fast Moving Consumer Goods
BPC	Beauty and Personal Care
NCI	Non-controlling Interests
SG&A	Selling, General and Administrative Expenses
CFO margin	Cash Flow from Operations margin
CAPEX	Capital Expenditures
COGS	Cost of Goods sold
N/A	Not available

Keywords:

Goodwill, purchase price allocation, real value creation, value destruction, illusion, synergies, assembled workforce, disclosures, business combination, mergers and acquisitions

Executive Summary

Synergies or rather the non-achievement of synergies has been the major reason for many failures with regard to mergers and acquisitions. Though success does exist in certain sectors. This brings me to the research question of this thesis: *Synergies achieved in the Pharmaceutical and Beauty–Personal Care sectors: Illusion or Real Value Creation?*

The principal purpose of this research study is to carry out a sectoral comparative analysis, especially for the Pharmaceutical and Beauty–Personal Care sectors as these two are very active in the M&A sector. In order to realize this analysis and answer the core question of this paper, three specific questions have been answered and two hypotheses tested empirically. The first question deals with the identification of common causes for mergers and acquisitions in those sectors. The second relates to the documentation of the component of recorded goodwill (synergies, assembled workforce, and/or others e.g. tax purposes). The third question considers whether economic value is created in the short-term or in the long-term, that is to say whether the synergies come from the first levels of the synergy map and/or the fourth and fifth ones. The first assumption tested can be formulated as follows: *There is no relationship between the value of goodwill and the purchase price.* The second is: *There is no relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”).*

The research methods include secondary data collection from finance books, consulting companies’ and institutions’ articles/reports, articles in scientific journals related to the topic of mergers and acquisitions, the consolidated annual/financial reports of the acquiring companies from both sectors including the 2018 M&As and 2016 IFRS course slides. The use of these secondary data permitted to collect and evaluate the essential primary data. The automatic function on econometric software Stata, through the commands “regress Goodwill Consideration / DealValue” and “regress Added_CFO GW4 Others4 Location_n”, were then used for both, simple and multiple, regression analyses to test the assumptions discussed above. The t-stat and P-value were considered to see the significance of identified relationships. The F-stat and R-squared tests were also taken into account to see the level of correlation between these variables.

The empirical research enables us to observe three outcomes. First, the results of the data analysis demonstrate that the synergies achieved in both sectors are rather “Real Value Creation” than “Illusion”. Second, the simple regression analysis shows a strong correlation between goodwill and the purchase price: the higher the purchase price, the higher the goodwill value. Finally, the multiple regression analysis does not associate any relationship between the added CFO and goodwill when measured post-acquisition. It can be assumed that no positive association between GW and added CFO is an information *per se*. In other words, corporations cannot prove that the higher the price, the higher the GW, the higher the expectation of added CFO. This may relate to these additional CFO coming from other decisions such as restructuring plans. The recommendation is thus to keep realizing M&As as companies in those sectors do succeed with this activity. However, preparers should understand that a high price / a high level of goodwill will not guarantee value creation through achieved synergies or a stronger assembled workforce, but can result from short-term easy-to-achieve actions such as Reduction in Force and restructuring initiatives.

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1. Introduction

1.1 Background

Within a rapidly changing business environment, companies have to make more effort than before in order to achieve excellence in their products/services offerings, or, simply in order to be the first ones to address customers' current needs. In fact, a company's principal objective is without a doubt to reach maximum profit by growing profitably. With doing so they also achieve their next principal objective which is the maximisation of the shareholders' wealth as the net income is large enough to distribute higher dividends. There are two possibilities for them to succeed: internally and/or externally. The internal growth could be reached either through the process of introducing or developing new products/services, by expanding into new territories and enlarging the existing products/services categories as they have not yet reached their maturity stage. The external growth could be achieved by merging with or acquiring existing businesses, through M&A activities.

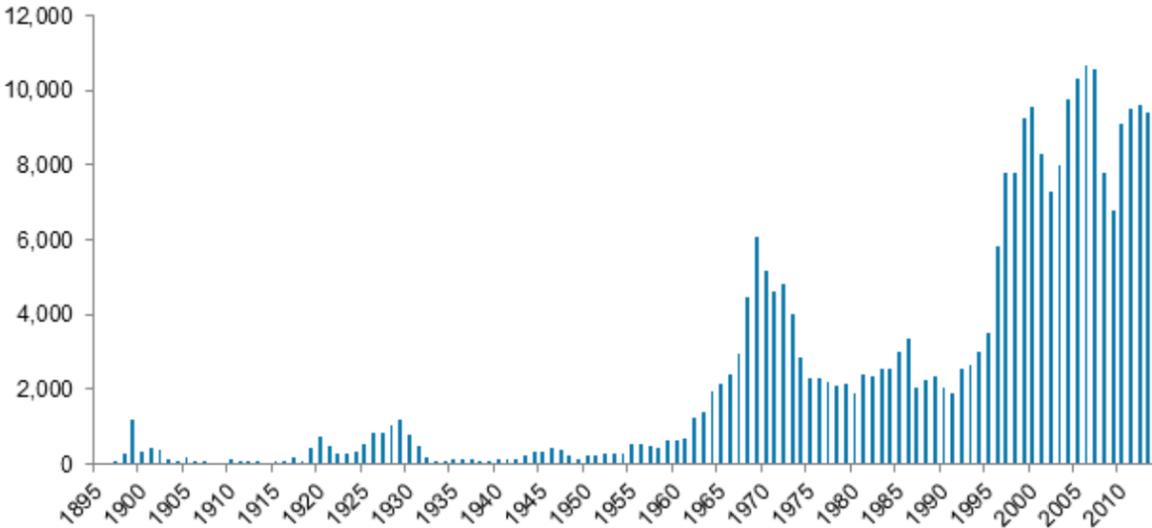
In today's global economy, companies are applying more and more M&As as a growth strategy. They expect future benefits from synergies to attain a larger asset value, generate greater market share domestically and/or internationally, and take advantage of the combination of both companies' manufacturing facilities. Corporations' main goal behind M&A deals is to be more competitive in the marketplace as they believe working with other entities presents greater benefits than working alone. M&As are perceived by our society as an extensive international phenomenon and have become one of the most significant and powerful components in companies' strategic long-term business growth plans. In other words, they have been observed in these last two decades as strategic means for companies in order to achieve sustainable competitive advantage in the fast changing business world.

Yet, if we look back at the history of M&As, we notice that not all the countries/continents started using this very significant tool of business expansion at the same time. American companies were the first to apply M&As in the eighteenth century followed by Europeans in the nineteenth century (Macrothink Institute, 2014). Also, as they were the most active in using this tool, lots of studies were realised in these two geographic areas on M&As.

Furthermore, several studies have shown that the M&A market is “cyclical” by nature. Indeed, M&As come in waves and peaks of heavy M&A activity especially before economic crisis, followed by calm periods of activity are observed. Six distinct M&A waves have been determined over the 1895 – 2007 period (Martynova and Renneboog, 2005) and each has its own characteristics and explanations, such as economic expansion and rising stock markets, regulatory changes, and the emergence of new technologies.

The graph below demonstrates the six M&As waves in the United States. The first wave began at the end of the nineteenth century known as the “Great Merger Wave”; the second began at the end of World War I; the third wave began after the Great Depression and the World War II that being in the mid-1950s characterized as the move of horizontal diversification; the fourth began at the beginning of the 1980; the fifth wave began in 1993; and the sixth and most recent wave began in 2003, that being after 2002 Enron Crisis.

Figure 1 Number of M&A Operations in the U.S. from 1897 to 2010



Source: Gaughan (1999), Nelson (1959), Historical Statistics of the U.S. – Colonial Times to 1970, Mergerstat Review.

1.2 Problem Statement

The subject of M&As, especially business combinations in corporate finance is still highlighted as a solution to many business strategy issues. Indeed, synergies can be achieved when companies take the necessary actions in the post-acquisition integration process from day one as sketched in a synergy map (see **Figure 2**). Those synergies can be financial, arising from the improved efficiency of company's financing activities (e.g. decrease in the cost of capital) and operating, arising from the improved operating activities (e.g. economies of scale, employees' expertise, technological usage).

Figure 2 Synergy Map (with the 5 levels)



Source: Harvard Business School

Success and failure are at the heart of any deal, and most of the time, failure is more common than success, with a **70 - 90%**¹ failure rate. The most frequent causes of M&A failures are, for instance, a poor strategic fit due to issues linked to cultural mismatch, a weak post-acquisition integration process (as executives tend to think that after completing the deal the work is done whereas the work has just started), and a flawed valuation due to the wrong assumptions/estimations in the target company value assessment². M&As activity is effectively not as simple as it seems, but rather a very long journey with many difficulties/obstacles throughout the integration process. Because of the high number of failed M&As in the corporate world and associated

¹ Mergers and Acquisitions in Corporate Finance course slides, Session 3 "Value Creation and Synergies in M&A", 2018.

² Mergers and Acquisitions in Corporate Finance course slides, Session 3 "Value Creation and Synergies in M&A", 2018.

criticisms, some researchers have started to investigate if the expected synergies actually emerge, or if those synergies are rather an illusion. They are claiming that M&As often destroy value rather than create it. But still, it is interesting to see the large number of M&As being announced by companies on a daily basis. It becomes even more fascinating while considering that some companies are doing more than three to four acquisitions every year.

However, despite this high failure rate and unfavourable researchers' opinion, examples of successful M&As exist. Companies in the Pharmaceutical and Beauty – Personal Care sectors do succeed to comply with the Corporate Finance “ $1 + 1 \geq 3$ ” equation being the representation of the synergies achievement.

The rationale of this project is therefore to provide a comparative analysis for the Pharmaceutical and Beauty–Personal Care sectors. This study is noteworthy because it focuses on value creation and goodwill/synergy descriptions for each sector. Finally, the stakeholders who could be interested in the results of this study are the selected companies and their competitors, together with the academic community.

As a conclusion, accounting wise, goodwill is an accounting measure which corresponds to the residual amount of the PPA, and should represent future economic benefits. Those benefits should materialize through an increase in post-acquisition cash flows from operations, due to either the achievement of synergies or a solid and efficient assembled workforce. However, a high acquired goodwill could also correspond to overpayment.

1.3 Research Question

The accomplishment of Real Value Creation through synergies from mergers and acquisitions in the Pharmaceutical and Beauty–Personal Care sectors is definitely encouraging financial executives, to conclude M&As as part of their company’s growth plans. Therefore, this research is going to assess whether M&As can create value and how acquiring entities actually achieve synergies upon integration in those sectors.

Thus, this research study is going to focus on the main question enclosed below:

***Synergies achieved in the Pharmaceutical and Beauty – Personal Care sectors:
Illusion or Real Value Creation?***

In addition to the core research question, this paper will also test the following hypotheses:

First Hypothesis: Simple Regression Analysis

- There is no relationship between the value of goodwill and the purchase price.

Second Hypothesis: Multiple Regression Analysis

- There is no relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”).

1.4 Research Objectives

The main objective of this research study is to perform a comparative analysis on the Pharmaceutical and Beauty–Personal Care sectors. In particular, it considers the different types of synergies achieved through M&A transactions. Second, its objective is to observe whether those synergies are “Real Value Creation or Illusion”. In order to realize this analysis and to answer the research question, the following specific approach will be conducted:

1. Identify the **common causes** for mergers and acquisitions in those sectors.

The goal here is to understand whether there are any similarities between the Pharmaceutical and Beauty–Personal Care sectors, which are very active in terms of M&As.

2. Identify the **main components** of goodwill.

The objective here is to verify whether the acquiring companies have disclosed information about goodwill properly, especially with regard to its nature and main components (e.g. financial and/or operational synergies) as required by regulatory financial reporting compliance.

3. See whether **economic value** is created in the short-term or in the long-term.

The aim here is first of all to prove why M&As strategy can create value for companies; secondly to examine whether management has communicated how and where they have achieved the expected synergies upon integration; thirdly to demonstrate to what extent the synergy map (from level 1 to level 5) is a tool used by the acquirers as the latter takes into consideration the time frame and the probability of success.

1.5 Research Methodology

The substantial research materials used in this study were finance books, consulting companies' and institutions' articles/reports, articles in scientific journals related to the topic of mergers and acquisitions, the consolidated annual/financial reports of the acquiring companies from both sectors including the 2018 M&As and 2016 IFRS course slides. All of these resources allowed me to gather all the necessary secondary data, which helped me to reach the first and a part of the second research objectives. The usage of this secondary data also permitted the collection and evaluation of the essential primary data which assisted in reaching the main aspects of the second objective, as well as to gather evidence on the hypothesized tests, and to finally answer the research question of this study.

More precisely, the resources used to reach the first objective, being the identification of the sectoral causes for applying M&As as growth strategy, were mainly McKinsey's article (October 2018) titled "*What's behind the pharmaceutical sector's M&A push*" and ATKearney's paper titled "*Shop or Drop: The Inevitable Path for Growth in Beauty*" (2016). McKinsey and ATKearney are American worldwide consulting firms conducting quantitative and qualitative analyses to assess management decisions. This is the reason why the availability of their documents were very beneficial to attain the first research objective. The first part of the second objective, the description of goodwill, was reached using 2018 Mergers and Acquisitions in Corporate Finance course slides, especially the relating session to "Value Creation and Synergies in M&A". The book "Finance for Executives: A Practical Guide for Managers" (2014) written by Nuno Fernandes, Portuguese author and Finance Professor, was another valuable resource. Chapter 10 "Value Creation through Mergers and Acquisitions" was the most relevant chapter for this study.

Moreover, the remaining aspects of the second objective was reached by collecting relevant financial data from consolidated annual/financial reports of the large listed American and European acquiring companies in both sectors. The size of both samples (combined) is 89 acquisitions completed between 2003 and 2017 that being 45 and 44 acquisitions for Pharmaceutical and Beauty–Personal Care sectors, respectively. The secondary data obtained from these documents were transcribed in an excel document in which four important spreadsheets were created in order to attain and assess the primary data. The first and second spreadsheets include the table of 45 and 44

acquisitions for both sectors separately. The main metrics included in these two spreadsheets, graphs and tables, are: the yearly average goodwill and purchase price value of three acquisitions, the goodwill components, the ratio of goodwill to consideration paid, and the growth rate for each of these values.

The table of acquisitions includes for each business combination the following information (by column):

- The year of acquisition
- The industry (being only Pharmaceutical and Beauty–Personal Care)
- The acquirer company name
- The acquirer country of origin (being only from U.S. and Europe)
- The target company name
- The target country of origin (being from all over the world)
- The purchase price (“PPA”) of the deal
- The goodwill (“GW”) arising from the acquisition
- The other assets acquired labelled as “Others”: calculation is **PPA - GW**
- The non-controlling interests (“NCI”) when the acquiring company does not acquire the 100% interests of the target company
- The fair value (“FV”) of the business acquired (excluding goodwill)
- The checking purchase price: calculation is **GW + Others + NCI**
- The %GW / PPA: calculation is **GW / PPA * 100**
- The GW / 5 (years): calculation is **GW / 5**
- The Others / 5 (years): calculation is **Others / 5**
- The CFO margin at acquisition: calculation is **CFO / Net sales * 100**
- The CFO margin 1 year after acquisition: calculation is **1 year after acquisition CFO / Net sales * 100**
- The CFO margin 2 years after acquisition: calculation is **2 years after acquisition CFO / Net sales * 100**
- The CFO margin 3 years after acquisition: calculation is **3 years after acquisition CFO / Net sales * 100**
- The CFO margin 4 years after acquisition: calculation is **4 years after acquisition CFO / Net sales * 100**
- The CFO margin 5 years after acquisition: calculation is **5 years after acquisition CFO / Net sales * 100**
- The average CFO Margin: calculation is **5 years after acquisition CFO margin/5**

- The difference between CFO margin at acquisition and 5-year average CFO margin: calculation is **CFO margin at acquisition - average CFO margin**
- The value creation assessment is **CFO Margin at acquisition < Average CFO Margin**
- The goodwill components disclosures (synergies, assembled workforce, others)
- The extra information (about the acquisition)

In order to verify the testable hypotheses, a simple and a multiple regression analyses were realised with the automatic function on econometric software Stata where the command “**regress Goodwill Consideration / DealValue**” and “**regress Added_CFO GW4 Others4 Location_n**” were used. The t-stat, P-value, F-stat, and R-squared tests were considered to determine the significance of their relationships. Based on the table of acquisitions of the first excel document, four others (two for the simple and two for the multiple regression analyses) were created to include in only one spreadsheet all the necessary variables needed for the realisation of the regression analyses.

The below formula represents the first hypothesis equation for the simple regression analysis for each sector:

$$Y (GW) = \beta_0 + \beta_1 X_1 (PPA) + \epsilon$$

This simple regression analysis will help to see whether the ratio of goodwill to purchase price is a relevant ratio for this study, meaning whether the value of the purchase price/consideration paid (PPA) can explain the value of goodwill (GW).

(The higher the price paid, the higher the GW amount)

The below formula represents the second hypothesis equation for the multiple regression analysis for each sector:

$$Y (\text{added_CFO}) = \beta_0 + \beta_1 X_1 (GW/4) + \beta_2 X_2 (\text{Others}/4) + \beta_3 D_1 (\text{Location}) + \epsilon$$

This multiple regression analysis will help to demonstrate which variable(s) can explain the value of the added_CFO. And, it is assumed that the $\beta_1 X_1 (GW/4)$ is the most relevant variable explaining the value of Y (added_CFO).

The **added_CFO** is calculated as follows:

- 4-year average CFO post-acquisition: (Year 1 CFO + Year 2 CFO + Year 3 CFO + Year 4 CFO) / 4
- 4-year average CFO pre-acquisition: (Year 1 CFO + Year 2 CFO + Year 3 CFO + Year 4 CFO) / 4

$$\text{Added_CFO} = \text{4-year average CFO post-acquisition} - \text{4-year average CFO pre-acquisition}$$

GW/4 can be explained by the fact that a recognition of a goodwill impairment loss ranges theoretically from two to three years meaning after these years if the firm does not really create value. In order to have a larger time frame, we took four years' post-acquisition in this research study. In other words, for a goodwill value of \$100 million, the company has to at least generate \$25 (100/4) million each year, otherwise there is risk of impairment loss.

Notice: 2008 and 2009 are not taken into consideration since they are impacted by the 2008 Financial crisis.

Description of the hypothesis formulas' variables:

- **Y** is the dependant variable
- **β_0** is the constant variable
- **β_1X_1** and **β_2X_2** are the independent variables
- **β_3D_1** is an indicative variable that being "0" whether the acquirer is American or "1" whether he is European. This allows to keep and to work the qualitative data with encoding the qualitative variable under binary form.
- **ϵ** is the margin error

1.6 Structure of the study

In addition to this introduction, this research study includes a literature review from academic and institutional authors aiming to provide a foundation of knowledge on the area of work as well as a summary and a synthesis of prior research findings. In other words, the purpose of this review is to combine all the assumptions that researchers seem to be making related to the topic of this study in order to identify the need for this study and ensure to fill the gap in research.

The third section of this research study contain the collection and assessment of primary and secondary data with regard to the Pharmaceutical and Beauty–Personal Care sectors. As stated earlier, the secondary data obtained from companies' consolidated annual/financial reports of the selected industries would be used to generate the primary data needed to complete the analysis. The first part of the section deals with the sample definition, giving explanations on the variables and factors considered in the sample determination. The second part is dedicated to the sector analysis which describes the main causes, reasons and drivers of applying M&As as a growth strategy in those sectors. The third part consists in an analytical review on the companies' behaviour and performance in the context of business combinations. The fourth part is about a detailed goodwill analysis, more precisely the definition of goodwill, the sectoral trend of goodwill as a percentage of purchase price allocation over time, the CFO margin comparative analysis including a sectoral comparison. This part aimed at answering the research question. The fifth part of the data analysis section contains the empirical research where the two hypotheses are tested.

The fourth section lists the limitations of this study. The recognition of goodwill as an asset and its subsequent measurement, such as the impairment test, are the limits among others listed in this part. The fifth section discusses major findings and suggests some recommendations. Finally, the conclusion section summarises the key findings of this research. A further research section is also included because various interesting aspects of the M&A process were encountered when collecting data. This document ends with the references and appendices, which were included when necessary to provide with relevant illustrations to readers.

1.7 Data Analysis Mind Map

In corporate finance, there are two different types of M&A transactions which can occur. The first transaction called “Asset Acquisitions” or “Assets Deals” exclude certain liabilities and/or assets, such as goodwill, from the transaction limit. In this deal the company purchases only limited assets and assumes only limited liabilities rather than a whole business. The second is called “Business Combinations” which involves the acquisition of a business. Two types of Business Combinations are possible; either full control or control with a minority interest. In both cases, the acquired entity becomes a subsidiary of the acquiring company.

Business Combinations are indeed the focus area of this study. A business combination is expected to include synergies when the purchase price (consideration paid) is higher than the Fair Value of the business acquired, or a “bargain purchase gain” when the purchase price (consideration paid) is lower than the Fair Value of the business acquired. As the subject area of this study regards “Synergies in Mergers & Acquisitions”, goodwill recognition remains the starting point of the research investigation.

The below formula represents the assessment of goodwill³:

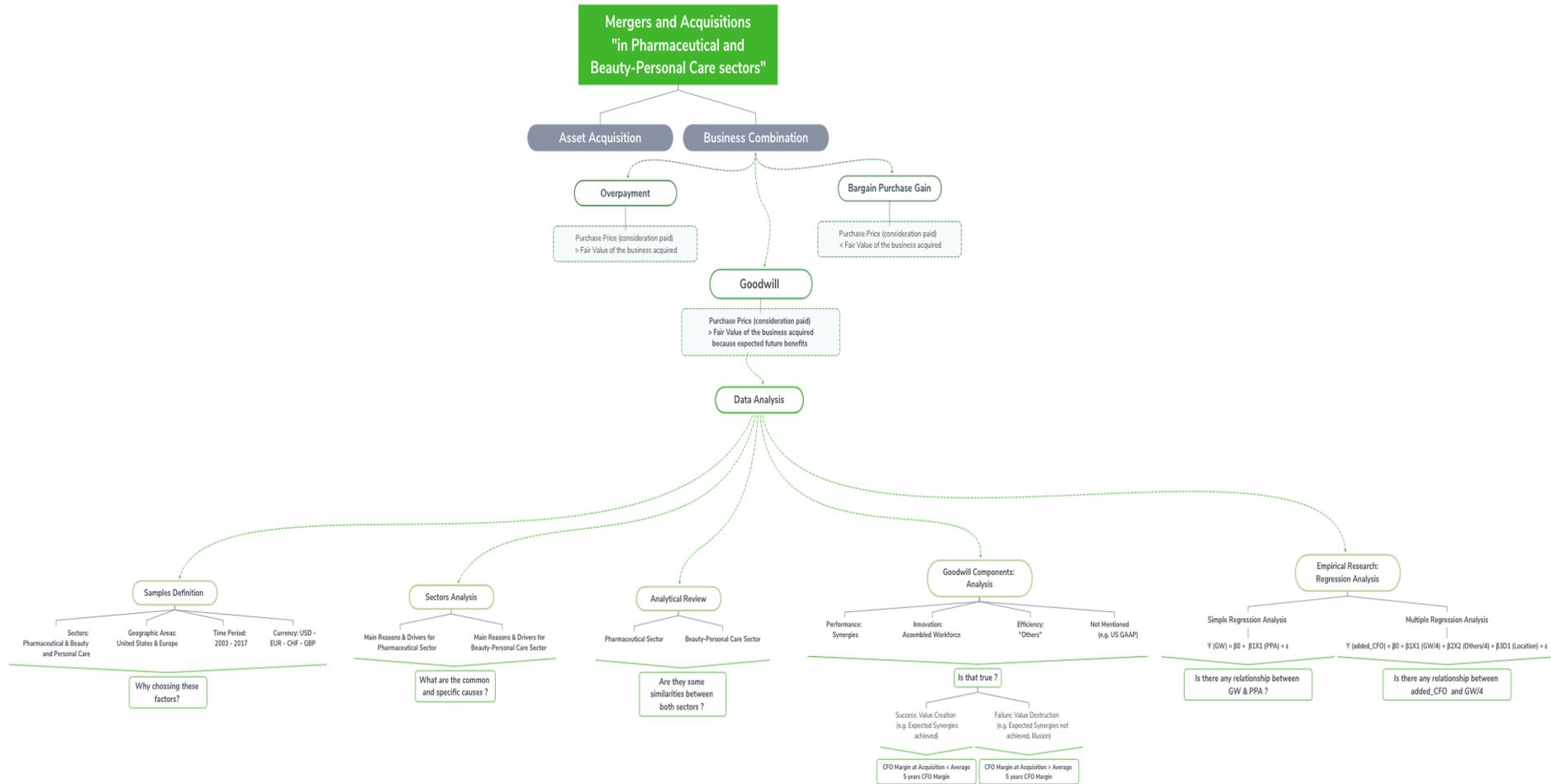
Goodwill = Consideration Paid – Amount of non-controlling interests + Fair value of previous equity interests – Net assets recognised
--

More simply, goodwill is the “residual interest” in the purchase price paid, after the deduction of the fair value of net assets acquired and liabilities assumed.

The mind mapping below illustrates the path to follow for the data analysis. The definition of the samples, the sector analysis, the analysis of literature, the goodwill analysis and the empirical research are included in this data study. Each of the parts contribute to reach the three objectives and prove the two hypothesis tests, including the core question of this study.

³ Deloitte, 2008. Business combinations and changes in ownership interests. Asplus.com[online]. Available from: <https://www.iasplus.com/en/standards/ifrs/ifrs3>

Figure 3 Data Analysis Mind Map



2. Literature Review

Several scientific and professional reports provide various theoretical frameworks, and therefore various researchers have studied goodwill and purchase price allocations on business combinations from various perspectives. The following literature review is classified into two categories: Academic and Institutional authors.

2.1 Literature Review: Academic Authors

The research study written by Sascha Boennen and Martin Glaum (June 2014) from Justus-Liebig-Universität Giessen (Germany) provides a general literature review on the accounting for goodwill. Their study covers three significant areas of work which many other researchers have also investigated on. The first area includes the purchase price allocations and the determination of goodwill. The second is on studies that analyse whether goodwill should be interpreted as an asset. The third area of work regards the subsequent measurement of goodwill, on the determinant and on the relevance of impairment tests of goodwill. They focus mainly on research commenced since the introduction of the impairment-only approach of SFAS 141 “*Business Combinations*” and SFAS 142 “*Goodwill and Other Intangible Assets*” by the U.S. Financial Accounting Standards Board (FASB) in 2001 and of IFRS 3 “*Business Combinations*” and IAS 36 “*Impairment Assets*” by the International Accounting Standards Board (IASB) in 2014. However, only the first area of work will be the focus area of this present review of empirical literature as the second and third ones are beyond the scope of this research study. Finally, this first area of work includes three specific sub-studies with regards to the recognition of goodwill, which will be explained further.

1. Studies on purchase price allocations and importance of goodwill

This first sub-study deals specifically with the purchase price allocations and the recognition of goodwill. It involves descriptive reports on American and European company practices in regards to the accounting for business combinations. Therefore, it includes studies on how the firms separately allocate the consideration paid to identifiable net assets acquired, identifiable net liabilities assumed and goodwill. This is represented by the percentage of goodwill to the consideration paid.

Indeed, in a business combination, goodwill is the residual amount resulting from the purchase price allocation. It arises when the consideration paid exceeds the fair value of the target company's net assets acquired.

Several research studies observe that a significantly high proportion of the consideration paid is allocated to goodwill, in spite of US GAAP and IFRS' rules with regard to the recognition of acquired intangible assets. In most of the research studies, the mean ratio of goodwill to price paid is higher than fifty percent (see **Table 1**). Moreover, the study conducted by these two academic authors documents that the ratio of goodwill to purchase price differs according to different industries. The Entertainment & Media, Industrials and Retail & Consumer Goods sectors report the highest ratios while basic Materials, Banks and Insurance report the lowest ones.

However, it is important to take into consideration the various variables (number of deals, acquirer country origin, and time period of studies) which can impact and explain the result from one study to another. For instance, the research studies realised by Ott and Guenther (2010) show a significant difference in mean ratio of goodwill to price paid. This may be explained by the difference in the geographic areas (U.S. vs. Europe) and by the difference in the time period (2001-2008 vs. 2005-2008).

Table 1 Studies on purchase price allocations and importance of goodwill

Studies on Recognition of Goodwill: Purchase price allocations and importance of goodwill					
	Number of Deals	Acquirer Country Origin	Time Period of studies	Deals Mean Value	Mean %GW/PPA
Shalev et al. (2011)	184	U.S. Companies	July 2001 - April 2007	\$2.7bn	55.4%
Ott and Guenther (2010)	1437	U.S. Companies	2001 - 2008	Not mentioned	61.2%
Ott and Guenther (2010)	632	European Companies (using IFRS)	2005 - 2008	Not mentioned	48.9%
Glaum and Wyrwa (2011)	322	European large stock-listed companies	Not mentioned	Not mentioned	61.5%
European Securities and Markets Authority (ESMA)	66	European stock-listed companies	2012	Not mentioned	54%

1. Studies on over-allocation of parts of acquisition cost to goodwill

The second sub-study deals with the over-allocation of parts of the consideration to goodwill. The impairment-only approach encourages managers to allocate significant proportions of the cost of the acquisitions to goodwill rather than other depreciable or amortizable assets. In fact, providing that the companies stay away from any impairments, this amount of the consideration paid is afterward never charged to company's earnings.

Shalev et al. (2011) and Detzen and Zuelch (2012) studies reveal that the recognition of goodwill is positively connected to the CEO's short-term cash bonuses. Therefore, with increasing cash bonus intensity, managers recognize a high amount of goodwill, resulting in a high mean ratio goodwill to price paid, as previously mentioned.

Moreover, Lys et al (2012) based on a sample of 2,213 U.S. corporations in the 2002 – 2006 time frame recognize 1,252 acquisitions that resulted in “economic profits” and 871 acquisitions that resulted in “economic losses” for the acquirers (see **Table 2**). Within the subsample “economic profits”, authors find a positive correlation between disclosed goodwill and the economic profit, consistent with the concept that these business combinations are expected to achieve synergies over time. The disclosed goodwill is negatively correlated with the loss in the subsample of acquisitions with “economic losses” which means the higher the losses the higher the amount of goodwill.

Table 2 Studies on over-allocation of parts of acquisition cost to goodwill

Studies on Recognition of Goodwill: Over-allocation of parts of acquisition cost to goodwill				
	Number of Deals	Acquirer Country Origin	Time Period of studies	Findings
Shalev et al. (2011)	184	Stock-listed U.S. Companies	July 2001 - April 2007	"Allocation of the costs of the acquisitions to goodwill increases with the importance of bonuses in CEO's pay packages..."
Detzen and Zuelch (2012)	123	Companies of the Stoxx Europe 600	2005 - 2008	".. goodwill recognition is positively related to CEO's cash bonuses."
Lys et al. (2012)	2,123	U.S. Companies	2002-2006	1,252 acquisitions resulted in "economic profits" and 871 resulted in "economic losses" for the acquirers "Acquirers with "economic losses" allocate significantly higher proportions of the total purchase consideration to goodwill than acquirers with "economic profits"
Lys et al. (2012)	1,252	U.S. Companies	2002-2006	"... the disclosed Goodwill is positively correlated with the economic profits, consistent with the notion that these acquisitions are expected to produce synergies ..."
Lys et al. (2012)	871	U.S. Companies	2002-2006	"... the disclosed Goodwill is negatively correlated with the economic losses, that is, the higher the losses the higher the goodwill." "The authors suggest that the reason for the negative correlation is that the recorded goodwill in these cases includes overpayments by the acquirer.."

Based on Hayn and Hughes (2006) research paper, Olante (2013) hypothesizes that the cause of many goodwill impairment losses is the overpayment for the target company at the time of the acquisition. In order to realise this study, she uses a predictive regression analysis. Her sample covers 929 acquisitions completed by U.S. stock-listed companies over the nine-year period from 1990 to 2007, just before the 2008 financial crisis. She found that 37.4% of subsequent goodwill impairment losses were predictable based on overpayment indicators at acquisition. The percentage of stock in the purchase price was the most significant predictive indicator. The amount of goodwill in the context of purchase price and the excess of acquisition costs over the target's assets book value are the other two significant indicators.

According to her study, the goodwill impairment losses are, at least in part, the consequence of an overpayment for the target entity at the moment of acquisition. Moreover, the higher the amount of the net assets acquired with the acquiring company's shares, the higher the probability of occurrence of goodwill impairment losses post-acquisition. Furthermore, Olante's research aligns with the previous researchers' study results with regard to ratio of goodwill to consideration paid in that the higher the ratio, the higher the likelihood of having subsequent goodwill impairment losses. Olante's results suggest that a high amount of goodwill obtained from the business combination creates a higher expectation of not only benefits from expected synergies, but also other components. The second finding reveals that the average time-lag between the recognition of goodwill impairment loss and the purchase time ranges from two to three years.

Finally, one of the key lessons we can draw from Olante's research paper is that companies should pay significant attention to the assessment of the target's book value assets in order not to overvalue and consequently overpay for it. Another important lesson is that managers should remain skeptical about the consideration settlement as it is proven that paying in stock can result in overpaid acquisitions and subsequent goodwill impairment losses. Moreover, the companies should not wait two or three years after the acquisition to work, but rather straight afterward. Otherwise, the business combination will result in goodwill impairment losses. Saying that differently, it is quite remote to achieve synergies after a time frame of three years' post-acquisition.

2. Purchase price allocations, goodwill and goodwill-impairment test disclosures

Company management has substantial discretion with the purchase price allocation, and therefore with regard to the determination of goodwill. For instance, it will not be obvious whether distinct intangibles exist in some business combination cases. Furthermore, goodwill reports take into consideration the future-oriented and company-specific internal information, which are subjective, and consequently very difficult to confirm. The discretion also occurs when measuring the acquisition-date fair values of the target's assets and liabilities, especially from intangible assets, such as technologies or IPR&D. In order to assist potential investors in assessing the reliability of the carrying amount of goodwill estimated by management, US GAAP and IFRS mandate great detailed disclosures on the business combinations and on the impairment tests of goodwill. Despite this countervailing measure, academic studies reveal that companies' disclosures do not actually meet US GAAP and IFRS' requirements.

2.2 Literature Review: Institutional Authors

In addition to the academic authors, there are some institutional authors, mainly European bodies, which researched on the purchase price allocation and goodwill recognition. This is further explained below.

1. Studies on purchase price allocations and importance of goodwill

EFRAG's quantitative study (October 2016) also documents that the ratio of goodwill to purchase price varies according to the industry. EFRAG's study about "Goodwill and Impairment" reveals that the ratio differs significantly with a range from 6.8% to 71.6% (average is 33.6%). The latter adds that the Telecommunication Services, Consumer Staples, and Industrials industries report the highest ratios while Healthcare, Consumer Staples and Energy are the lowest. ERRAG's findings are indeed similar to Sascha Boennen and Martin Glaum's empirical review of the literature (2014).

2. Purchase price allocations, goodwill and goodwill-impairment test disclosures

In addition to Shalev and Glaum et al. research studies, the U.K. Financial Reporting Council (FRC), the German Financial Reporting Enforcement (FREP), as well as the European Securities and Markets Authority (ESMA) are three other institutional bodies that have carried out investigations on the purchase price allocations, goodwill, and goodwill-impairment test disclosures.

U.K. Financial Reporting Council (FRC) observed that more than half of the studied disclosures on goodwill and impairment tests included in the 2007 (just before the 2008 financial crisis) Financial Reports of top U.K. large firms were “uninformative”. In addition to U.K.’s conclusion, German Financial Reporting Enforcement (FREP) pointed out that business acquisitions and goodwill impairment tests have been parts of reporting with the “highest number of errors” by German large stock-listed companies. Finally, another supervisory authority, European Securities and Markets Authority (2013 ESMA Report) confirmed this situation as the disclosures associated to goodwill impairment tests “in many cases were of a boilerplate nature and not entity-specific”.

Table 3 Studies on purchase price allocations, goodwill and goodwill-impairment test disclosures

Studies on Recognition of Goodwill: Purchase price allocations, goodwill and goodwill-impairment test disclosures				
	Number of Deals	Geographic Area of Studies	Report published date	Financial Reports- Disclosures
UK Financial Reporting Council (FRC)	More than half of the reviewed disclosures	Leading UK Companies	2008	"uninformative"
Sahlev	Not mentioned	U.S. Companies belonging to S&P 500	2009	"... disclose separately the assets acquired and liabilities assumed for only 43.1% of all acquisitions;" "... a full PPA is provided only for 33.7% of all acquisitions." "... the disclosure of GW were disclosed only for 13.4% of the transactions." "the level of disclosure on business combinations decreases with abnormal portions of the PPA to GW"
German Financial Reporting Enforcement Panel (FREP)	Not mentioned	German stock-listed Companies	2011	"led to the highest number of errors"
Glaum et al.	357	European large Companies	2012	"..., companies often failed to report the cost of the combinations, information on the PPA, explanations on the recognition of GW and details of the goodwill-impairment tests".
European Securities and Markets Authority (ESMA)	235	European large stock-listed Companies (23 countries)	2013	"in many cases were of boilerplate nature and entity-specific".

In addition to 2013 Report, ESMA reported in 2014 a review on the application of accounting requirements for business combinations in IFRS financial statements. In other words, the ESMA 2014 Report specifically assessed the reliability of application of key requirements of IFRS 3 – *Business Combinations* and compliance with the company-specific IFRS 3 disclosures in the 2012 annual IFRS financial statements. In fact, IFRS 3 requires companies to disclose information that allows any stakeholders using their financial statements to assess the nature and financial effect of the business combination. The sample was composed of 56 European listed companies from 11 countries, covering 66 large as well small business combinations concluded in 2012.

ESMA study revealed that the elements of disclosures determining the value of goodwill were often “boiler plate”. Indeed, companies do mention the potential realisations of synergies from the business combination, however they do not detail how and where exactly those synergies are expected to be achieved.

Furthermore, 17% of the financial statements analysed in the ESMA review did not give the reasons for the business combination, or in some, this information was accessible in the management report but not in the notes to the consolidated financial statements. However, transparency is one the key objectives of financial information, enabling investors to make decisions on investments, and non-disclosure of such information in the financial report may weaken the understanding of the rationale of the transaction.

ESMA 2014 Report considers that their report will help the IASB in recognizing areas where IFRS 3 leads to discrepancy in practice or lack of comparability, and where, in consequence, extra clarification or guidance would be needed and helpful in achieving the key objectives of the financial information (see **Figure 4**). In order to achieve those objectives, ESMA highly supports companies’ disclosure of details, concerning the determination factors of goodwill, when synergies are expected to be realized and how they were determined.

Finally, the key lesson of the ESMA 2014 Report is that the quality of the financial information depends on how transparent, understandable, and comparable financial statements are, not only for investors but for all stakeholder consulting those documents.

Indeed, high-quality financial information enables trust which then drives the company to a sustainable business comparative advantage.

Figure 4 Financial Information – Key Objectives⁴



Conclusion of the Literature Review

The findings in the previously mentioned research studies are common, and therefore do not contest each other even though the geographic areas, the time periods of study, and the number of acquisitions studied are not the same. Moreover, researchers worked on the same trends such as the ratio of goodwill to consideration paid, which is most of the time high and results in significant impairment losses post-acquisition. However, it is critical to take into consideration the industry as the ratio varies substantially from one industry to another. This means that the ratio is high in some industries and low in others.

Moreover, these studies have analysed disclosures in the context of a business combination, more precisely in regards to the purchase price allocation, of the acquired amount, and subsequent measurement of goodwill. In fact, in many cases, companies did not provide detailed information about disclosures of them. We can emphasise that circumstances did not entirely change over time while considering, except the method of analysing the data. For instance, the most influential idea of analysis was identified from Olante's study being the logistic regression analysis.

⁴ International Accounting and International Standards course slides, Session 7 "Subsidiaries and Associates", 2016.

2.3 Literature Gap

While considering the review of empirical research, this research study fills an existing gap. Indeed, there is currently no study that has analysed the synergies achieved specifically in the Pharmaceutical and Beauty–Personal Care sectors in the context of business combinations. As mentioned earlier, this study focuses particularly on goodwill components and on the determinant factors explaining its value. Thus, the main outcome of this study is the comparative sectoral analysis.

3. Data Analysis

3.1 Definition of the samples

The first part of the data analysis deals with the definition of the samples. It is defined by two distinct data sets (two samples of acquisitions). The first one is about the Pharmaceutical sector, and the second about the Beauty–Personal Care sector in which four main factors are selected. Those factors have not been chosen randomly. Below are described the reasons for choosing each of them.

3.1.1 Sectors

The samples were selected by first identifying two sectors where many mergers and acquisitions transactions have occurred. The Pharmaceutical and Beauty–Personal Care sectors are seen as acquisitive industries where lots of M&A deals are completed.

3.1.2 Geographic areas

The geographic areas are limited to U.S. and Europe. The reason is that it is where the financial information about the major acquirer companies in both sectors are publicly available. The Pharmaceutical's sample is composed of 6 large stock-listed American and 7 European companies. The Beauty–Personal Care's sample is composed of 6 and 5 big listed American and European companies, respectively.

3.1.3 Time period

The time range is defined between 2003 and 2017. It starts after the 2002 financial crisis as it is more relevant to look at the market behaviour afterwards, and not beforehand. In order to have the data available to measure value creation, the time range covers more than a decade.

3.1.4 Currency

As the samples include large stock-listed American and European companies, the currency of the data differs from one company to another according to the acquirer country of origin and GAAP. The four currencies used in the 89 business combinations included in the samples are the US Dollar, the British Pound, the Euro, and the Swiss Franc. However, as the data analysis is mainly based on ratios, the currency value does not really impact the assessment. When ratios are not used, the currency effect has been ignored.

3.2 Sectors Analysis

In order to answer the first research objective question “*What are the common causes for mergers and acquisitions in those sectors?*”, it is necessary to first identify the main reasons and drivers pushing the Pharmaceutical and the Beauty–Personal Care sectors to apply growth strategy through M&As.

3.2.1 Pharmaceutical sector

3.2.1.1 Main reasons for Business Combinations in this sector

Over the past 30 years, the Pharmaceutical industry has become progressively concentrated, especially these last 10 years. In other words, we notice a substantial market share evolution from 2008 to 2018 (see **Figure 1** and **Figure 2**) where the industry grew to be under the dominance of 10 American and European large companies. The main reason of this market trend is, undoubtedly, the result of many M&As. As far as deal value is concerned, we can observe during the 1998-2000 period, that it exceeded US\$500 billion⁵ whereas taking only the year-end 2018 it was about US\$221.4 billion⁶ that being a 22% increase in deal value versus year-end 2017.

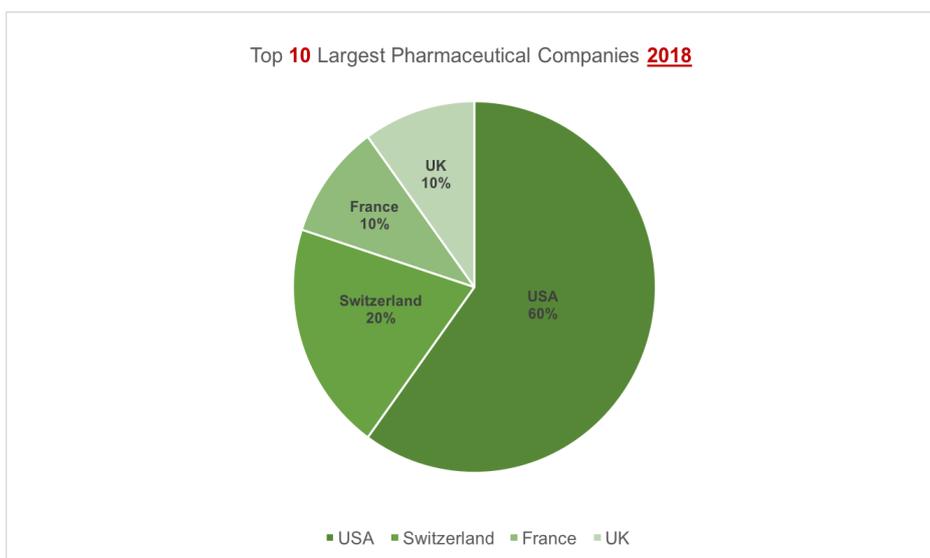
Figure 5 Top 20 Largest Pharmaceutical Companies in 2008



⁵ DANZON, Patricia M., EPSTEIN, Andrew, and NICHOLSON, Sean, 2004. *Mergers and Acquisitions in the Pharmaceutical and Biotech industries*. Available from: <https://www.nber.org/papers/w10536.pdf>

⁶ SAADA, Bob, HUNZINGER, Glenn, GEIGER, Brian, 2019. *Global Pharma & Life Sciences Deals Insights*. Pwc.com[online]. Year-end 2018. Available from: <https://www.pwc.com/us/en/health-industries/publications/pdf/pwc-global-pharma-life-sciences-deals-insights-year-end-2018.pdf>

Figure 6 Top 10 Largest Pharmaceutical Companies in 2018



However, we cannot neglect highlighting the emerging markets, such as China and India, which have been growing considerably these last years, and may be threatening the large American and European companies in the following years. In addition, it is interesting to notice that Big Pharmaceuticals currently acquire companies (see **Appendix 29**) in those developing markets as there is potential to grow their businesses and consequently, they will likely strengthen their net international sales.

The major reason for the large Pharmaceutical companies choosing M&As activity as a growth strategy is simply that the cost of doing business nowadays is increasing since the cost of new technologies is increasing. In fact, new technological equipment is strongly needed in research and development activity within this industry. In addition, some new policies such as the new tax reform in USA, market forces such as blockbuster drugs and biotechnology and some patent expirations (e.g. Novartis), that result in a company's product pipeline gaps, play a significant role in this corporate strategic decision.

3.2.1.2 Main drivers for Business Combinations in this sector

According to McKinsey, an American consulting firm, there are three fundamental drivers which motivate significantly Pharmaceutical executives to enter into mergers and acquisitions deals, which are the following ones:

1. M&A as Source of “Innovation”

Studies have shown that the portion of revenues coming from innovations realized outside Big Pharmaceutical companies has considerably grown from about 25% in 2001 to about 50% in 2016⁷. That is why most of the small and creative Pharmaceuticals as well as Biotechnical companies, mainly startups, have been purchased by the larger ones, once they advanced in their research (e.g. Pfizer’s acquisitions of Anacor and Medivation in 2016). In addition, the research and development of new drugs requires heavy investments and often does not succeed as the molecules are not approved by the regulatory authorities such as the European Medicines Agency (EMA) or the Food and Drug Administration (FDA) in the United States.

2. M&A to unlock “Synergies”

Creating significant synergies, financial and operational, is another significant driver to motivate executive teams to conclude M&As. In the Pharmaceutical industry, the main sources of synergies are the operational ones such as a more efficient use of the Capital as the combination of research and development of the combined companies’ allows substantial cost savings due to the overlapping range of drugs under development. In addition, the Biotechnical companies have a slight better EBITDA margins than Pharmaceutical companies’ which gives them the opportunity to create synergies by either selling or acquiring.

3. M&A to realign “Portfolios”

The last driver, which pushes Pharmaceutical executives to enter into a M&As deal is without a doubt the realignment of their portfolios (e.g. Sanofi’s acquisition of Genzyme in 2010) in part due to the change of the company’s strategies. In fact, acquiring the most compelling and innovative assets makes the company’s product portfolio much stronger. Divesting noncore assets relative to prior years play also an important role in the portfolio realignment.

⁷ BANSAL, Roerich, DE BACKER, Ruth and RANADE, Vikram, 2018. What’s behind the pharmaceutical sector’s M&A push. Mckinsey.com[online]. October 2018. Available from: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/whats-behind-the-pharmaceutical-sectors-m-and-a-push>

Conclusion

All of these three drivers can be linked to each other, so the M&A source of “Innovation” caused them to unlock “Synergies” as well as to realign “Portfolios”. Furthermore, it is noteworthy for Big Pharma to take into consideration Ernst and Young’s 2018 M&A Firepower Report statement, “*Value creation in this environment will be powered by patient-focused, collaborative, data-enabled business models that increasingly expand beyond the product to platforms of care.*”⁸ From this, we can understand the traditional business models will change to more data-oriented business model. The 2018 Roche acquisition of Flatiron Health, a healthcare technology and services company, focused on accelerating cancer research and improving patient care, can be noted as proof of this strategic move.

3.2.2 Beauty and Personal Care sector

3.2.2.1 Main reasons for Business Combinations in this sector

The Beauty–Personal Care industry like the Pharmaceutical industry has seen a high number of mergers and acquisitions over the past ten years. Throughout these years, the key industry players (see **Figure 7** and **Figure 8**) developed their business by acquiring brands either large or small, and adding them to their product portfolios. According to A.T.Kearney, American global management consulting firm, there are two major reasons for this inorganic growth. The first one is the stagnation or slow growth in core markets involving the United States and Western Europe. For instance, the United States’ overall Beauty–Personal Care market grew only by 4%⁹, and the growth expectation will not greatly surpass this amount in the near future. The second is the fact that the industry is, in its nature very concentrated, similar to the Pharmaceutical industry. The BPC approached its end point as the top three companies represents more or less 45% market share on a combined basis. Therefore, the large companies have been following opportunities in order to reinvigorate their performance across diverse categories, geographic areas and channels.

⁸ EY, 2018. With disruptors at the gates, how will you secure your company’ s future? Ey.com[online]. Available from: [https://www.ey.com/Publication/vwLUAssets/ey-with-disruptors-at-the-gates-how-will-you-secure-your-company-s-future/\\$FILE/ey-with-disruptors-at-the-gates-how-will-you-secure-your-company-s-future.pdf](https://www.ey.com/Publication/vwLUAssets/ey-with-disruptors-at-the-gates-how-will-you-secure-your-company-s-future/$FILE/ey-with-disruptors-at-the-gates-how-will-you-secure-your-company-s-future.pdf)

⁹ PARK, Sung, 2018. The Beauty Economy Outlook for 2018. Customdirectpromo.com[online]. Available from: <https://customdirectpromo.com/the-beauty-economy-outlook-for-2018/>

Figure 7 The 15 Beauty–Personal Care Brands 2018

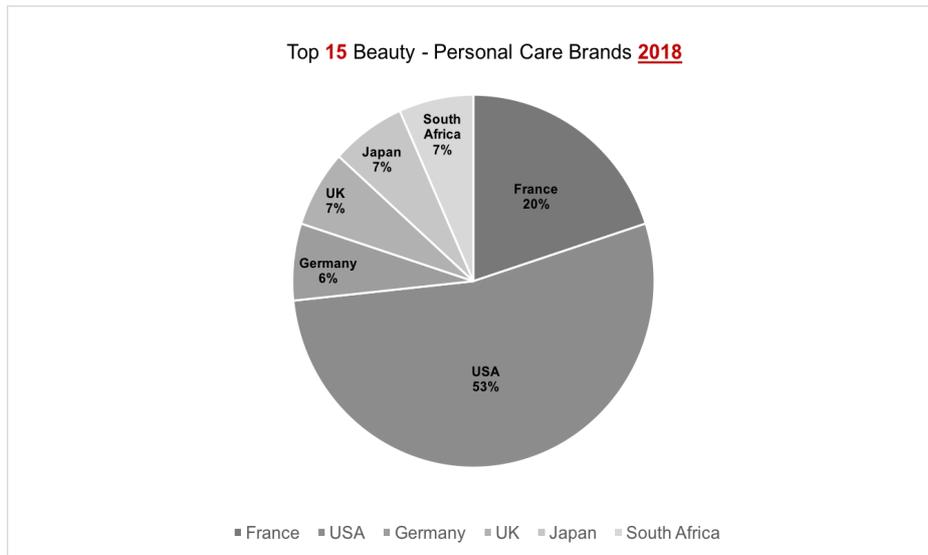
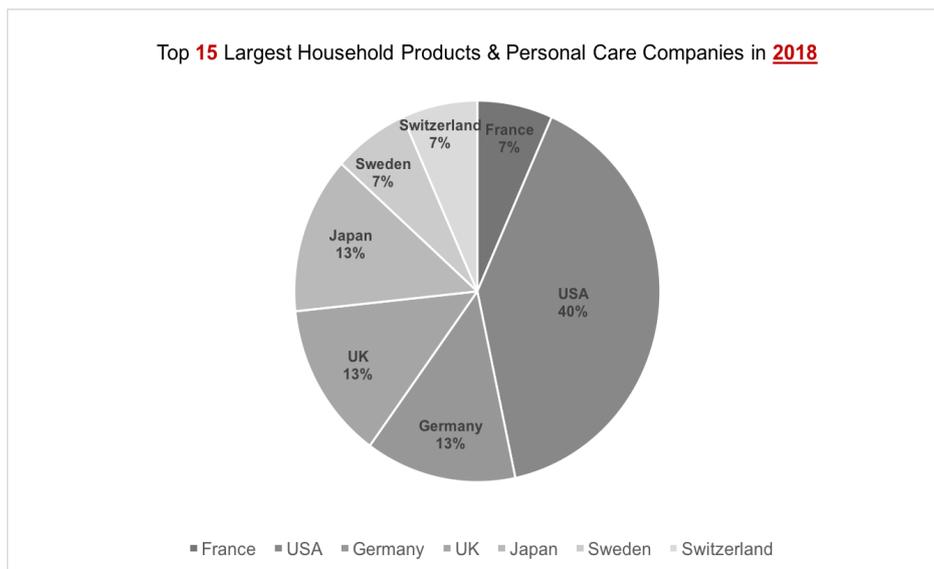


Figure 8 Top 15 Largest Household Products & Personal Care Companies in 2018



3.2.2.2 Main drivers for Business Combinations in this sector

There are four general key drivers of explaining M&As in BPC:

1. Access to Consumers

This is the most well-known strategic M&As driver in the FMCG as well as in the Beauty–Personal Care sector. Cosmetics companies are looking to expand their market share with new consumer clusters, taking into consideration the core demographic trends, such as ethnic consumers, Millennials, Generation Z, including aging consumers. However, it is easier and more efficient for large corporations to purchase small specialized

companies as they target more demographics such as Asian, African American, and Hispanic consumers.

A notable example of this would be the French cosmetic firm, L'Oréal. In 2014, the group purchased (see **Appendix 29**) ethnic hair-care and skin-care brand Carol's Daughter to target women of colour by harnessing the demand for ethnic products. Straight after the acquisition, we can observe an increase of the Cash Flow from Operations margin from **17.15%** to **19.97%** that being 3 years after the purchase.

Out of the 214 M&A deals concluded in 2016, 60%¹⁰ represent access to consumers as a key driver.

2. Access to Markets

Expansion into new geographic areas is often seen as a core driver of M&As moves within the Beauty–Personal Care sector. In fact, local companies enable large corporations rapid access to local distribution channels, but this does not only regard the time and capital needed to be saved but also the import barriers to avoid. Furthermore, acquiring local companies introduces more specific information about the local consumers such as tastes and needs, due to different skin colours and types of hair, as well as the local market (e.g. local skin-care, colour, and hair-care companies).

A good example of this is L'Oréal again. The large French cosmetic company has purchased (see **Appendix 29**) Vogue group (Columbia), Spirig Pharma A.G. (Switzerland), Interconsumer Products Limited (Kenya), Emporio Body Store (Brazil) in 2013 in order to increase its geographical presence in those countries. Again, we can note an increase post-acquisition in the Cash Flow from Operations margin from **16.68%** to **18.88%**, 3 years after the purchases.

Out of the 214 M&A deals concluded in 2016, 8% represent access to markets as a second key driver.

¹⁰ SZASZ, Andrea, 2016. Shop or Drop: The inevitable Path for Growth in Beauty. Atkearney.co.jp[online]. Available from: <https://www.atkearney.co.jp/documents/10192/10063013/Shop+or+Drop.pdf/5afd858f-132e-4582-8e10-ad7a1d44de35>

3. Access to Distribution Channels

There is a need for companies in the retail sector to strengthen or build their sales infrastructure as their core objective is to maximize sales of products, not only in their home countries but all over the world. That is why BPC companies are not only acquiring companies to complete their product portfolios but also distribution channels to commercialize them faster on targeted markets.

An example of this is the American cosmetic company, Coty. It has purchased U.K. distribution business Lena White in 2013 in order to strengthen control of its brand in the U.K. market which then would result in the fast commercialization through retail and professional channels. According to some studies, Lena White became Coty's largest distribution channel for of its leading colour cosmetic brand OPI. We can observe an increase post-acquisition of the Cash Flow from Operations margin from **9.98%** to **11.53%**, 3 years following the purchase.

Out of the 26 M&A deals concluded in 2016, 12% represent access to distribution channels as third key driver.

4. Access to Innovation

It is fundamental for companies in the FMCG industry, especially for BPC to have a closer look into innovation due to a shortening product life cycle. The market players in the BPC industry, like in the Pharmaceutical sector with the Biotechnical companies, capitalize on companies which have the ability to incorporate technological innovations into their products and processes.

Again, an example of this is L'Oréal, which purchased (see **Appendix 29**) IT Cosmetics Limited in 2016 in order to become more digital, efficient, agile, and sustainable. We can note an increase post-acquisition of the Cash Flow from Operations margin from **14.11%** to **15.17%**, 2 years following the purchase.

Out of the 214 M&A deals concluded in 2016, 20% represent access to innovation as fourth key driver.

Conclusion

According to Atlanta, an American company, in addition to these four key famous drivers, there are five principal trends more specifically driving M&As in the Beauty–Personal Care sector in 2017¹¹. In this sector, M&As activity has continued in 2017 at record levels, with over 80 deals announced in the year, against about 90 deals in each of the preceding two years. As mentioned earlier, this is mainly due to the rapid changes of the business environment being highly competitive. These changes were driven mainly by the new technologies and more environment-friendly products.

The five principal trends are the followings:

1. Increased **competition** amongst private equity investors: this is due to sales-based multiples available of the successful brands to new entrants like Ares (Devacurl).
2. Influencer-driven growth through **social media**: younger brands are increasing their network growth rates thanks to the social media users and influencers.
3. Retailers **differentiating** their offer through owned brands: for instance, because retailers can offer premium shelf as they own the brands.
4. High growth in **‘indie’ brands** attracting large corporate buyers: smaller inspiring, innovative and independent brands have started to disrupt the cosmetic industry.
5. The **natural/organic beauty** movement: increased consumer awareness of the impact of applying chemicals to their skin and the absorption of it into their blood.

3.2.3 Sector Comparison

3.2.3.1 Common causes for Business Combinations between both sectors

Strategic and economic reasons for M&As activity in any business are provided in the book titled “Finance for Executives: A Practical Guide for Managers” (2014) written by Nuno Fernandes, Portuguese author and Finance Professor: However, as this study focuses on two specific sectors, only the common causes between Pharmaceutical and BPC sectors are explained below.

- Increasing product range:

As stated earlier, the increase of competition in the Beauty–Personal Care industry due to new trends such as more natural and organic products substantially impact the cosmetics market. Purchasing products with recognized or new brands is regarded as a solution and helps companies stay in the game.

¹¹ WISEMAN, Matthew, 2017. Personal care and beauty: top 5 trends driving M&A in 2017. Insights.alantra.com[online]. December 2017. Available from: <http://insights.alantra.com/post/102en9r/personal-care-and-beauty-top-5-trends-driving-ma-in-2017>

The Pharmaceutical industry is currently facing strong headwinds due to challenges such as cost control initiatives by customers, control pricing and promotion of cheaper generic alternatives by governments and health care organizations¹². Acquiring “In-process Research and Development” and drug already in the final R&D phase (see **Appendix 23**), is therefore a solution for these greater obstacles of bringing innovative products to the market.

- Increasing manufacturing capabilities and distribution range:

Despite how important the supply chain is, Pharmaceutical companies committed relatively low efforts to the reconfiguration of their manufacturing and distribution operations these last years. However, according to some analysts, by the year 2020, many of the drugs they produce will be specialist therapies which require completely different manufacturing and distribution techniques from those used in the production of small molecules¹³.

As in the Pharmaceutical sector, the Beauty–Personal Care companies see changes within the sector such as innovative customer demands and personalised product offerings. This therefore results in changes in business operations such as in the manufacturing and distribution services, and acquiring entities is one of the strategic solutions to respond to these changes¹⁴.

Conclusion

While focusing more on the selected sectors, Pharmaceutical and Beauty–Personal Care, we notice three significant common causes for applying growth strategies through mergers and acquisitions. The first one is “Increasing product range”. Even though both sectors are highly concentrated, there is still a need to expand the product portfolio due to the technological evolvment. The second common cause is “Increasing manufacturing capabilities” as these new technologies are very costly, M&A deals are a

¹² EY, 2014. Commercial Excellence in Pharma 3.0. Ey.com[online]. Available from: [https://www.ey.com/Publication/vwLUAssets/EY_Commercial_excellence_in_pharma_3.0/\\$File/EY-commercial-excellence-in-pharma-3-0.pdf](https://www.ey.com/Publication/vwLUAssets/EY_Commercial_excellence_in_pharma_3.0/$File/EY-commercial-excellence-in-pharma-3-0.pdf)

¹³ PwC, 2011. Pharma 2020: Supplying the future - Which path will you take? Pwc.com[online]. Available from: https://www.pwc.de/de/gesundheitswesen-und-pharma/assets/pharma_2020_sc_final.pdf

¹⁴ FENECH, Céline, PERKINS, Ben, 2015. Made-to-order: The rise of mass personalization. Deloitte.com[online]. July 2015 Available from: <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/consumer-business/ch-en-consumer-business-made-to-order-consumer-review.pdf>

good way to diminish future costs and realize economies of scale. The third and last one is “Increasing distribution range”. As in these two sectors, the customer needs and product offerings are changing, the way to receive them is therefore changing.

3.2.3.2 Specific causes for Business Combinations in each sector

Performance:

The Beauty–Personal Care industry is more performance driven. According to companies’ annual/financial report analyses, straight after and even before the completion of the M&A deal, the acquisition highlights information about prior and future performance with regard to target. For instance, the generation of future benefits (see **Appendix 29**) from sales is often mentioned in the company’s goodwill description.

Future Economic Advantages:

The Pharmaceutical industry, in contrast, is more driven by future economic advantages. As there are several phases, three in general, in the development of a new drug, the acquirer cannot completely capitalize straight after the acquisition. Also, for each new drug proposal, companies must receive the New Drug Approval (NDA) from regulatory bodies such as the U.S. Food and Drug Administration and this takes a lot of time. Additionally, there is no certainty whether the new medicine will be proven or not.

Conclusion

Even though these two industries are completely different in terms of products offerings and customer’s needs, there are some similarities in terms of strategic decisions on M&As strategy. It is true that the new technologies impact these sectors in a significant way, bringing major upheavals. In order to face this, Pharmaceutical and Beauty–Personal Care corporations must enter into M&A deals, to provide the market with new and innovative products and stay in the game, in a highly competitive environment.

For this, Novartis CEO, Vasant Narasimhan, has announced that he believes M&As are the way toward “transformative” innovation. Therefore, he plans to spend at least \$10¹⁵ billion a year on acquisitions representing 5% of the company’s market capitalization in order to be on top of the next wave of innovations. We can interpret his statement by saying that they will definitely be participating in the race for innovation. Furthermore, he

¹⁵ WEINTRAUB, Arlene, 2019. Novartis CEO figures M&A's the way toward 'transformative' innovation: report. Fiercepharma.com[online]. April 2019. Available from: <https://www.fiercepharma.com/pharma/novartis-ceo-looks-to-m-a-for-transformative-innovation-report>

revealed that he is searching for “bolt-on” deals meaning he is looking to acquire companies that will have a “transformative effect” on Novartis in order to build and keep its market share in key areas of focus, such as neurology. His main goal is therefore to lead “*these new (...) advanced therapy platforms*”.

On the other side, Procter and Gamble with P&G Ventures started to generate new innovative product ideas and offerings (about 40) in various stages of development where the company does not truly compete. One of the most illustrative examples of innovative product is their high-tech luxury razors¹⁶. Established three years ago by the company itself, P&G Ventures is a start-up studio working with entrepreneurs to create new brands, technologies and business models. Leigh Radford, the Vice President and General Manager of P&G Ventures revealed that “*The approach has changed in how we’re innovating. It’s more lean and it’s really about partnering with external start-ups.*” From this statement, we can clearly say that the company found its own way of innovation in order to achieve new revenue growth. The beauty devices that is expected to reach \$106 billion by 2024¹⁷ is a powerful new idea among many others.

¹⁶ MEYERSOHN, Nathaniel, 2019. Gillette is selling a \$200 luxury razor that heats up to 122 degrees. Edition.cnn.com[online]. May 2019. Available from: <https://edition.cnn.com/2019/05/02/tech/gillette-heated-razor/index.html>

¹⁷ MONK, Dan, 2019. Is Procter & Gamble getting better with big ideas?. Wcpo.com[online]. March 2019. Available from: <https://www.wcpo.com/money/local-business-news/is-procter-gamble-getting-better-with-big-ideas>

3.3 Analytical Review

The third part of the data analysis regards the selected sectors and its companies' behaviours and performance (from 2003 to 2018) without taking into consideration acquisitions one by one specifically. This part indeed demonstrates whether those companies do create value over time with all the acquisitions completed during the 2003 – 2018 time frame. Moreover, in order to answer the research question of this study, it is necessary to consider the net Cash Flow from Operations, assuming that an increase in post-acquisitions cash flow will evidence the achievement of synergies embedded in the value of goodwill. Therefore, we must evaluate these cash flows with goodwill.

While looking at the sectors and companies' behaviour and M&A activity, we can notice that Pharmaceutical companies establish many M&As as the Beauty–Personal Care companies. For example, Novartis and Roche in the Pharmaceutical sector and L'Oréal and Estee Lauder in the Beauty–Personal Care sector set up at least two to three acquisitions per year. The general belief is that if the company does not make the deal, the competitor will. This can indeed result in some M&A failures as Managers are so keen to close the deal that they lose focus on the whole transaction and destroy value instead of creating value with their acquired businesses (the so-called “**hubris syndrome**”).

3.3.1 Pharmaceutical sector

The company's CFO margin in the Pharmaceutical sector is not constant over time, meaning that each acquisition does not impact the company's performance in the same way. As **Figure 9** (below) shows, the yearly average of CFO margin of all acquiring companies combined is more or less constant from 2003 to 2018 with a range from - **7.8%** being the lowest value to **65.1%** being the highest value, with an overall CFO margin average of **26.8%** for all acquiring companies combined (2003 - 2018).

Figure 9 Pharmaceutical 2003-2018 CFO margin by Company

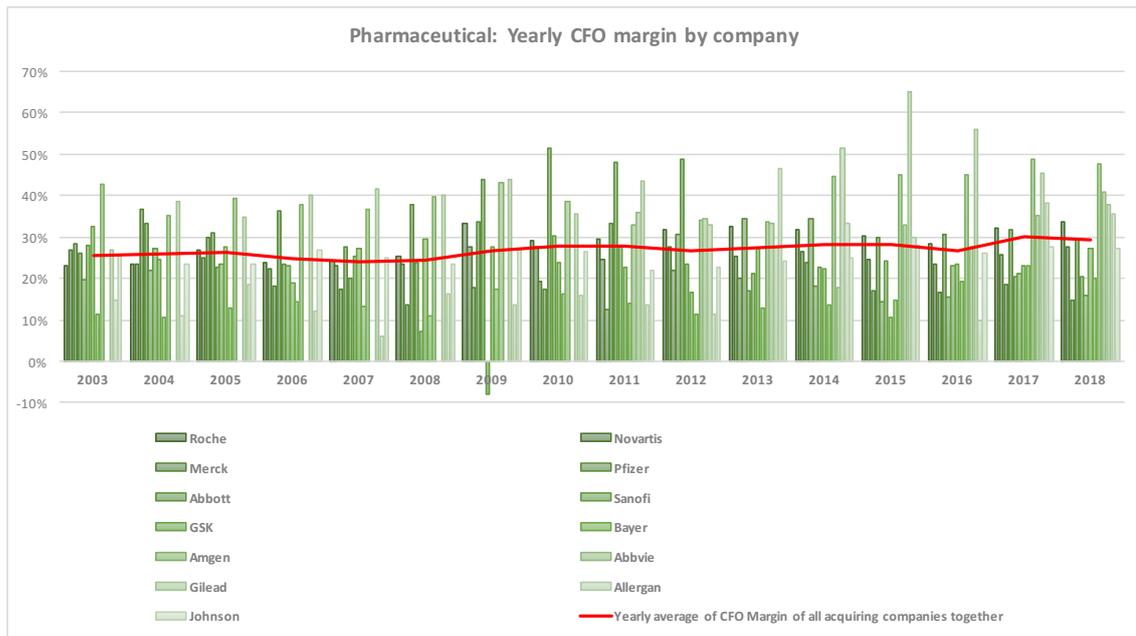


Table 4 (below) demonstrates the acquirers' performance from 2003 to 2018 and from 2008 to 2018. It is noteworthy that there is value creation for **46.2%** of Pharmaceuticals while taking the time period from 2003 to 2018, and this percentage reaches **78.6%** for a shorter time period (2008-2018). This significant increase of **32.4%** is likely due to the new technologies which allow companies to better predict whether R&D has potential or not, and therefore take measures accordingly.

Table 4 Pharmaceutical 2003-2018 Performance Assessment by company

	Average CFO Margin by Company from 2003 to 2018	Difference between average CFO Margin from 2003 to 2018 and 2003 CFO margin	Value Creation	Average CFO Margin by Company from 2008 to 2018	Difference between average CFO Margin from 2008 to 2018 and 2008 CFO margin	Value Creation
Roche	28.74%	5.51%	Yes	30.72%	5.30%	Yes
Novartis	25.32%	-1.43%	No	25.86%	2.30%	Yes
Merck	20.42%	-7.90%	No	17.83%	4.34%	Yes
Pfizer	31.14%	4.93%	Yes	31.25%	-6.52%	No
Abbott	26.85%	7.26%	Yes	29.28%	5.60%	Yes
Sanofi	21.09%	-7.05%	No	19.10%	11.90%	Yes
GSK	24.08%	-8.59%	No	23.14%	-6.44%	No
Bayer	14.80%	3.27%	Yes	15.83%	4.87%	Yes
Amgen	40.30%	-2.38%	No	41.21%	1.30%	Yes
Abbvie	32.27%	-3.54%	No	32.27%	-3.54%	No
Gilead	41.40%	14.37%	Yes	43.64%	3.47%	Yes
Allergan	20.48%	5.56%	Yes	24.07%	7.64%	Yes
Johnson	25.25%	-0.06%	No	25.47%	1.98%	Yes
	2003 & 2018: Difference between overall average CFO margin (all companies combined)	3.62%	YES/NO	2008 & 2018: Difference between overall average CFO margin (all companies combined)	4.85%	YES
	Total Value Creation by Sector from 2003 to 2018			Total Value Creation by Sector from 2008 to 2018		
	Yes	6	46.2%	Yes	10	76.9%
	No	7	53.8%	No	3	23.1%
	Total	13	100%	Total	13	100%

3.3.2 Beauty and Personal Care sector

Company' CFO margin in the Beauty–Personal Care sector is also not constant over time. Business combinations are not all recognized in the same way, as each brand bought has different characteristics such as product segment, country of origin and different firm size level. As **Figure 10** (below) illustrates, the yearly average of CFO margin of all acquiring companies combined is more or less constant from 2003 to 2018 with a range from **-12.7%** being the lowest value to **32.4%** being the highest value and the overall CFO margin average is **15.8%** for all acquiring companies combined (2003-2018).

Figure 10 Beauty–Personal Care 2003-2018 CFO margin by Company

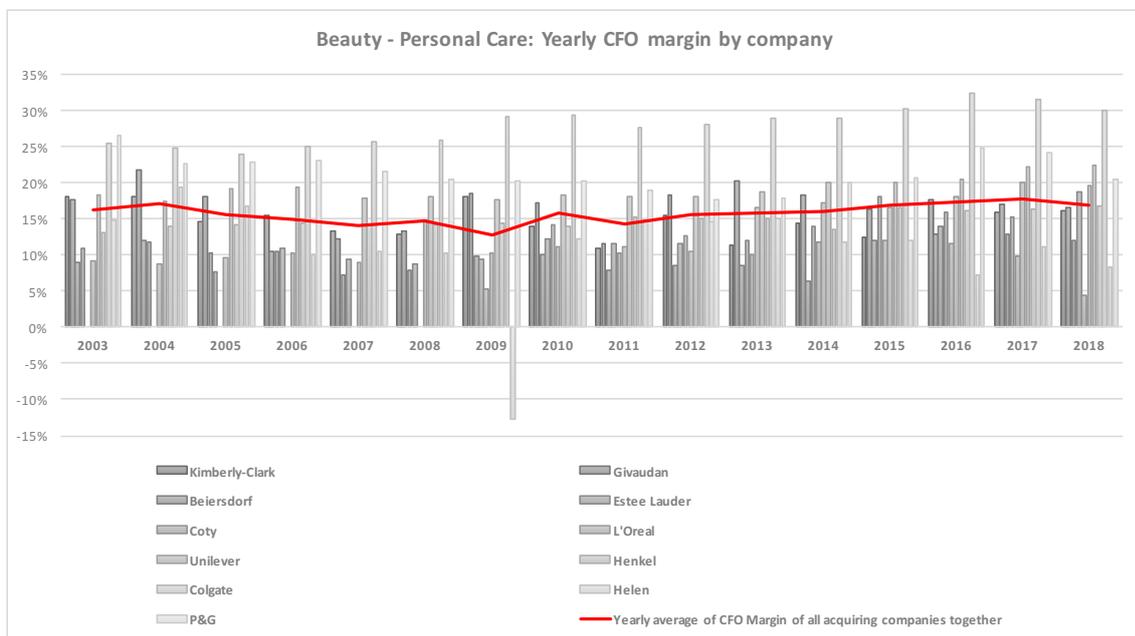


Table 5 (below) demonstrates the acquirers' performance from 2003 to 2018 and from 2008 to 2018. It is noticeable that there is value creation for **63.6%** of BPC companies while taking the time period from 2003 to 2018, and this percentage reaches **90.9%** for a smaller time period that being 2008-2018. This significant increase of **27.3%** can be attributed to continuous new acquisitions, annually.

Table 5 Beauty–Personal Care 2003-2018 Performance Assessment by company

	Average CFO Margin by Company from 2003 to 2018	Difference between average CFO Margin from 2003 to 2018 and 2003 CFO margin	Value Creation	Average CFO Margin by Company from 2008 to 2018	Difference between average CFO Margin from 2008 to 2018 and 2008 CFO margin	Value Creation
Kimberly-Clark	14.94%	-3.26%	No	14.50%	1.54%	Yes
Givaudan	16.30%	-1.34%	No	16.41%	3.17%	Yes
Beiersdorf	9.94%	1.01%	Yes	10.00%	2.16%	Yes
Estee Lauder	12.40%	1.44%	Yes	13.43%	4.71%	Yes
Coty	10.20%	4.96%	Yes	10.20%	4.96%	Yes
L'Oreal	13.31%	4.13%	Yes	15.12%	0.32%	Yes
Unilever	19.16%	0.89%	Yes	19.49%	1.37%	Yes
Henkel	14.84%	1.80%	Yes	15.25%	1.09%	Yes
Colgate	27.98%	2.55%	Yes	29.33%	3.42%	Yes
Helen	11.04%	-3.87%	No	9.55%	-0.81%	No
P&G	21.44%	-5.11%	No	20.55%	0.15%	Yes
	2003 & 2018: Difference between overall average CFO margin (all companies combined)	0.58%	Yes	2008 & 2018: Difference between overall average CFO margin (all companies combined)	2.24%	Yes
	Total Value Creation by sector from 2003 to 2018			Total Value Creation by sector from 2008 to 2018		
	Yes	7	63.6%	Yes	10	90.9%
	No	4	36.4%	No	1	9.1%
	Total	11	100%	Total	11	100%

3.3.3 Sector Comparison

The main similarity between these two sectors is that from 2003 to 2018 the yearly average CFO margin of all acquiring corporations is more or less constant. In other words, the latter performs well throughout the years and value creation arises from their M&As activity.

The principal difference is the percentage of value creation by sector that is higher in the Beauty–Personal Care than in the Pharmaceutical in both period 2003-2008 (after 2002 stock market crisis) and 2008-2018 (after the 2008 subprime crisis) (see **Table 4** and **Table 5**). This means that companies did not continuously achieve synergies as expected in this sector. There is indeed always this “unknown on the game” meaning that firms do not know at all whether the R&D on new drugs will be profitable. As the latter represents their core activity, the new medicines’ failure impact them heavily. Moreover, Pharmaceutical companies due to the patents expiration, also lose their competitiveness as there are more and more generic products for cheaper prices on the market. However, it is noticeable that the CFO margin generated by Big Pharmaceuticals is much higher than the Beauty-Personal Care. This proves in a way the business statement “*the higher the risk, the higher the return*”. As companies in this industry are taking more risks while acquiring other entities, the return on investment is therefore higher in case of success.

Finally, a key lesson from this analytical review is that M&As activity does create value for most of the companies in these two industries. That is to say the targeted synergies are indeed achieved. Pharmaceutical and Cosmetics corporations are truly aggressive in acquisitions; however, they do generate benefits from it in the long-run. In theory, when the company does not create any value after two/three years' post-acquisition, it is said that it is difficult or even impossible to create value in the following years. However, this investigation does not share the same idea as the percentage of value creation increases substantially over time.

3.4 Goodwill Analysis

The fourth part of the data analysis being the heart of this study deals with the in-depth analysis of the components of acquired goodwill and its evolution.

3.4.1 Definition of Goodwill

The accounting for goodwill became, this last century, one of the most problematic and challenging issues in financial reporting. It is also found in this study, such as in the previous literature review, that many companies still do not properly disclose information on goodwill, specifically about how and where the expected synergies are achieved. They even do not mention any information about the goodwill value itself. An example of this is the BPC companies which financial statements comply with US GAAP. Companies in this sector complete at least two to three acquisitions per year (e.g. Estee Lauder) but do not separately disclose the goodwill value for each acquisition, rather combining all the acquisitions' value together (an overall goodwill and purchase price value). Goodwill is considered very difficult to analyze, because it can be defined by many different components which may differ according to the purposes and strategic objectives of the transaction. However, the pharmaceutical industry seems to be more transparent. The reason may be linked to the fact that the business is more sensitive as it regards human health.

This research study identifies three characteristics of value creation arising from an acquisition which can be listed as follows:

Performance- This characteristic relates to **operating synergies**, primarily through increased revenue and decreased operating costs, and **financial synergies** (reduced cost of financing, tax benefit realization). The Synergy Map (see **Figure 11**) shows five levels of operational synergies that a company can achieve upon integration. The first level "Functions duplicated" can be achieved in the shortest time frame with the highest probability of success. In contrast to the first level, the fifth level "New products sold through new channels" is achieved in the longest time frame with the lowest probability of success. In fact, the first two to three levels of synergies are not so hard to achieve and this was proven in the companies' financial statements disclosures in both sectors e.g. most of the time restructuring plans realized (level 1) post-acquisition.

One of the most illustrative examples of synergies achievement in the Pharmaceutical industry is Pfizer's acquisition of Wyeth in 2009 - it was stated that the target synergies of cost savings amounted to approximately \$3 billion¹⁸, expected to be achieved through the two following main actions:

- *"The closing of duplicative facilities and other site rationalization actions company-wide, including research and development facilities, manufacturing plants, sales offices and other corporate facilities."*

The above action represents **CAPEX** optimization as sources of synergies.

- *"Workforce reductions across all areas of our business and other organizational changes."*

The above action represents the **SG&A** cost reduction as sources of synergies.

- *"The increased use of shared services."*

The above action represents the **IT synergies**.

- *"Procurement savings."*

The above action represents the **COGS** reduction as source of synergies.

One of the most illustrative examples of synergies achievement in the BPC sector is Coty's acquisitions of Procter and Gamble Beauty Business, Younique, and Lion/Gloria Topco Limited ("ghd") in 2016 - it was stated that the target synergies were expected to be achieved through the two following main actions:

- *"certain cost savings" e.g. in the manufacturing and supply chain*

This represents the **Manufacturing** and **Commercial / Logistical / Information Technology / Purchasing Synergies** with regard to the supply chain cost savings.

- *"integration of ghd's products into the Company's existing sales channels"¹⁹*

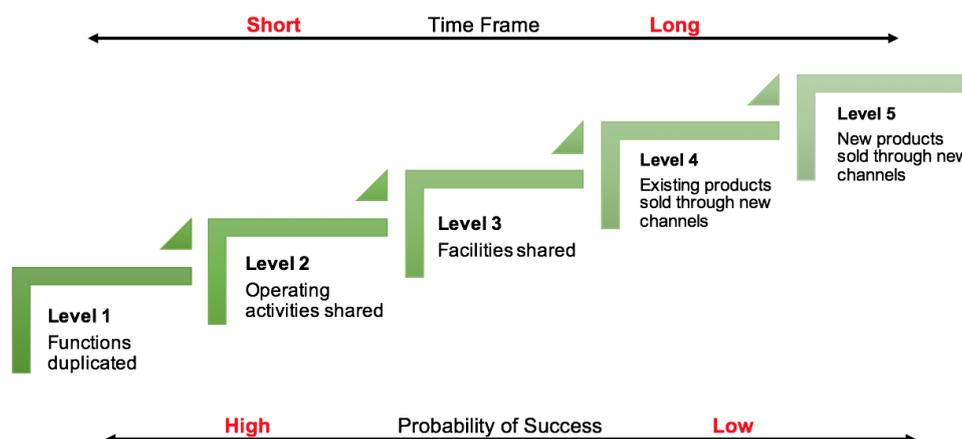
This represents the **Commercial** and **Logistical Synergies**.

¹⁸ Pfizer Inc., 2009. *Financial Report* [PDF file]. Internal company document

¹⁹ Coty Inc., 2017. *Annual Report* [PDF file]. Internal company document

We notice from these two acquisitions that some companies in those sectors disclose how and where the synergies will be achieved but with no direct specification of the type of synergies.

Figure 11 Synergy Map (with the 5 levels)



However, it is necessary to be aware of “potential negative synergies” as well as “costs of achieving synergies” which might arise from the acquisitions due to the executives’ loss of focus during the transaction process. The following negative synergies²⁰ are examples among others:

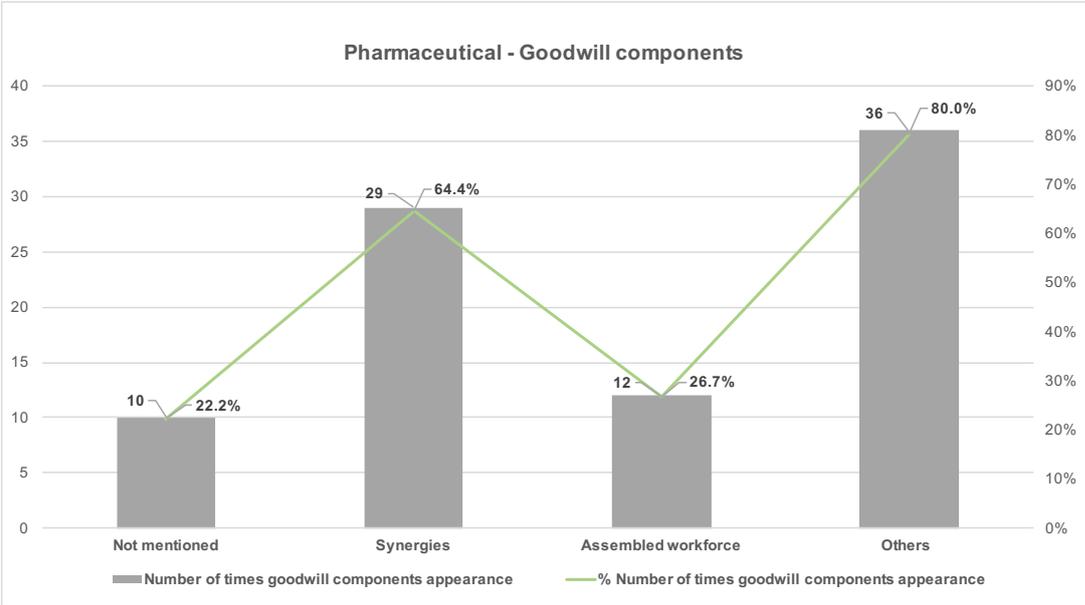
- customers that may be unable to renew their commercial relationships with the acquirer
- additional regulatory costs
- potential litigation
- higher than expected employee termination benefits

Innovation – The second characteristic relates to the **assembled workforce**. In other words, companies do not only purchase goodwill for the expected synergies but also for the target company’s employees’ expertise and “know-how”. This is very common in the Pharmaceutical industry (see **Figure 12**) as the main company’s asset is the employee’s knowledge and capabilities, especially the ones who work in the research and development area.

²⁰ EY October 2013 Capital Agenda Insights

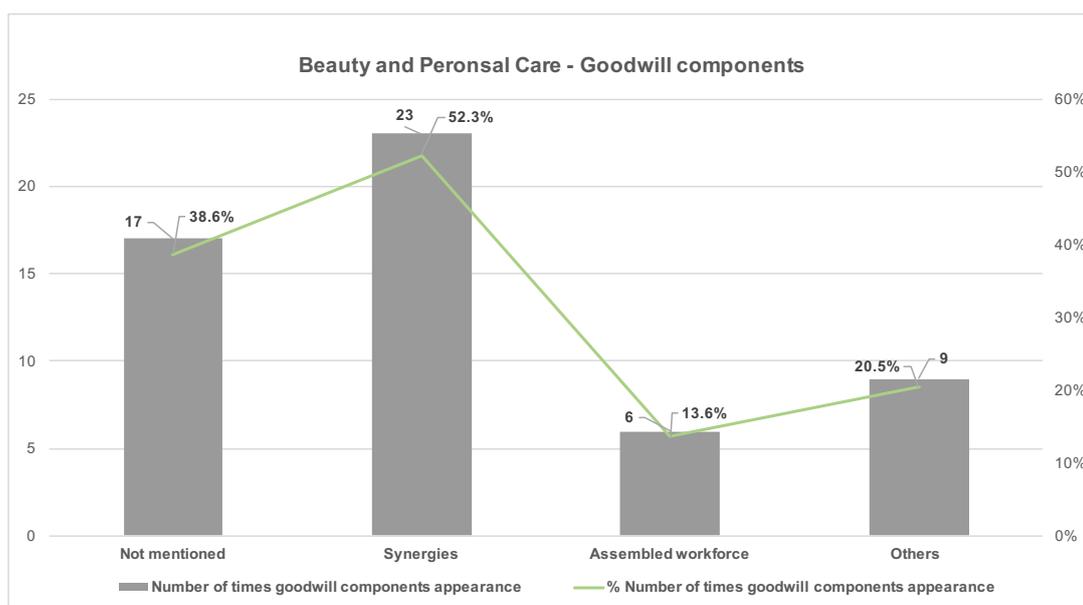
For instance, Pharmaceutical companies disclose in their financial statements (e.g. Novartis) that purchased goodwill includes the acquired assembled workforce in addition to the expected synergies.

Figure 12 Goodwill components in the Pharmaceutical sector



The number of “Not mentioned” goodwill components in the Beauty–Personal Care sector (see **Figure 13**) is another critical issue raised in the analysis of the acquirers’ annual/financial reports. In this sector, the number of times that the goodwill components are not mentioned is almost twice as much as the Pharmaceutical industry, especially from 2003 to 2008. As mentioned earlier, this means companies in this industry are more “opaque” in their financial reporting. This is particularly critical for entities reporting financial information in compliance with IFRS as this type of disclosures is mandatory.

Figure 13 Goodwill components in the Beauty–Personal Care sector



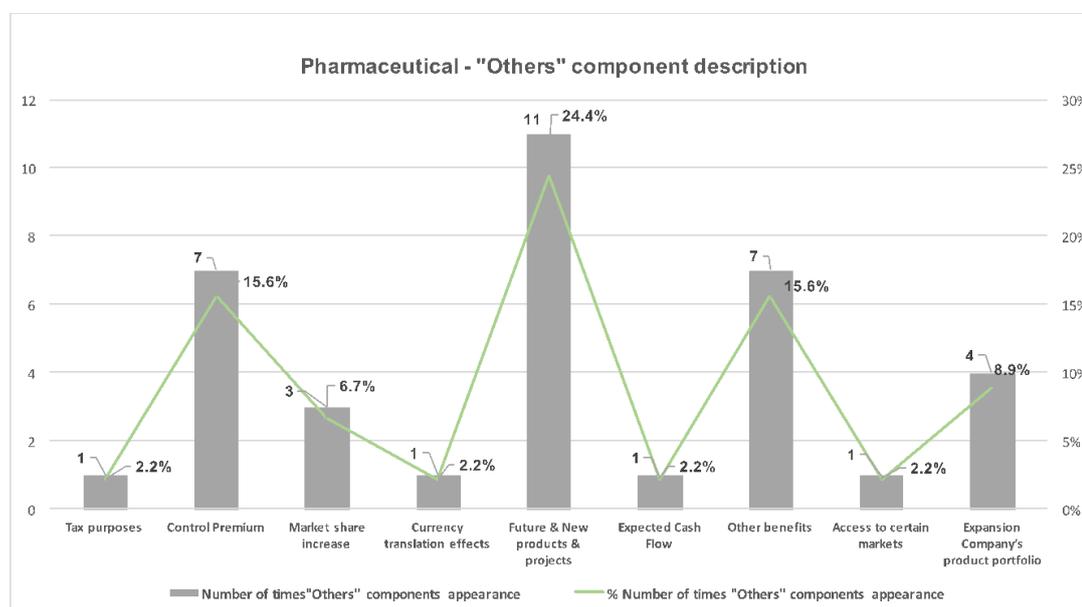
Efficiency – The third and last characteristic concerns all the “Others” components which are not synergies or assembled workforce. It has been found that the Pharmaceutical sector, as it is more transparent, disclosed “Others” component (see **Figure 14**) in almost all completed acquisitions achieved in the 2008-2017 period. The most significant one is the “Future and New products and projects” being in line with level 5 synergies of the synergy map. This may raise concerns about the low probability to achieve those synergies. This proves the earlier McKinsey statement about the key fundamental drivers being thus “M&As to realign Portfolios”. In contrast, the Beauty – Personal Care sector disclose “Others” in very few business combinations and where the only explanations are either tax purposes or future market- segment expansion. Also, an interesting thing to point out from the goodwill analysis is that some companies in both sectors did not disclose any information about the goodwill nature in the period of 2003-2008.

One of the most illustrative examples of synergies achievement in the BPC sector is Henkel’s acquisition of Procter and Gamble (“P&G”) hair care brands in 2016 – it is stated that goodwill was recognized for tax purposes for this specific P&G acquisition²¹, and Coty’s acquisition of Lena White in 2013, it is stated that goodwill corresponds to the

²¹ Henkel, 2017. *Annual Report* [PDF file]. Internal company document

expected benefits associated with the company's control over future expansion in the U.K. and the Colour Cosmetics segment²².

Figure 14 "Others" component description



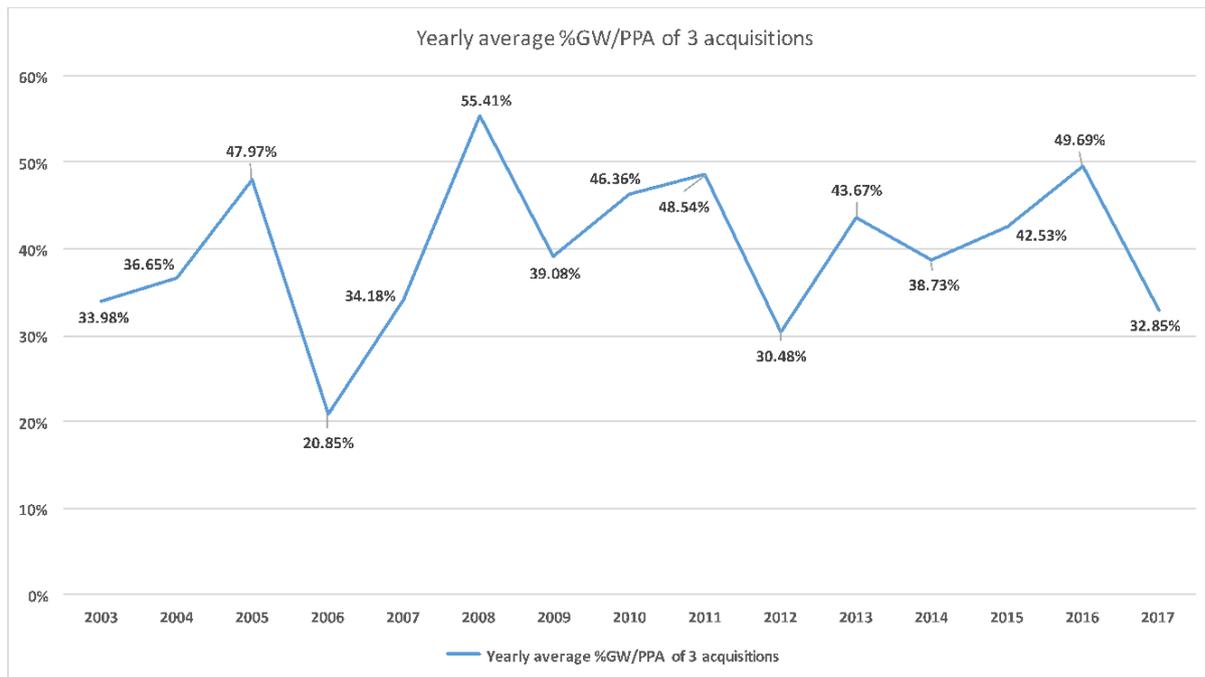
3.4.2 Sectoral trend of goodwill as percentage of PPA over time

Pharmaceutical Sector

As the yearly average of goodwill and purchase price of three annual acquisitions (see **Appendix 16** and **Appendix 17**), the ratio of goodwill to consideration paid is not constant over time. **Figure 15** (below) shows peak in 2005 (47.97%), in 2008 (55.41%), and in 2016 (49.69%). These peaks might be linked to the fact that companies in this sector are in the race for acquisitions. In other words, once a new medicine (or molecule) has been discovered, Pharmaceutical companies are fighting each other to buy it. In addition, each peak is in the range of 40% and 55% more or less and the rate for each bottom is in the range of 30% and 40%, except 2006 where the rate is even below 30%. These peaks may mean that firms do not behave in the same way or pay the same amount with regard to each business combination.

²² Coty Inc., 2014. *Annual Report* [PDF file]. Internal company document

Figure 15 Pharmaceutical Trend of GW as percentage of PPA

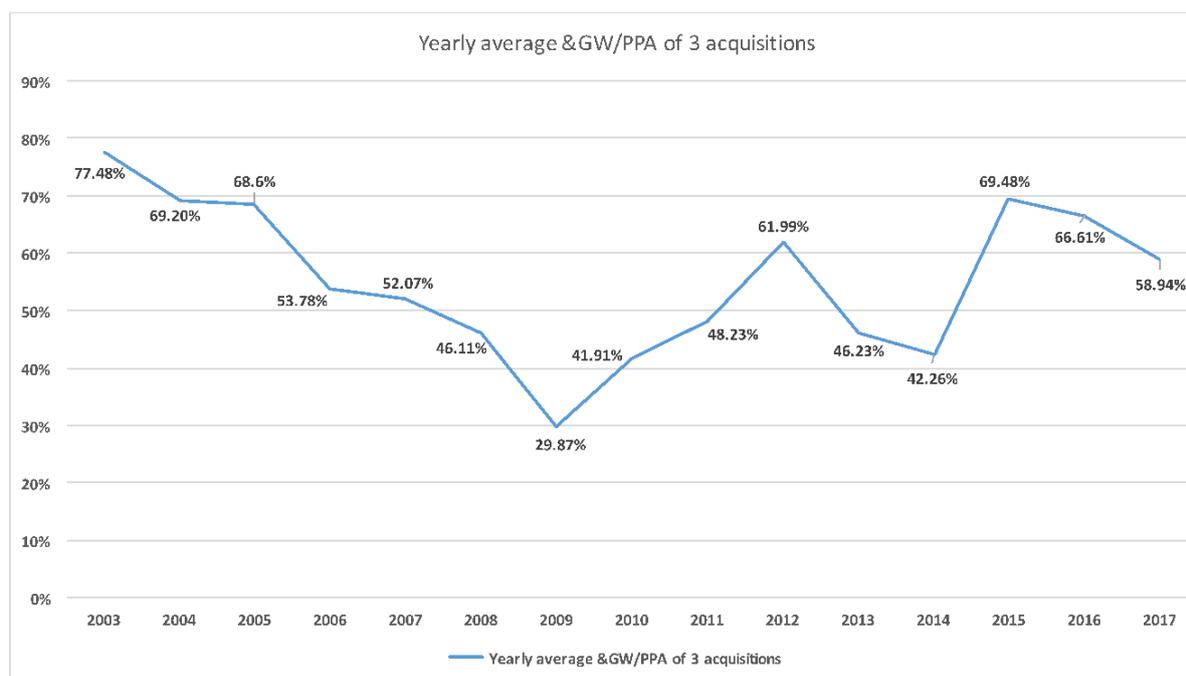


Beauty-Personal Care sector

As we can note from **Figure 16** (below), the ratio of goodwill to consideration paid has been decreasing until 2008 financial crisis. It may be explained by one strong player in particular, for instance L'Oréal. It is noticed from its 2009 Financial Report, there is a significant decrease in the money spent for business combinations in 2008 (€1150 million) and 2009 (€650 million²³). This is probably due to the 2008 financial crisis which impacted the company's operations. In regards to the 2012 peak, there is less money spent for each acquisition (see **Appendix 29**) but the allocation of goodwill is higher compared to the two prior years. For the 2015 peak, the money spent for each business combination is higher as well as the allocation for goodwill in contrast to 2013 and 2014. Except these three abnormal events, it is noteworthy that the trend of GW as percentage of PPA is more or less constant meaning there are not a lot of peaks like in the Pharmaceutical industry. The reason is that firms in BPC sector are not in the run for acquisitions of **new/future products** but rather run for acquisitions for already **existing products/markets**.

²³ L'Oréal, 2009. *Financial Report* [PDF file]. Internal company document

Figure 16 Beauty–Personal Care Trend of GW as percentage of PPA



3.4.3 CFO margin comparative analysis

Cash Flow from Operations is going to be assessed in order to answer the research question of this study. In other words, to see whether there is “Real Value Creation”, the CFO margin at acquisition is compared with the average CFO margin as measured 5-year post-acquisition.

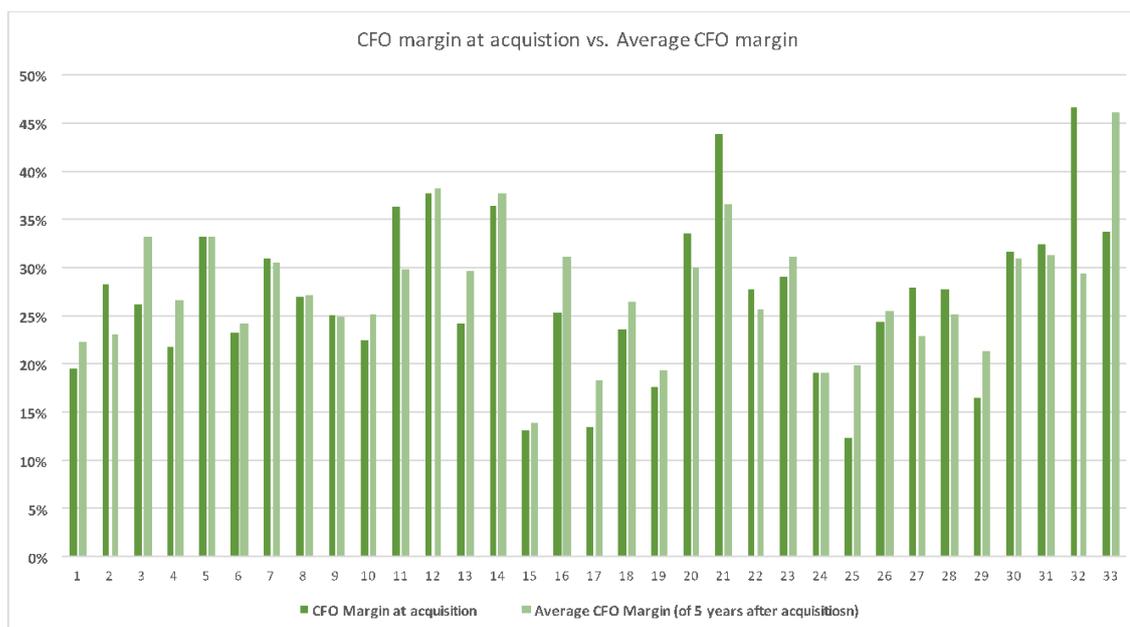
When the 5-year average CFO margin is higher than the CFO margin at acquisition, it is concluded that there is value creation; otherwise there is value destruction.

Pharmaceutical sector

19 of the 33 completed acquisitions from 2003 to 2013 have created value, meaning it is relevant evidence that the expected synergies were achieved: **57.6%** of the Pharmaceutical companies have been successful with their M&As activity in this period of time.

Figure 17 illustrates the CFO margin at acquisition when compared to the 5-year average CFO margin for each acquisition. We can observe that there is not a big difference between the CFO margin at acquisition and the 5-year average CFO margin on each deal except the 33th deal. This means that corporations in the Pharmaceutical do not generate lot of cash, only just enough to justify their acquisition decision.

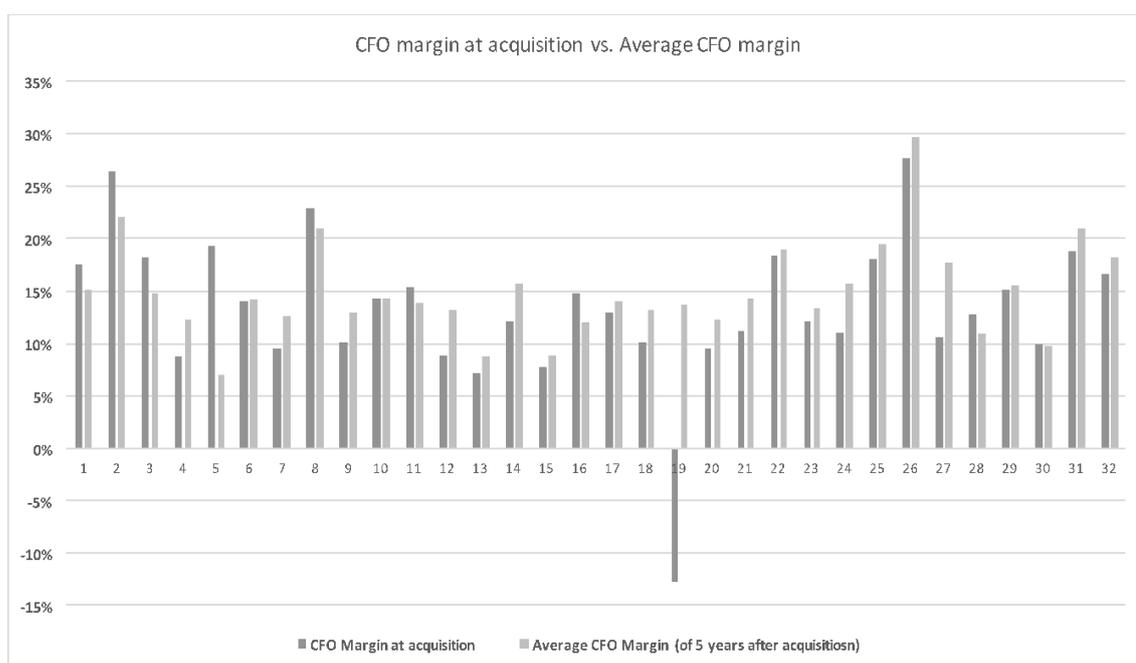
Figure 17 Pharmaceutical CFO margin at acquisition vs. average CFO margin



Beauty-Personal Care sector

23 of the 32 completed acquisitions from 2003 to 2013 have created value, meaning it is relevant to evidence that the expected synergies were achieved. **71.9%** of companies in the Beauty–Personal Care sector have been successful with their M&As activity in this period of time. Like in the Pharmaceutical sector, firms in this sector do not generate significant cash despite the substantial number of business combinations concluded each year.

Figure 18 Beauty–Personal Care CFO margin at acquisition vs. average CFO margin



3.4.4 Sector Comparison: A summary

Even though goodwill was defined in most of the acquisitions by these four components, it is still considered as a kind of “black box” (Marco Guiliani, Daniel Brännstroöm (2011) “Defining goodwill: a practice perspective). This means that in most of the cases companies do not clearly disclose the processes on how and where they will achieve synergies in order to create value from the purchased company. The situation is even worst in BPC sector as in 17 of 44 acquisitions (refer to **Figure 13**), companies did not give any information about goodwill. Furthermore, there are some of them which state the same sentence regarding goodwill each year. And this once again proves previous literature reviews documenting that the elements of disclosures determining the value of goodwill were often “boiler plate”.

One of the most illustrative examples of goodwill component disclosure in the BPC sector is L’Oréal’s 2017 acquisition of several firms – it stated *“Any residual difference between the cost of an acquisition and the Group’s interest in the fair value of the identified assets and liabilities is recorded as Goodwill and allocated to the Cash Generating Units expected to benefit from the acquisition or the related synergies.”*²⁴

One of the most illustrative examples of goodwill component disclosure in the Pharmaceutical sector is Novartis’ acquisition of Genoptix Inc. – it stated *“Goodwill arising out of the acquisitions reflects mainly the value of expected synergies, future products and the acquired assembled workforce.”*²⁵

In addition, the Pharmaceutical sector tries to be more transparent than BPC in the goodwill component disclosure as most of the Pharma companies give the nature of goodwill. They even include the detailed description of the “Others” component. Also, few of the BPC firms explain how and where expected synergies will be achieved. In compliance with IFRS accounting best practice, it is mandatory for the acquiring companies to provide more extended as well as more uniform information and explanation with regard to the business combinations and especially the goodwill components arising from acquisitions in their annual/financial reports. These disclosures

²⁴ L’Oréal, 2018. *Financial Report* [PDF file]. Internal company document

²⁵ Novartis, 2012. *Annual Report* [PDF file]. Internal company document

are not beneficial only for the outside stakeholders but also internal stakeholders as it will provide a positive brand image and enhancement of financial interest in the company.

When looking subsequently to the acquisition at the yearly average PPA and GW of three acquisitions per sector (see **Appendix 15**), Pharmaceutical companies are present at the top as they are most of the time buying start-up companies which especially invest in the IPR&D of a specific medicine/molecule. As mentioned before, those companies, in addition to the expected synergies, buy assembled workforce which represents the knowledge and experience of the target's employees. The latter brings to the acquiring company their very substantial expertise for this sector, as employee's expertise in R&D is the major factor in the company's success and is the business key – resource. Based on the sample of this study, BPC firms in contrast to the Pharmaceuticals do not recognize greater amount of goodwill as assembled workforce, only **13.6%** whereas the rate is double in the Pharma (**26.7%**). Expected synergies (**52.3%**) are seen as the main components of goodwill in BPC sector. This means that companies are less willing in this sector to acquire the employee's expertise to create value as their main driver for M&As is to achieve expected synergies through economies of scale with new customers and new geographic areas and not with new/future products like the Big Pharma.

Furthermore, despite a lower value of purchase price and goodwill compared to the Pharmaceutical industry, companies in the Beauty – Personal Care sector allocate a higher amount of the purchase price to goodwill (see **Appendix 17**) and not to other assets such as Customer-related intangibles (e.g. customer relationship), Marketing-related intangibles (e.g. Brand Name). The reason is that in contrast to the Pharmaceutical sector, there is no “unknown” on the game, meaning no clue about the success of R&D. This can partially be explained by industry characteristics, such as the “uncertainty” or the “unknown” in the Pharmaceutical industry about the IR&D bought. In other words, corporations in this sector are aware of this low probability of success with the bought IR&D that is why they allocate lower goodwill value than the BPC.

Finally, it is noticeable that the rate of success and failure in Pharmaceutical (**57.8%** and **42.2%**) and Beauty–Personal Care (**68.2%** and **31.8%**) sectors are not same. However, it is clearly true that most of the companies in those sectors are creating value with their M&A activity. Therefore, the synergies achieved are real value creation and not illusion.

3.5 Empirical Research

The fifth and last part of the data analysis consists in a simple (first hypothesis) and multiple (second hypothesis) regression analyses. The objective is to understand whether the value of the consideration paid can explain the value of goodwill; and to demonstrate the main source of value creation among GW, Others, or Location.

3.5.1 Simple Regression Analysis

This analysis is going to test for both sectors, the first hypothesis which is *There is no relationship between the value of goodwill and the purchase price of the acquisition*. The latter will thus confirm whether the ratio of goodwill to purchase price is a relevant ratio for this study meaning there is a true relationship between these two variables.

As it is shown in the below equation, the dependant variable **Y** represents the value of goodwill and the independent variable $\beta_1 X_1$ represents the purchase price of the acquisition. The numbers are in millions either USD, Euro, GBP, or CHF and the margin error ϵ assumed to be potential errors regarding the differences in currencies.

$$Y \text{ (GW)} = \beta_0 + \beta_1 X_1 \text{ (PPA)} + \epsilon$$

This equation is applied for each sector and a comparison would be performed.

3.5.1.1 Pharmaceutical sector

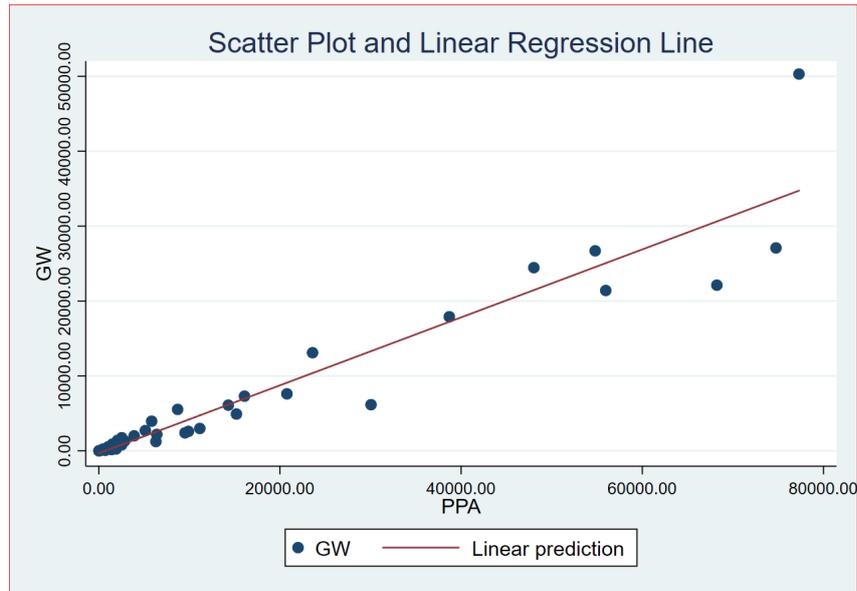
The below represents the specification of the hypothesis. “H0” stands for Null Hypothesis and “HA” for Alternative Hypothesis.

H0: there is no relationship between goodwill value and purchase price of the acquisition.

HA: there is a relationship between goodwill value and purchase price of the acquisition.

Figure 19 (below) illustrates the scatter plot which plots **Y** against $\beta_1 X_1$ and the regression (prediction) line. It is indeed noticeable graphically a trend that being a growing relationship between these two variables: the higher the consideration paid, the higher the goodwill value in the Pharmaceutical sector.

Figure 19 Pharmaceutical Scatter Plot and Linear Prediction Line



In order to make sure that this relationship is significant, a linear regression study is done with an automatic function on econometric software Stata where the command “regress Goodwill Consideration” is used. The latter indicates a linear regression between Y and $\beta_1 X_1$ is done.

Table 6 Pharmaceutical Simple Linear Regression Model

```
. regress Goodwill Consideration
```

Source	SS	df	MS	Number of obs	=	45
Model	4.1914e+09	1	4.1914e+09	F(1, 43)	=	384.91
Residual	468240553	43	10889315.2	Prob > F	=	0.0000
Total	4.6597e+09	44	105901893	R-squared	=	0.8995
				Adj R-squared	=	0.8972
				Root MSE	=	3299.9

Goodwill	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
Consideration	.4535273	.0231165	19.62	0.000	.4069085 .5001462
_cons	-325.0497	590.3583	-0.55	0.585	-1515.621 865.5213

From the results of the linear regression model between Y and $\beta_1 X_1$, we have:

$$Y \text{ (GW)} = -325.0497 + 0.4535 * \beta_1 X_1 \text{ (PPA)}$$

The slope $\beta_1 X_1$ is **0.4535 million** meaning that for every purchase price increase of 1 million, the goodwill value increases by **0.4535 million**.

However, it is advisable to look at the “t-stat” of the above regression table to assess the significance of this relationship and compare the value of the **t-stat** that being **19.62** with **t-value** that being between **2.0211** and **2.0086** (see **Appendix 10**). Moreover, the t-stat is indeed substantially higher than the t-value (**19.62 > 2.0211-2.0086**) which could indicate the existence of relationship between the dependant variable and the independent variable.

The **p-value** of 0.000 (value rounded) is also very significant as it is very far/small than the significance level (critical value) of 0.05, the null hypothesis is therefore rejected. This allows to conclude that there is relationship between **Y (GW)** and **$\beta_1 X_1$ (PPA)** with a confidence level of 95% and the t-value of 2.0211-2.0086 corresponds to the confidence interval.

The R-squared (**R²**) of **0.8995** is very strong meaning 89.95% of the variance found in the goodwill value can be explained by the purchase price. Plus, the Adjusted R-squared (**R²_{adj}**) is relatively the same (**0.8972**). Again, H0 is rejected as the F-stat (**F**) of 384.91 is larger than 1, and it assumed there is a very strong relationship between **Y (GW)** and **$\beta_1 X_1$ (PPA)**.

3.5.1.2 Beauty and Personal Care sector

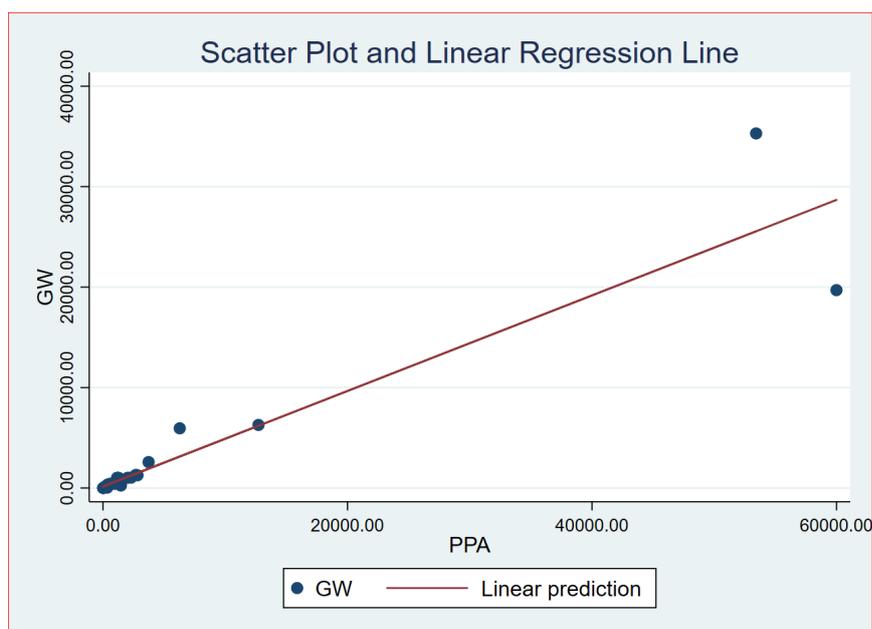
The below represents the specification of the hypothesis. “H0” stands for Null Hypothesis and “HA” for Alternative Hypothesis.

H0: there is no relationship between goodwill value and purchase price of the acquisition.

HA: there is a relationship between goodwill value and purchase price of the acquisition.

Figure 20 (below) illustrates the scatter plot which plots **Y** against **$\beta_1 X_1$** and the regression (prediction) line. It is indeed noticeable graphically a trend that being a growing relationship between these two variables: the higher the consideration paid, the higher the goodwill value in the Beauty–Personal Care sector.

Figure 20 Beauty–Personal Care Scatter Plot and Linear Prediction Line



Once again, in order to make sure that this relationship is significant, a linear regression study is done with an automatic function on econometric software Stata where the command “regress Goodwill DealValue” is used. The latter indicates a linear regression between Y and $\beta_1 X_1$ is done.

Table 7 Beauty–Personal Care Simple Linear Regression Model

. regress Goodwill DealValue

Source	SS	df	MS	Number of obs	=	44
Model	1.3836e+09	1	1.3836e+09	F(1, 42)	=	313.75
Residual	185218660	42	4409968.08	Prob > F	=	0.0000
Total	1.5688e+09	43	36484672.4	R-squared	=	0.8819
				Adj R-squared	=	0.8791
				Root MSE	=	2100

Goodwill	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
DealValue	.4755336	.0268467	17.71	0.000	.4213549 .5297124
_cons	151.218	331.456	0.46	0.651	-517.6873 820.1234

From the results of the linear regression model between Y and $\beta_1 X_1$, we have:

$$Y \text{ (GW)} = 151.218 + 0.4755 * \beta_1 X_1 \text{ (PPA)}$$

The slope $\beta_1 X_1$ is **0.4755 million** meaning that for every purchase price increase of 1 million, the goodwill value increases by **0.4755 million**.

However, it is advisable to look at the “t-stat” of the above regression table to assess the significance of this relationship and compare the value of the **t-stat** being **17.71** with **t-value** being between **2.0211** and **2.0086** (see **Appendix 10**). Moreover, the t-stat is indeed significantly higher than the t-value (**17.71 > 2.0211-2.0086**) which could indicate the existence of relationship between the dependant variable and the independent variable.

The **p-value** of 0.000 (value rounded) is also very significant as it is very far/small than the significance level (critical value) of 0.05, the null hypothesis is therefore rejected. This allows to conclude that there is relationship between **Y (GW)** and **$\beta_1 X_1$ (PPA)** with a confidence level of 95% and the t-value of 2.0211-2.0086 corresponds to the confidence interval.

The R-squared (**R²**) of **0.8819** is very strong meaning 88.19% of the variance found in the goodwill value can be explained by the purchase price. Plus, the Adjusted R-squared (**R²_{adj}**) is relatively the same (**0.8791**). Again, H0 is rejected as the F-stat (**F**) of **313.75** is larger than 1, and it assumed there is a very strong relationship between **Y (GW)** and **$\beta_1 X_1$ (PPA)**.

3.5.1.3 Sector Comparison

There is indeed a significant positive association between the goodwill value and the purchase price in the Pharmaceutical and Beauty–Personal Care sectors. In other words, the increase of purchase price explains significantly the increase of goodwill value. This has been tested and proven statically by four values that being t-stat, P-value, F-stat, and R-squared. Consequently, the relevance of the ratio of goodwill to the consideration paid is proven.

3.5.2 Multiple Regression Analysis

This second regression analysis is going to test for both sectors the second hypothesis that being *There is no relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”)*. The latter will thus confirm the assumption that being the most relevant variable is GW/4.

As it is shown in the below equation, the dependant variable **Y** represents the added_CFO and the independent variables $\beta_1 X_1$ represents the goodwill divided by 4, $\beta_2 X_2$ represents “Other” assets than goodwill divided by 4, and $\beta_3 D_1$ is an indicative variable that being “0” whether the acquirer is American or “1” whether he is European. Once again, the numbers are in millions either USD, Euro, GBP, or CHF and the margin error ϵ assumed to be potential errors regarding the differences in currencies.

$$Y (\text{added_CFO}) = \beta_0 + \beta_1 X_1 (\text{GW/4}) + \beta_2 X_2 (\text{Others/4}) + \beta_3 D_1 (\text{Location}) + \epsilon$$

This equation is applied for each sector and a comparison would be performed.

3.5.2.1 Pharmaceutical sector

The below represents the specification of the hypothesis. “H0” stands for Null Hypothesis and “HA” for Alternative Hypothesis.

H0: there is no relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”)

HA: there is a relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”)

1st Step: Generate the Multiple Regression Model

We start the analysis by generating the multiple regression model in order to test the significance of the relationship between the dependent and independent variables. For this, it is only needed to assess the **t-stat** with the **t-value** value and **P-value** with the **critical value**.

As the below table illustrates, the **t-stats** of **-0.77** for GW/4, **0.43** for Others/4, and **-0.36** for Location are significantly lower than **t-value** that being **1.7171** (see **Appendix 10**) with the **confidence level of 95%**. The P-values of **0.453** for GW/4, **0.669** for Others/4, and **0.723** for Location are also considerably higher than the critical value meaning **0.05**.

It said that the Null Hypothesis is not rejected from the 1st step. We cannot thus go a step further as none of these variables explain a relationship with the Y variable.

Table 8 Pharmaceutical Multiple Linear Regression Model

. regress Added_CFO GW4 Others4 Location_n						
Source	SS	df	MS	Number of obs	=	23
Model	6454822.69	3	2151607.56	F(3, 19)	=	0.26
Residual	159709770	19	8405777.38	Prob > F	=	0.8561
				R-squared	=	0.0388
				Adj R-squared	=	-0.1129
Total	166164593	22	7552936.04	Root MSE	=	2899.3

Added_CFO	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
GW4	-.2688323	.3510541	-0.77	0.453	-1.003597	.4659324
Others4	.1360597	.3129712	0.43	0.669	-.5189965	.7911158
Location_n	-608.8857	1694.285	-0.36	0.723	-4155.064	2937.293
_cons	3367.301	2068.577	1.63	0.120	-962.2794	7696.882

3.5.2.2 Beauty and Personal Care sector

Beauty-Personal Care sector

The below represents the specification of the hypothesis. “H0” stands for Null Hypothesis and “HA” for Alternative Hypothesis.

H0: there is no relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”)

HA: there is a relationship between additional operating cash flows post acquisition (“added_CFO”) and a theoretical 4-year amortization of acquired goodwill (“GW/4”)

1st Step: Generate the Multiple Regression Model

Like the other sector, we start the analysis with generating the multiple regression model in order to test the significance of the relationship between the dependent and independent variables. For this, it is only needed to assess the **t-stat** with the **t-value** value and **P-value** with the **critical value**.

As the below table illustrates, the **t-stats** of **0.35** for GW/4, **0.36** for Others/4, and **-1.86** for Location are significantly lower than **t-value** that being **1.7139** with the **confidence level of 95%**. The P-values of **0.733** for GW/4, **0.725** for Others/4, and **0.077** for Location are also considerably lower than the critical value meaning **0.05**.

It said that the Null Hypothesis is not rejected from the 1st step. We cannot thus go a step further as none of these variables explain a relationship with the Y variable.

Table 9 Beauty–Personal Care Multiple Linear Regression Model

```
. regress Added_CFO GW4 Others4 Location_n
```

Source	SS	df	MS	Number of obs	=	24
Model	71293342.8	3	23764447.6	F(3, 20)	=	32.87
Residual	14458092.3	20	722904.613	Prob > F	=	0.0000
Total	85751435.1	23	3728323.26	R-squared	=	0.8314
				Adj R-squared	=	0.8061
				Root MSE	=	850.24

Added_CFO	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GW4	.9074175	2.619632	0.35	0.733	-4.557038 6.371873
Others4	.4579462	1.283768	0.36	0.725	-2.219946 3.135838
Location_n	-783.3539	420.5768	-1.86	0.077	-1660.662 93.9539
_cons	1754.734	594.579	2.95	0.008	514.464 2995.004

3.5.2.3 Sector Comparison

The main similarities between both sectors is that the Null Hypothesis is not rejected meaning there is a no relationship between the added_CFO and the value of goodwill divided by 4 years. Even the others/4 and Location do not explain any relationship. However, in contrast to Beauty–Personal Care, in the Pharmaceutical sector goodwill divided by 4 is positive even though it is lower than the t-value it might to some extent explain a very small relationship with the dependent variable Y (“added_CFO”).

The fact there is no positive association/relationship between GW and added_CFO value is information *per se*. In other words, companies cannot truly demonstrate that the higher the consideration paid, triggering a high amount of acquired goodwill, the higher are expected future CFO.

One assumption explaining the additional CFO can be that they are from other post-acquisition initiatives such as restructuring plans, which is indeed the case for some tested business combinations (e.g. Pfizer’s acquisition of Wyeth in 2009).

4. Limitations of the Study

The main limitation of this study concerns four important sample characteristics. The first is that empirical research relies only on a sample of companies which are listed on the New York Stock Exchange and other European capital markets, including Switzerland; the second is that only businesses which operate in the Pharmaceutical and Beauty – Personal Care sectors are included; the third is that only M&As which are concluded in the 2003 – 2017 time frame compiled; and the fourth that only three acquisitions per year are analysed. There are also other essential limitations to this type of quantitative and qualitative studies which are further explained.

The target's company valuation (tools and methodologies), the other parts of the due diligence (e.g. risk management), and the business combinations resulting into a negative goodwill are three other aspects beyond this study.

In regards to goodwill, this research study does not address the topics on the measurement of goodwill, the goodwill interpretation (e.g. whether goodwill should be interpreted as an asset), and the subsequent measurement of goodwill (e.g. annual impairment tests).

Moreover, the research investigations do not include information on the assumptions and the measurement techniques used in the valuation of material assets, liabilities and non-controlling interests acquired in a business combination.

Finally, this study does not deal with contingent liabilities and intangible assets such as Customer-related intangibles (e.g. customer relationship), Marketing-related intangibles (e.g. Brand Name), Technology-based intangibles (e.g. Software), Contract-based intangibles (e.g. Patents), and other types of intangibles (e.g. carbon emission rights).

5. Discussion and Major Findings

Based on this study, Pharmaceutical and Beauty–Personal Care industries share similarities, starting with the causes for using M&As as a growth strategy. The opportunity to increase product range, manufacturing capabilities, and distribution range are the major common reasons for these companies to expand their business through M&As. Also, the technological evolvement has become the primary need for corporations operating in these two sectors. Therefore, in order to succeed in this highly competitive business world, they have to take this into consideration while deciding on their new business combinations.

Additionally, another significant outcome of the data analysis relates to the nature of goodwill. The description of this key intangible asset is not properly disclosed in the companies' consolidated financial statements, especially for the BPC sector in the 2003-2008 period. This confirms the outcome of prior studies, primarily from institutional authors such as ESMA. We emphasize the Pharmaceutical sector as being more transparent, in contrast to the BPC sector. Moreover, disclosing whether goodwill represents expected synergies and/or assembled workforce, entities in this industry do reveal the “other” components. Almost in each acquisition, Pharmaceutical firms have documented in a tabular presentation the PPA, which again demonstrates their willingness to be as transparent as possible. The reader would thus know exactly what the consideration paid represents in contrast to BPC sector where all intangibles other than goodwill are combined in many cases (e.g. L'Oréal). The simple regression analysis' results with regard to goodwill value demonstrate a strong correlation between the amount of goodwill and the consideration paid. Nevertheless, the multiple regression analysis demonstrates unexpected results meaning goodwill divided by 4 does not explain the value of added CFO as it should be in theory, but it might rather be explained by other variables such as restructuring plans. The last important point to emphasize on goodwill, is that the mean ratio of goodwill to consideration paid is not the same between the Pharmaceutical (**40%**) and BPC (**55.12%**) sectors. This finding confirms also prior research studies such as the study of Sascha Boennen and Martin Glaum (June 2014).

The findings on the value creation suggest that in two different time frames, 2003-2018, after 2002 stock market crisis, and 2008-2018 after 2008 subprime crisis, companies in these industries do create value. Indeed, the companies' CFO margin at acquisition was in majority lower than the average of CFO margin post-acquisition in both sectors. An

important point to highlight is that the percentage of success increases over time. This might be due to more aggressive M&As activity as both industries became highly concentrated with the dominance of large American and European companies (e.g. 10 Big Pharma).

We can highlight another finding on goodwill. In most of the business combinations, management have not communicated how and where they have achieved the expected synergies as goodwill component upon integration. This finding was indeed not truly unexpected as existing literature has already revealed this. The fact that companies do not disclose synergies achievement may be explained that those synergies relate to the first levels such as “Functions duplicated”, achieved mainly or only in the first or second year post-acquisition, and therefore not relevant for firms to state in their financial reporting as it can hurt the company’s brand image.

Moreover, the synergy map tool is not used fully by Pharmaceutical companies, which is contradictory with the fact that companies disclose “new and future products” as main component of goodwill. Indeed, the level four and level five of the synergy map are the most difficult ones to achieve as it requires a larger time frame and the probability of success is very low. This may also explain the low value creation while assessing the CFO margin at acquisition with average CFO margin post-acquisition. An additional key outcome of this study confirms the earlier statement about M&As cycle meaning the M&A deals occur in waves. In some periods, companies are indeed very aggressive and pay a very high price for a target company which then could result in an overpayment (Olante 2012). Executives do not have the choice as there is race for competition, especially in the Pharmaceutical sector.

Finally, based on these findings it is recommended to companies in these sectors to keep establishing M&As, especially if they wish to expand their business and get higher earnings. However, disclosing proper information about the business combination is very important not only for investor but also for other stakeholders in order to have a better understanding and a better use of the financial information. Furthermore, in order to keep a sustainable competitive advantage, it is necessary for corporations to use the synergy map fully, and even more the last levels as it will show a better company brand image meaning they are not only creating value in the short-term but rather in the long-term.

6. Conclusion

M&As are perceived either as value enhancing or destructing for corporations. Researchers have indeed investigated from different angles whether the expected synergies arising from purchased goodwill truly exist or have been correctly achieved. In spite of a high level of M&As failure, this thesis by approaching specific work of areas demonstrated that Pharmaceutical and Beauty– Personal Care sectors do success in their M&As activity.

In fact, these two sectors have different reasons and drivers for applying growth strategies through M&As. For Pharmaceutical firms, M&As is perceived primarily as sources of “Innovation”, “Synergies, and “Portfolios”, whereas in the BPC sector it is mainly observed as sources of access to new “Consumers”, new “Markets”, new “Distribution Channels, and new “Innovation”. Despite some dissimilarities of M&As sources between both sectors, Pharmaceutical and Beauty–Personal Care industries do share common causes for using this tool in their business growth strategy such as the increasing “Product range”, “Manufacturing capabilities”, and “Distribution range”.

In addition to these three common causes, it is noticeable that innovation became another common key argument for firms in their decisions for merging or acquiring businesses. In order words, nothing is set in stone and customers’ needs are changing, new equipment is needed in the supply chain, and new technologies and electronic devices require new knowledge and new capabilities. The cost associated with all of these changes is increasing over time. That is why, in order to grow profitably and therefore satisfy shareholders through higher dividends distribution, M&As activity remains a good strategy to respond to this industry transformation.

Moreover, the analytical review part reveals the main key outcome of this research study that is in the two acquisitions samples reviewed, Pharmaceutical and Beauty–Personal Care sectors, the synergies achieved are “Real Value Creation” rather than “Illusion”. This finding can evidence that, while correctly implementing the integration process, companies can truly create significant value and substantial synergies can be achieved.

However, we can observe in the goodwill and CFO margin comparative analysis parts two other key points which need to be emphasized. The first key point is that the difference between the CFO margin at acquisition and the 5-year average CFO margin for each business combination is very little. The second is that even though there is a slight improvement from 2003-2007 period with regards to disclosure on acquired goodwill, companies fail to fully disclose it despite stringent regulatory principles. It can be assumed that companies are afraid if they disclose full information, they can lose their competitiveness or simply they prefer to provide as little financial information as possible in order to take advantage of private information and information asymmetry.

As a conclusion, the simple regression analysis shows a positive association between acquired goodwill and the purchase price. However, a multiple regression analysis does not show an association between additional operating cash flows post acquisition and a theoretical 4-year amortization of acquired goodwill, even if the success rate on the observed data is at least 50%. This could demonstrate that value creation, if achieved, comes from other short-term initiatives, such as restructuring plans representing the first level of the synergy map. Further research investigates to what extent this value creation is a long term sustainable one.

7. Further Research

While collecting the secondary and primary data, various interesting issues relating to M&As were found, in particular for the sectors analysed in this study. The business world is changing continuously, which forces companies to rethink and reshape their business models and strategies. In order to maximise the probability of long-term success of M&As, corporations must take into consideration three fundamental aspects in their business growth strategy. The first is the **environmental dimension**, driving customers to new needs and priorities. We can see more and more eco-friendly/bio products on the market as well as “sustainable innovation” or “sustainable future” statements from companies in the FMCG and BPC sectors. The second is the **technological evolution**, and the third one is the **Big Data Analytics**, which are substantially driving Pharmaceuticals’ future. The ability to find a way using these extremely large data sets might allow Pharmaceutical companies to conduct clinical trials without the need of patients by modelling key traits²⁶. It could also enable consumers to identify and cure diseases themselves at home on a predictive or preventive basis.

Roche’s acquisition of Flatiron Health (U.K.) with a purchase price of CHF1,553.00 million²⁷ and a goodwill of CHF1,128.00 million, which represents 72.63% ratio of goodwill to purchase price leads to an interesting area of work which needs to be considered. This amount of goodwill has been the highest for this sector since 2003. According to Roche’s financial report, “*Goodwill represents value of accelerating progress towards data-driven personalised healthcare in cancer and to advance the use of real-world evidence to set new industry standards for oncology research and development, acquired workforce and synergies.*” This proves the previous statement about the change in the business model.

Further research would consist in analyzing these key resources as new goodwill components. In these changing business models on new types of M&As, acquirers are ready to pay considerable amount for these new resources. This will therefore raise the question of how to account for them, and whether they represent assets to be reported separately or as components of acquired goodwill.

²⁶ JUNAIDEEN, Amry, 2019. In the future of health, risk is inevitable...and we should harness it. Deloitte.com[online]. May 2019. Available from: <https://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/health-care-current-may7-2019.html>.

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Appendix 1: Pharma - CFO margin computation (1)

CFO Margin computation and analysis																
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Roche (Swiss)																
Roche CFO	7253	7335	9975	10329	11728	12177	17046	14342	12954	15005	15772	15930	15251	15001	18024	19979
in million CHF																
Roche Net Sales (including royalties and other operating income)	31220	31092	36957	43432	48376	47904	51151	49167	44113	47444	48612	49866	50403	52636	55746	59497
in million CHF																
Roche CFO Margin	23.23%	23.59%	26.99%	23.78%	24.24%	25.42%	33.32%	29.17%	29.37%	31.63%	32.44%	31.95%	30.26%	28.50%	32.33%	33.58%
Novartis (Swiss)																
Novartis CFO	6652	6595	8080	8304	9210	9769	12191	14067	14309	14194	13174	13897	12085	11475	12621	14272
in million USD																
Novartis Net Sales	24864	28247	32212	37020	39800	41469	44267	50624	58566	51080	51896	52180	49414	48518	49109	51900
in million USD																
Novartis CFO Margin	26.75%	23.35%	25.08%	22.43%	23.14%	23.56%	27.54%	27.79%	24.43%	27.79%	25.39%	26.63%	24.46%	23.65%	25.70%	27.50%
Merck (German)																
Merck CFO	1008	1419	1245	811.7	1218.3	1024	1371.3	1782.6	1271.2	2472.2	2225.5	2705.5	2195.2	2518	2696	2219
in million €																
Merck Net Sales	3559	3849	4154	4459.6	7057.1	7589.6	7747	9290.6	10276.4	11172.9	11095.1	11362.8	12844.7	15024	14517	14836
in million €																
Merck CFO Margin	28.32%	36.87%	29.97%	18.20%	17.26%	13.49%	17.70%	19.19%	12.37%	22.13%	20.06%	23.81%	17.09%	16.76%	18.57%	14.96%

Appendix 2: Pharma - CFO margin computation (2)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pfizer (American)																
Pfizer CFO in million USD	11727	16340	14733	17594	13353	18238	16587	11454	20240	16746	17684	17084	14688	16192	16802	15827
Pfizer Net Sales in million USD	44736	48988	47405	48371	48418	48296	49296	65165	61035	54657	51584	49605	48851	52824	52546	53647
Pfizer CFO Margin	26.21%	33.36%	31.08%	36.37%	27.58%	37.76%	33.65%	17.58%	33.16%	30.64%	34.28%	34.44%	30.07%	30.65%	31.98%	29.50%
Abbott (American)																
Abbott CFO in million USD	3385	4306	5047	5262	5184	6995	7275	8736	8970	9314	3324	3675	2966	3203	5570	6300
Abbott Net Sales in million USD	17280	19680	22338	22476	25914	29528	16551	16923	18663	19050	19657	20247	20405	20853	27390	30578
Abbott CFO Margin	19.59%	21.88%	22.60%	23.41%	20.00%	23.69%	43.96%	51.62%	48.06%	48.89%	16.91%	18.15%	14.54%	15.36%	20.34%	20.60%
Sanofi (French)																
Sanofi CFO in million Euro	2265	4049	6398	6604	7106	1984	-2332	9859	9319	8171	6558	7165	8290	7838	7379	6547
Sanofi Net Sales (from 2013 excluding animal health) in million Euro	8048	14871	27311	28373	28052	27568	29785	32367	33389	34743	30693	31380	34060	33821	35072	34463
Sanofi CFO Margin	28.14%	27.23%	23.43%	23.28%	25.33%	7.20%	-7.85%	30.46%	27.91%	23.52%	21.37%	22.83%	24.34%	23.17%	21.04%	16.10%

Appendix 3: Pharma - CFO margin computation (3)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
GSK (British)																
GSK CFO	7005	4944	5958	4357	6161	7205	7841	6797	6250	4375	7222	5176	2569	6497	6918	8421
in million GBP																
GSK Net Sales	21441	19986	21660	23225	22716	24352	28368	28392	27387	26431	26505	23006	23923	27889	30186	30821
in million GBP																
GSK CFO Margin	32.67%	24.74%	27.51%	18.76%	27.12%	29.59%	27.64%	23.94%	22.82%	16.55%	27.25%	22.50%	10.74%	23.30%	22.92%	27.32%
Bayer (German)																
Bayer CFO	3293	2450	3502	4203	4283	3608	5375	5773	5060	4532	5171	5810	6890	9089	8134	7917
in million Euro																
Bayer Net Sales	28567	23278	27383	28956	32385	32918	31168	35088	36528	39760	40157	42239	46085	46769	35015	39586
in million Euro																
Bayer CFO Margin	11.53%	10.52%	12.79%	14.52%	13.23%	10.96%	17.25%	16.45%	13.85%	11.40%	12.88%	13.76%	14.95%	19.43%	23.23%	20.00%
Amgen (American)																
Amgen CFO	3567	3697	4911	5389	5401	5988	6336	5787	5119	5882	6291	8952	9731	10354	11177	11296
in million USD																
Amgen Net Sales	8356	10550	12430	14268	14771	15003	14642	15053	15582	17265	18676	20063	21662	22991	22849	23747
in million USD																
Amgen CFO Margin	42.69%	35.04%	39.51%	37.77%	36.56%	39.91%	43.27%	38.44%	32.85%	34.07%	33.68%	44.62%	44.92%	45.04%	48.92%	47.57%

Appendix 4: Pharma - CFO margin computation (4)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Abbvie (American)																
Abbvie CFO in million USD	N/A	6247	6345	6267	3549	7535	7041	9960	13427							
Abbvie Net Sales in million USD	N/A	17444	18380	18790	19960	22859	25638	28216	32753							
Abbvie CFO Margin	N/A	35.81%	34.52%	33.35%	17.78%	32.96%	27.46%	35.30%	40.99%							
Gilead Science (American)																
Gilead Science CFO in million USD	235	511	706	1218	1765	2143	3080	2834	3639	3195	3105	12818	21250	17047	11898	8400
Gilead Science Net Sales (including Royalty, contract and other revenues) in million USD	868	1325	2028	3026	4230	5336	7011	7949	8385	9702	11202	24890	32639	30390	26107	22127
Gilead Science CFO Margin	27.03%	38.61%	34.79%	40.25%	41.74%	40.17%	43.93%	35.65%	43.40%	32.93%	27.72%	51.50%	65.11%	56.09%	45.57%	37.96%
Allergan (former Actavis) (Irish)																
Allergan CFO in million USD	43.8	46.7	103.0	162.4	96.4	416.6	376.8	571	632	665.8	1213.5	2243	4530	1445.7	6079	5640.1
Allergan Net Sales in million USD	293.5	424.6	551.4	1339.2	1544.2	2535.5	2793	3566.9	4584.4	5914.9	2602.5	6738.9	15071	14570.6	15940.7	15787.4
Allergan CFO Margin	14.92%	11.00%	18.68%	12.13%	6.24%	16.43%	13.49%	16.01%	13.79%	11.26%	46.63%	33.28%	30.06%	9.92%	38.14%	35.73%
Johnson & Johnson (American)																
Johnson & Johnson CFO in million USD	10595	11131	11799	14248	15249	14972	16571	16385	14298	15396	17414	18710	19569	18767	21056	22201
Johnson & Johnson Net Sales in million USD	41862	47348	50514	53324	61095	63747	61897	61587	65030	67224	71312	74331	70004	71890	76450	81581
Johnson & Johnson CFO Margin	25.31%	23.51%	23.36%	26.72%	24.96%	23.49%	26.77%	26.60%	21.99%	22.90%	24.42%	25.17%	27.95%	26.11%	27.54%	27.21%

Appendix 6: BPC - CFO margin computation (1)

CFO Margin computation and analysis																
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kimberly-Clark (American)																
Kimberly-Clark CFO in million USD	2552.2	2726.2	2311.8	2579.5	2428.9	2516	3481	2744	2288	3288	2221	2845	2306	3232	2929	2970
Kimberly-Clark Net Sales in million USD	14026.3	15083.2	15902.6	16746.9	18266	19415	19115	19746	20846	21063	19561	19724	18591	18287	18348	18486
Kimberly-Clark CFO Margin	18.20%	18.07%	14.54%	15.40%	13.30%	12.96%	18.21%	13.90%	10.98%	15.61%	11.35%	14.42%	12.40%	17.67%	15.96%	16.07%
Givaudan (Swiss)																
Givaudan CFO in million USD	481	586	502	449	532	541	738	730	456	781	888	806	720	597	861	916
Givaudan Net Sales in million USD	2727	2680	2778	4249	4366	4087	3959	4239	3915	4257	4369	4404	4396	4663	5051	5527
Givaudan CFO Margin	17.64%	21.87%	18.07%	10.57%	12.19%	13.24%	18.64%	17.22%	11.65%	18.35%	20.33%	18.30%	16.38%	12.80%	17.05%	16.57%
Beiersdorf (German)																
Beiersdorf CFO in million €	396	551	494	534	402	468	566	620	445	520	529	397	800	942	911	868
Beiersdorf Net Sales in million €	4435	4546	4776	5120	5507	5971	5748	6194	5633	6040	6141	6285	6686	6752	7056	7233
Beiersdorf CFO Margin	8.93%	12.12%	10.34%	10.43%	7.30%	7.84%	9.85%	10.01%	7.90%	8.61%	8.61%	6.32%	11.97%	13.95%	12.91%	12.00%

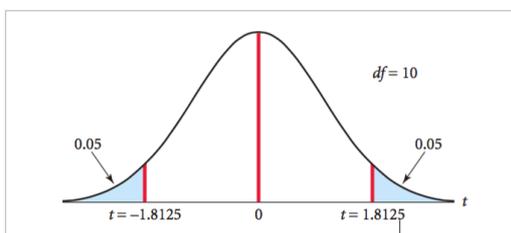
Appendix 7: BPC - CFO margin computation (2)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Estee Lauder (American)																
Estee Lauder CFO in million USD	558.6	673	478.1	709.8	661.6	690.1	696	966.7	1027	1126.7	1226.3	1535.2	1943.3	1789	1800	2573
Estee Lauder Net Sales in million USD	5096	5741.5	6280	6463.8	7037.5	7910.8	7323.8	7795.8	8810	9713.6	10181.7	10968.8	10780.4	11262	11824	13683
Estee Lauder CFO Margin	10.96%	11.72%	7.61%	10.98%	9.40%	8.72%	9.50%	12.27%	11.66%	11.60%	12.04%	14.00%	18.03%	15.89%	15.22%	18.80%
Coty (American)																
Coty CFO in million USD	N/A	N/A	N/A	N/A	N/A	N/A	177.2	494	417.5	589.3	463.9	536.5	526.3	501.4	757.5	413.7
Coty Net Sales in million USD	N/A	N/A	N/A	N/A	N/A	N/A	3379.3	3482.9	4086.1	4611.3	4649.1	4551.6	4395.2	4349.1	7650.3	9398
Coty CFO Margin	N/A	N/A	N/A	N/A	N/A	N/A	5.24%	14.18%	10.22%	12.78%	9.98%	11.79%	11.97%	11.53%	9.90%	4.40%
L'Oreal (French)																
L'Oreal CFO in million Euro	1287.5	1275.5	1388.5	1613.2	1516.9	2597.1	3224.5	2186.8	2269.9	2381.6	3690.3	3864.1	4203.1	4704.7	5196.6	5291.9
L'Oreal Net Sales in million Euro	14029	14534	14533	15790	17063	17541.8	17472.6	19496	20343	22463	22124.2	22532	25257.4	24916.3	26023.7	26937.4
L'Oreal CFO Margin	9.18%	8.78%	9.55%	10.22%	8.89%	14.81%	18.45%	11.22%	11.16%	10.60%	16.68%	17.15%	16.64%	18.88%	19.97%	19.65%

Appendix 8: BPC - CFO margin computation (3)

Unilever (British)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unilever CFO in million GBP	2036	1713	2010.25	2149	2022	2063	2088.75	2529.25	2805	3261	3405	3566	4014	4141	4591	4640
Unilever Net Sales in million GBP	11143	9780	10485	11122	11302	11383	11846	13767	15471	18097	18056	17739	20074	20172	20697	20624
Unilever CFO Margin	18.27%	17.52%	19.17%	19.32%	17.89%	18.12%	17.63%	18.37%	18.13%	18.02%	18.86%	20.10%	20.00%	20.53%	22.18%	22.50%
Henkel (German)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Henkel CFO in million Euro	272	347	371	412	422	427	433	459	520	537	530	482	634	623	635	665
Henkel Net Sales in million Euro	2086	2477	2629	2864	2972	3016	3010	3269	3399	3542	3510	3547	3833	3838	3868	3950
Henkel CFO Margin	13.04%	14.01%	14.11%	14.39%	14.20%	14.16%	14.39%	14.04%	15.30%	15.16%	15.10%	13.59%	16.54%	16.23%	16.42%	16.84%
Colgate-Palmolive (American)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Colgate CFO in million USD	2183.9	2271.1	2373.4	2647.7	3068	3416	3848	3965	4036	4204	4395	4361	4173	4184	4164	3967
Colgate Net Sales in million USD	8587.3	9151.1	9876.7	10568.6	11930.6	13182	13195	13484	14562	14925	15209	15022	13822	12931	13162	13156
Colgate CFO Margin	25.43%	24.82%	24.03%	25.05%	25.72%	25.91%	29.16%	29.41%	27.72%	28.17%	28.90%	29.03%	30.19%	32.36%	31.64%	30.15%
Helen of Troy (American)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Helen CFO in million USD	56624	91902	84549	46280	51960	50597	-56787	55039	72588	73156	74397	56568	52120	31825	39469	28799
Helen Net Sales in million USD	379751	474868	501406	461947	497824	488414	447244	449151	491215	496605	490555	474600	435231	439177	355779	349323
Helen CFO Margin	14.91%	19.35%	16.86%	10.02%	10.44%	10.36%	-12.70%	12.25%	14.78%	14.73%	15.17%	11.92%	11.98%	7.25%	11.09%	8.24%
Procter & Gamble -"P&G" (American)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Procter & Gamble CFO in million USD	3244	3946	4512	4894	3859	3982	3832	3892	3802	3575	3590	3924	3756	2854	2766	2556
Procter & Gamble Net Sales in million USD	12221	17346	19721	21126	17889	19515	18879	19258	19937	20318	19956	19507	18135	11477	11429	12406
Procter & Gamble CFO Margin	26.54%	22.75%	22.88%	23.17%	21.57%	20.40%	20.30%	20.21%	19.07%	17.60%	17.99%	20.12%	20.71%	24.87%	24.20%	20.60%

Appendix 10: Table - Values of *t* for Selected Probabilities



PROBABILITIES (OR AREAS UNDER <i>t</i> -DISTRIBUTION CURVE)									
Conf. Level	0.1	0.3	0.5	0.7	0.8	0.9	0.95	0.98	0.99
One Tail	0.45	0.35	0.25	0.15	0.1	0.05	0.025	0.01	0.005
Two Tails	0.9	0.7	0.5	0.3	0.2	0.1	0.05	0.02	0.01
<i>df</i>	Values of <i>t</i>								
1	0.1584	0.5095	1.0000	1.9626	3.0777	6.3137	2.7062	31.8210	63.6559
2	0.1421	0.4447	0.8165	1.3862	1.8856	2.9200	4.3027	6.9645	9.9250
3	0.1366	0.4242	0.7649	1.2498	1.6377	2.3534	3.1824	4.5407	5.8408
4	0.1338	0.4142	0.7407	1.1896	1.5332	2.1318	2.7765	3.7469	4.6041
5	0.1322	0.4082	0.7267	1.1558	1.4759	2.0150	2.5706	3.3649	4.0321
6	0.1311	0.4043	0.7176	1.1342	1.4398	1.9432	2.4469	3.1427	3.7074
7	0.1303	0.4015	0.7111	1.1192	1.4149	1.8946	2.3646	2.9979	3.4995
8	0.1297	0.3995	0.7064	1.1081	1.3968	1.8595	2.3060	2.8965	3.3554
9	0.1293	0.3979	0.7027	1.0997	1.3830	1.8331	2.2622	2.8214	3.2498
10	0.1289	0.3966	0.6998	1.0931	1.3722	1.8125	2.2281	2.7638	3.1693
11	0.1286	0.3956	0.6974	1.0877	1.3634	1.7959	2.2010	2.7181	3.1058
12	0.1283	0.3947	0.6955	1.0832	1.3562	1.7823	2.1788	2.6810	3.0545
13	0.1281	0.3940	0.6938	1.0795	1.3502	1.7709	2.1604	2.6503	3.0123
14	0.1280	0.3933	0.6924	1.0763	1.3450	1.7613	2.1448	2.6245	2.9768
15	0.1278	0.3928	0.6912	1.0735	1.3406	1.7531	2.1315	2.6025	2.9467
16	0.1277	0.3923	0.6901	1.0711	1.3368	1.7459	2.1199	2.5835	2.9208
17	0.1276	0.3919	0.6892	1.0690	1.3334	1.7396	2.1098	2.5669	2.8982
18	0.1274	0.3915	0.6884	1.0672	1.3304	1.7341	2.1009	2.5524	2.8784
19	0.1274	0.3912	0.6876	1.0655	1.3277	1.7291	2.0930	2.5395	2.8609
20	0.1273	0.3909	0.6870	1.0640	1.3253	1.7247	2.0860	2.5280	2.8453
21	0.1272	0.3906	0.6864	1.0627	1.3232	1.7207	2.0796	2.5176	2.8314
22	0.1271	0.3904	0.6858	1.0614	1.3212	1.7171	2.0739	2.5083	2.8188
23	0.1271	0.3902	0.6853	1.0603	1.3195	1.7139	2.0687	2.4999	2.8073
24	0.1270	0.3900	0.6848	1.0593	1.3178	1.7109	2.0639	2.4922	2.7970
25	0.1269	0.3898	0.6844	1.0584	1.3163	1.7081	2.0595	2.4851	2.7874
26	0.1269	0.3896	0.6840	1.0575	1.3150	1.7056	2.0555	2.4786	2.7787
27	0.1268	0.3894	0.6837	1.0567	1.3137	1.7033	2.0518	2.4727	2.7707
28	0.1268	0.3893	0.6834	1.0560	1.3125	1.7011	2.0484	2.4671	2.7633
29	0.1268	0.3892	0.6830	1.0553	1.3114	1.6991	2.0452	2.4620	2.7564
30	0.1267	0.3890	0.6828	1.0547	1.3104	1.6973	2.0423	2.4573	2.7500
40	0.1265	0.3881	0.6807	1.0500	1.3031	1.6839	2.0211	2.4233	2.7045
50	0.1263	0.3875	0.6794	1.0473	1.2987	1.6759	2.0086	2.4033	2.6778
60	0.1262	0.3872	0.6786	1.0455	1.2958	1.6706	2.0003	2.3901	2.6603
70	0.1261	0.3869	0.6780	1.0442	1.2938	1.6669	1.9944	2.3808	2.6479
80	0.1261	0.3867	0.6776	1.0432	1.2922	1.6641	1.9901	2.3739	2.6387
90	0.1260	0.3866	0.6772	1.0424	1.2910	1.6620	1.9867	2.3685	2.6316
100	0.1260	0.3864	0.6770	1.0418	1.2901	1.6602	1.9840	2.3642	2.6259
250	0.1258	0.3858	0.6755	1.0386	1.2849	1.6510	1.9695	2.3414	2.5956
500	0.1257	0.3855	0.6750	1.0375	1.2832	1.6479	1.9647	2.3338	2.5857
∞	0.1257	0.3853	0.6745	1.0364	1.2816	1.6449	1.9600	2.3263	2.5758

Appendix 11: Pharma - Table of Goodwill Components

GW Components	Number of times goodwill components appearance	% Number of times goodwill components appearance
Not mentioned	10	22.2%
Synergies	29	64.4%
Assembled workforce	12	26.7%
Others	36	80.0%
Tax purposes (Deferred tax liabilities)	1	3.3%
Control Premium	7	23.3%
Market share increase	3	10.0%
Currency translation effects	1	3.3%
Future & New products & projects	11	36.7%
Expected Cash Flow	1	3.3%
Other benefits	7	23.3%
Access to certain markets	1	3.3%
Expansion Company's product portfolio	4	13.3%
"Others" components description	Number of times "Others" components appearance	% Number of times "Others" components appearance
Tax purposes	1	2.2%
Control Premium	7	15.6%
Market share increase	3	6.7%
Currency translation effects	1	2.2%
Future & New products & projects	11	24.4%
Expected Cash Flow	1	2.2%
Other benefits	7	15.6%
Access to certain markets	1	2.2%
Expansion Company's product portfolio	4	8.9%

Appendix 12: BPC - Table of Goodwill Components

GW Components	Number of times goodwill components appearance	% Number of times goodwill components appearance
Not mentioned	17	38.6%
Synergies	23	52.3%
Assembled workforce	6	13.6%
Others	9	20.5%
"Others" components description	Number of times "Others" components appearance	% Number of times "Others" components appearance
Tax deductible	4	9.1%
Future market expansion	2	4.5%
Future Cosmetics segment expansion	1	2.3%
Distribution network	1	2.3%
Economies of scale	1	2.3%

Appendix 13: Pharma – Table yearly average of %GW/PPA of 3 acquisitions

Years	Yearly average %GW/PPA of 3 acquisitions	% Increase or Decrease of %GW/PPA
2003	32.92%	N/A
2004	36.65%	3.73%
2005	47.97%	11.32%
2006	20.85%	-27.12%
2007	34.18%	13.32%
2008	55.41%	21.23%
2009	39.08%	-16.3%
2010	46.36%	7.3%
2011	48.54%	2.2%
2012	30.48%	-18.1%
2013	43.67%	13.2%
2014	38.73%	-4.9%
2015	42.53%	3.8%
2016	49.69%	7.2%
2017	32.85%	-16.8%

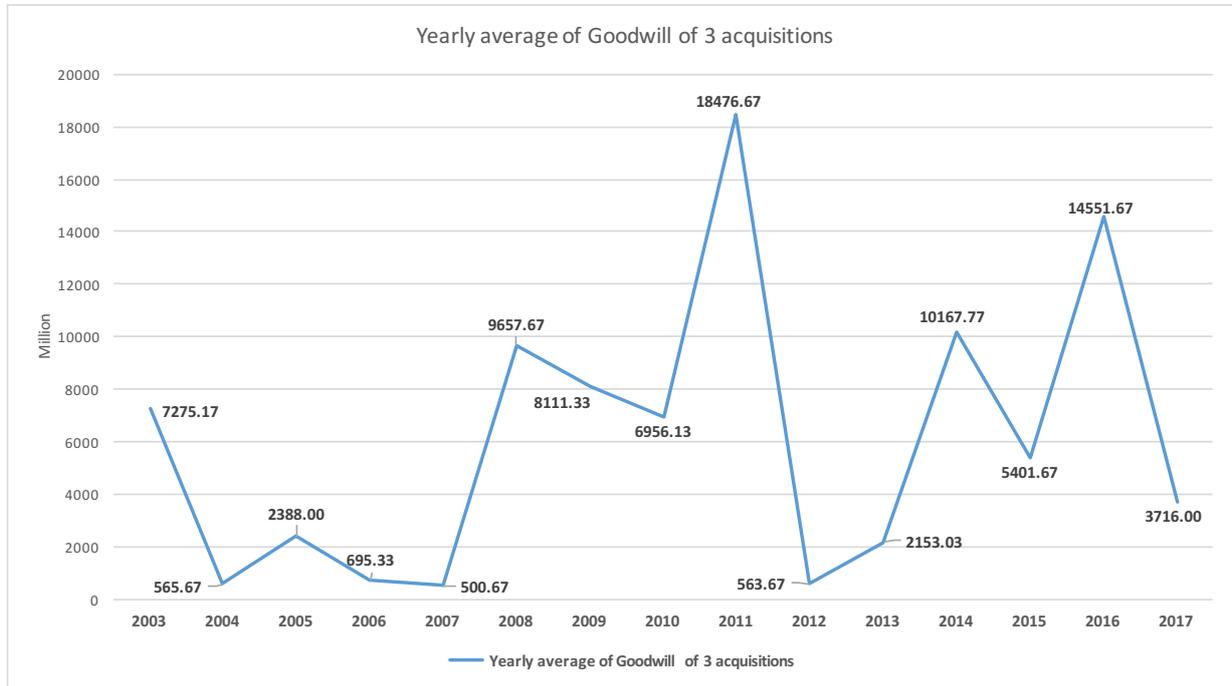
Appendix 14: BPC – Table Yearly average of %GW/PPA of 3 acquisitions

Years	Yearly average %GW/PPA of 3 acquisitions	% Increase or Deaccrease of %GW/PPA
2003	77.48%	N/A
2004	69.20%	-8.28%
2005	68.6%	-0.61%
2006	53.78%	-14.81%
2007	52.07%	-1.71%
2008	46.11%	-5.96%
2009	29.87%	-16.25%
2010	41.91%	12.05%
2011	48.23%	6.32%
2012	61.99%	13.75%
2013	46.23%	-15.76%
2014	42.26%	-3.97%
2015	69.48%	27.22%
2016	66.61%	-2.87%
2017	58.94%	-7.67%

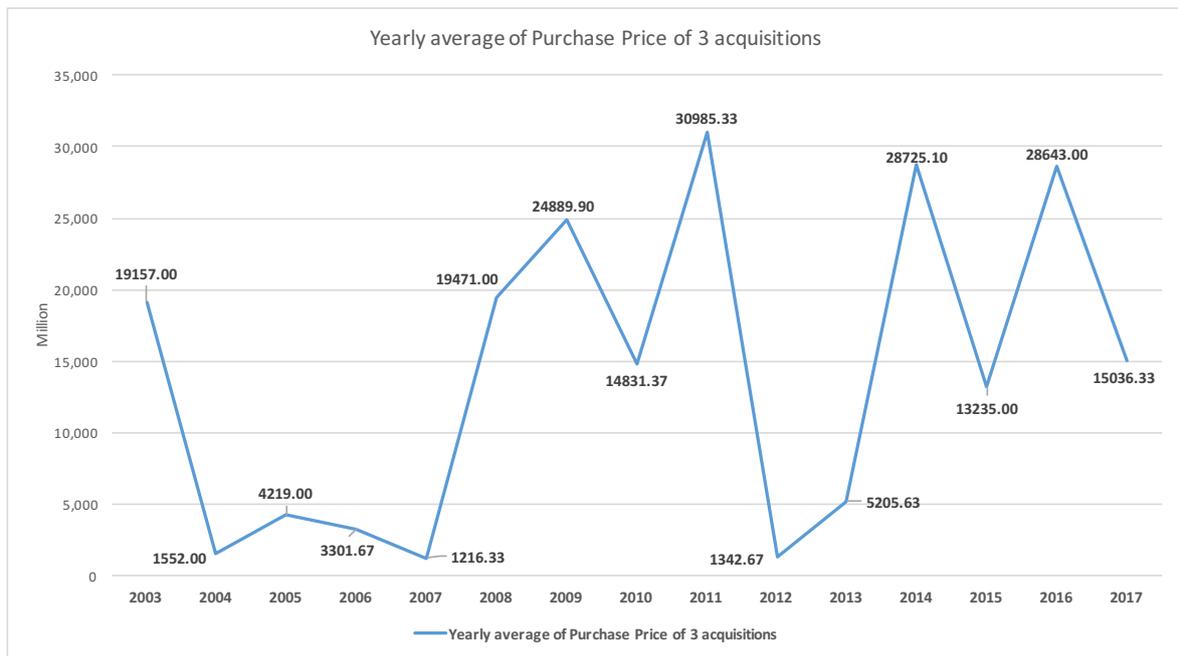
Appendix 15: Pharma – Table Evolution of GW and PPA over time

Years	Yearly average of Goodwill of 3 acquisitions	Growth Rate on yearly average of Goodwill of 3 acquisitions	Yearly average of Purchase Price of 3 acquisitions	Growth Rate on yearly average of Purchase Price of 3 acquisitions
2003	7275.17	N/A	19143.67	N/A
2004	565.67	-1186.1%	1552.00	-1133.5%
2005	2388.00	76.3%	4219.00	63.2%
2006	695.33	-243.4%	3301.67	-27.8%
2007	500.67	-38.9%	1216.33	-171.4%
2008	9657.67	94.8%	19471.00	93.8%
2009	8111.33	-19.1%	24889.90	21.8%
2010	6956.13	-16.6%	14831.37	-67.8%
2011	18476.67	62.4%	30985.33	52.1%
2012	563.67	-3177.9%	1342.67	-2207.7%
2013	2153.03	73.8%	5205.63	74.2%
2014	10167.77	78.8%	28725.10	81.9%
2015	5401.67	-88.2%	13235.00	-117.0%
2016	14551.67	62.9%	28643.00	53.8%
2017	3716.00	-291.6%	15036.33	-90.5%

Appendix 16: Pharma – Graph Evolution of GW over time



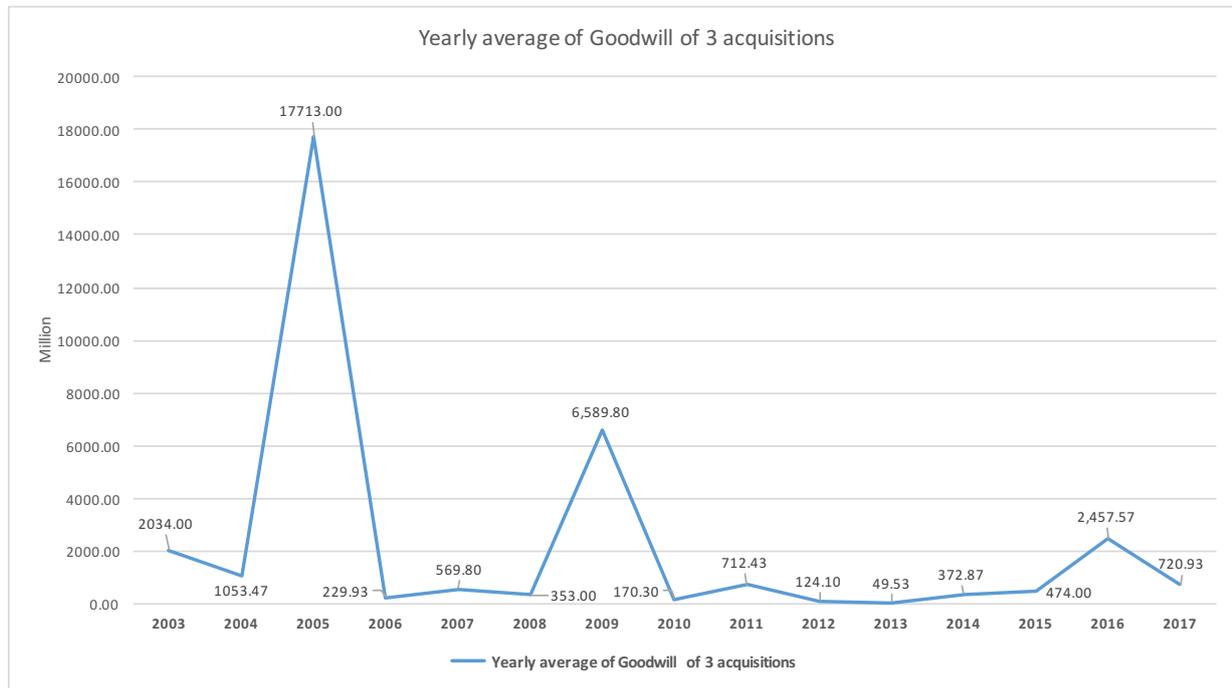
Appendix 17: Pharma – Graph evolution of PPA over time



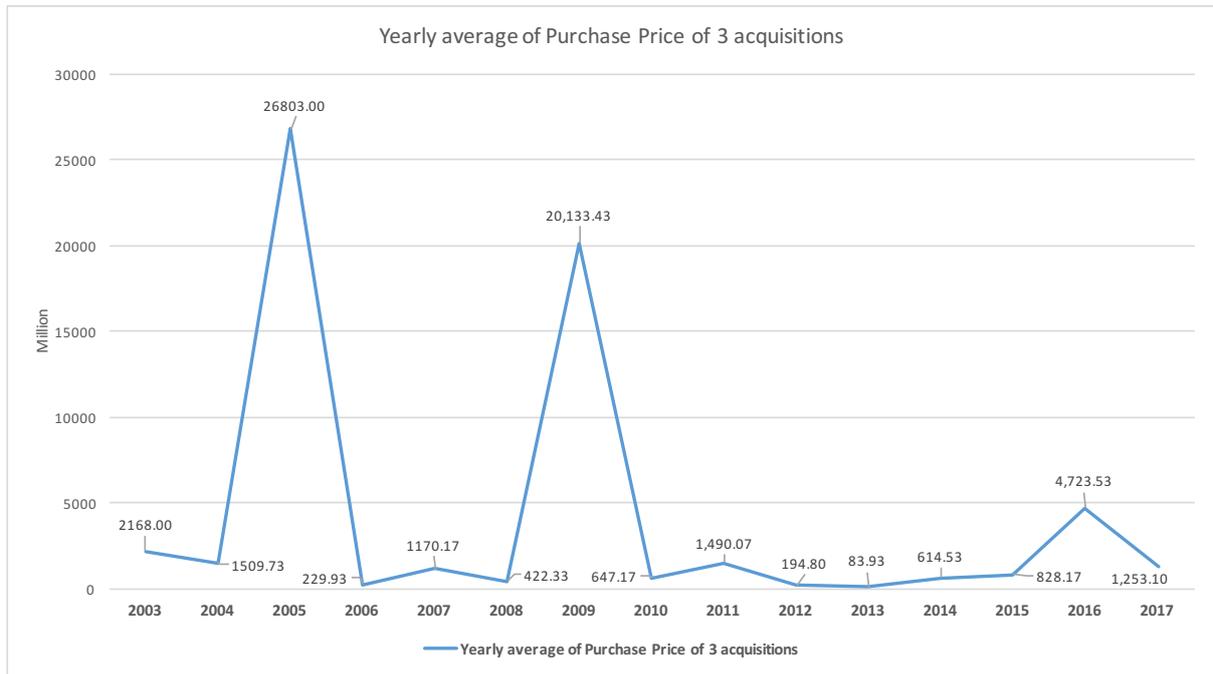
Appendix 18: BPC – Table Evolution of GW and PPA over time

Years	Yearly average of Goodwill of 3 acquisitions	Growth Rate on yearly average of Goodwill of 3 acquisitions	Yearly average of Purchase Price of 3 acquisitions	Growth Rate on yearly average of Purchase Price of 3 acquisitions
2003	2034.00	N/A	2168.00	N/A
2004	1053.47	-93.1%	1509.73	-43.6%
2005	17713.00	94.1%	26803.00	94.4%
2006	229.93	-7603.5%	229.93	-11556.9%
2007	569.80	59.6%	1170.17	80.4%
2008	353.00	-61.4%	422.33	-177.1%
2009	6'589.80	94.6%	20'133.43	97.9%
2010	170.30	-3769.5%	647.17	-3011.0%
2011	712.43	76.1%	1'490.07	56.6%
2012	124.10	-474.1%	194.80	-664.9%
2013	49.53	-150.5%	83.93	-132.1%
2014	372.87	86.7%	614.53	86.3%
2015	474.00	21.3%	828.17	25.8%
2016	2'457.57	80.7%	4'723.53	82.5%
2017	720.93	-240.9%	1'253.10	-276.9%

Appendix 19: BPC – Graph Evolution of GW over time



Appendix 20: BPC – Graph Evolution of PPA over time



Appendix 21: Pharma – GW and PPA Analysis

Pharmaceutical: Goodwill & Purchase Price Analysis (2003-2017 period)	
Highest Purchase Price	77300.00
Lowest Purchase Price	13.00
Average Purchase Price	14120.76
Highest Goodwill	50300.00
Lowest Goodwill	0.00
Average Goodwil	6078.70
Highest %GW/PPA	69.12%
Lowest %GW/PPA	0.00%
Average %GW/PPA	40.00%

Appendix 22: BPC – GW and PPA Analysis

Beauty - Personal Care: Goodwill & Purchase Price Analysis (2003-2017 period)	
Highest Purchase Price	60000.00
Lowest Purchase Price	11.00
Average Purchase Price	3656.54
Highest Goodwill	35298.00
Lowest Goodwill	1.00
Average Goodwil	1890.03
Highest %GW/PPA	94.71%
Lowest %GW/PPA	5.26%
Average %GW/PPA	55.19%

Appendix 23: Pharma – PPA Examples

The following table summarizes the amounts recognized for assets acquired and liabilities assumed as of the acquisition date. (Pfizer 2017 Financial Report) (numbers are random)

Consideration	Allocation
\$10,000 Million Cash	<ul style="list-style-type: none"> +/- Working capital (excluding inventories) +Inventories + PP&E + Identifiable intangible assets (excluding IPR&D) + IPR&D + Other noncurrent assets - Long-term debt + Benefit Obligations + Net income tax accounts - Other noncurrent liabilities <hr/> <p>= Total identifiable net assets (A)</p> <p>+ Goodwill (B)</p> <hr/> <p>= Net assets acquired (C = A+B)</p>
\$6,000 Million Shares	
\$16,000 Million	\$16,000 Million

} Specific to **Pharmaceutical** sector

The following table summarizing the identifiable assets acquired and liabilities assumed (Roche 2018 Financial Report) (numbers are random)

Consideration	Allocation
\$110 Million Cash	<ul style="list-style-type: none"> <u>Intangible assets</u> + Product intangibles: in use + Marketing intangible: in use + Cash and cash equivalents - Deferred tax liabilities - Other net assets (liabilities) - Fair value of previously held interest <hr/> <p>= Total identifiable net assets (A)</p> <p>+ Goodwill (B)</p> <hr/> <p>= Net assets acquired (C = A+B)</p>
\$40 Million Shares	
CHF150 Million	CHF150 Million

} Specific to **Pharmaceutical** sector

Appendix 24: BPC – PPA Examples

The following table summarizes the estimated allocation of the purchase price to net assets as of acquisition date. (Coty 2017 Annual Report) (numbers are random)

Consideration	Allocation	
\$8,000 Million Cash	<ul style="list-style-type: none"> + Cash and cash equivalents + Inventories + PP&E + Trademarks – indefinite + Trademarks –finite + Customer relationships + License agreements + Product formulations + Other net working capital + Net other assets - Unfavorable contract liabilities - Pension liabilities - Deferred tax liabilities, net 	
\$3,600 Million Shares		
\$11,600 Million		
		= Total identifiable net assets (A)
		+ Goodwill (B)
		= Net assets acquired (C = A+B)
		\$11,600 Million

Specific to **Beauty and Personal Care** sector

The identifiable assets and liabilities acquired are recorded at fair value at the date of acquisition. (Givaudan 2018 Annual Report) (numbers are random)

Consideration	Allocation	
\$1,100 Million Cash	<ul style="list-style-type: none"> + Cash and cash equivalents + Accounts Receivable + Inventories + Other current assets + PP&E + Client relationships + Supplier relationships + Process-oriented technology and other + Name and product brands + Software / ERP system + Other non-current assets - Account payables - Other payables - Provisions - Debt - Deferred tax liabilities 	
\$400 Million Shares		
CHF1,500 Million		
		= Total identifiable net assets (A)
		+ Goodwill (B)
		= Net assets acquired (C = A+B)
		CHF1,500 Million

Specific to **Beauty and Personal Care** sector

Appendix 25: Pharma - Simple Regression Analysis

No	GW	PPA
1	182.00	459.00
2	240.50	1000.00
3	21403.00	55972.00
4	923.00	2324.00
5	239.00	1300.00
6	535.00	1032.00
7	243.00	1900.00
8	1390.00	2058.00
9	5531.00	8699.00
10	1236.00	6306.00
11	166.00	1400.00
12	684.00	2199.00
13	1228.00	2461.00
14	64.00	706.00
15	210.00	482.00
16	1750.00	2532.00
17	26700.00	54800.00
18	523.00	1081.00
19	17.00	33.70
20	22117.00	68236.00
21	2200.00	6400.00
22	17900.00	38700.00
23	264.00	657.00
24	2704.40	5137.10
25	50300.00	77300.00
26	221.00	458.00
27	4909.00	15198.00
28	900.00	1500.00
29	791.00	2515.00
30	0.00	13.00
31	101.00	266.00
32	3956.10	5833.90
33	2402.00	9517.00
34	27088.90	74757.90
35	818.40	1523.40
36	2596.00	9894.00
37	7610.00	20770.00
38	7296.00	16087.00
39	1299.00	2848.00
40	24455.00	48029.00
41	6100.00	14300.00
42	13100.00	23600.00
43	2987.00	11155.00
44	2000.00	3900.00
45	6161.00	30054.00

Appendix 26: BPC - Simple Regression Analysis

No	GW	PPA
1	21.00	31.00
2	5941.00	6273.00
3	140.00	200.00
4	412.00	530.00
5	165.40	273.20
6	2583.00	3726.00
7	128.00	180.00
8	35298.00	53426.00
9	500.00	800.00
10	482.70	1150.40
11	129.00	315.00
12	78.10	99.60
13	406.40	618.50
14	35.00	77.00
15	1268.00	2815.00
16	1.00	19.00
17	1014.00	1150.00
18	44.00	98.00
19	26.90	60.80
20	19700.00	60000.00
21	42.50	339.50
22	119.90	204.10
23	251.00	1456.00
24	140.00	281.40
25	426.30	815.20
26	1300.00	2689.00
27	411.00	966.00
28	313.90	484.70
29	7.40	11.70
30	51.00	88.00
31	1.90	11.00
32	62.00	117.00
33	84.70	123.80
34	184.00	424.00
35	928.60	1382.60
36	6.00	37.00
37	1012.00	2011.00
38	62.00	93.00
39	348.00	380.50
40	6278.10	12716.40
41	162.10	215.60
42	932.50	1238.60
43	1017.80	1245.30
44	1030.00	2284.00
45	115.00	230.00

Appendix 27: Pharma - Multiple Regression Analysis

No	Year	Acquirer	4Years CFO pre-acquisitions	4Years CFO post-acquisitions	Added_CFO	GW/4	Others/4	Location
1	2007	Roche Holding AG	8723	14518.25	5795.25	307	308.25	Europe
2	2007	Amgen, Inc.	4391	5769.75	1378.75	16	160.5	United States
3	2007	Bayer	3362	5134	1772	52.5	68	Europe
4	2008	Roche Holding AG	9841.75	14518.25	4676.5	437.5	195.5	Europe
5	2008	Merck	1173.5	1937.875	764.375	6675	7025	Europe
6	2008	Novartis	1173.5	13936	12762.5	130.75	139.5	Europe
7	2009	Merck	1264.4	1937.875	673.475	4.25	4.175	Europe
8	2009	Pfizer Inc.	14283.5	16531	2247.5	5529.25	11529.75	United States
9	2009	Abbot Laboratories	6057	7586	1528.7855	550	1050	United States
10	2010	Novartis	11504.25	13893.5	2389.25	4475	5200	Europe
11	2010	Roche Holding AG	12504	14915.25	2411.25	66	98.25	Europe
12	2010	Merck	1443.35	2168.6	725.25	676.1	608.175	Europe
13	2011	Merck	1924.65	2399.6	474.95	12575	6750	Europe
14	2011	Novartis	12661.25	13337.5	676.25	55.25	59.25	Europe
15	2011	Sanofi-Aventis SA	7924	7546	-377.5	1227.25	2572.25	Europe
16	2012	Novartis	8225.25	12657.75	4432.5	225	150	Europe
17	2012	GlaxoSmithKline	6361.25	6453.25	92	197.75	431	Europe
18	2013	Roche Holding AG	14557.75	16051.5	1493.75	25.25	41.25	Europe
19	2013	Actavis, Inc.	1027.95	3574.425	2546.475	989.025	469.45	Europe
20	2013	Amgen, Inc.	6435	10053.5	3618.5	600.5	1778.75	United States
21	2014	Actavis Plc (changed name to Allergan)	770.575	4423.7	3653.125	6772.225	11917.25	Europe
22	2014	Merck	1937.875	2407.05	469.175	204.6	176.25	Europe
23	2014	Roche Holding AG	14518.25	17063.75	2545.5	649	1824.5	Europe

Appendix 28: BPC - Multiple Regression Analysis

No	Year	Acquirer	4Years CFO pre-acquisitions	4Years CFO post-acquisitions	Added_CFO	GW/4	Others/4	Location
1	2007	L'Oreal	1391.175	2632.15	1240.975	101.6	59.1	Europe
2	2007	Beiersdorf	493.75	528.5	34.75	8.75	10.5	Europe
3	2007	Givaudon	504.5	713.75	209.25	317	386.75	Europe
4	2008	Beiersdorf	495.25	528.5	33.25	0.25	4.5	Europe
5	2008	L'Oreal	1448.525	2632.15	1183.625	253.5	34	Europe
6	2008	Kimberly-Clark	2511.6	2635.25	123.65	11	13.5	United States
7	2009	L'Oreal	1676.35	2632.15	955.8	6.725	8.475	Europe
8	2009	Helen of Troy Ltd	59457	68795	9338	4925	10075	United States
9	2009	Estee Lauder	701.55	1084.175	382.625	10.625	74.25	United States
10	2010	L'Oreal	1945.4	3051.475	1106.075	29.975	21.05	Europe
11	2010	Unilever	2559.25	3259.25	700	62.75	301.25	Europe
12	2010	Estee Lauder	881.275	1228.8	347.525	35	35.35	United States
13	2011	L'Oreal	2443.9	3534.775	1090.875	106.575	97.225	Europe
14	2011	Unilever	2804.3125	3561.5	757.1875	325	347.25	Europe
15	2011	Colgate-Palmolive	3908	4283.25	375.25	102.75	138.75	United States
16	2012	L'Oreal	3002.775	4115.55	1112.775	78.475	42.7	Europe
17	2012	Coty	477.975	507.025	29.05	1.85	1.075	United States
18	2012	Henkel	497.75	4278.25	3780.5	12.75	9.25	Europe
19	2013	Coty	509.325	580.425	71.1	0.475	2.275	United States
20	2013	Unilever	3040.3125	4078	1037.6875	15.5	13.75	Europe
21	2013	L'Oreal	2675.6	4492.125	1816.525	21.175	9.775	Europe
22	2014	Unilever	3000.0625	4346.5	1346.4375	46	60	Europe
23	2014	L'Oreal	2632.15	4849.075	2216.925	232.15	113.5	Europe
24	2014	Givaudon	713.75	773.5	59.75	1.5	7.75	Europe

Appendix 29: Table of Acquisitions (Excel file object)

