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Big Pharma Divestitures

Activities, Trends & Strategies

*Master's Thesis in the Master's Programme
Entrepreneurship and Business Design*

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ABSTRACT

The pharmaceutical industry has for the past decades experienced a change. ‘Food and Drug Administration’-approved new molecular entities are decreasing due to that novel therapeutic treatments are becoming harder to find, which results in that the companies’ R&D expenses are increasing. This has led to a shift in business models, where the majority of the big pharma companies are moving from a ‘bigger is better’-model towards a more ‘leaner and focused’-model. The newly adopted business model means that big pharma companies are narrowing down their number of core activities, alongside with an increase in divestiture activity. Therefore, the purpose of this study has been focused on identifying the major types of divestitures and primary reasons for creating divestitures in theory. The aim has also been to analyze the 10 largest big pharma companies’ divestiture strategies and see if AstraZeneca correlate with the trend, as well as analyze AstraZeneca’s divestiture strategy in relation to theory. In order to investigate this, the study was performed during an internship by the authors at AstraZeneca, where several AstraZeneca’s employees, one (divestiture) researcher and one CEO of an AstraZeneca spin-off were interviewed, together with an extensive literature review and data analysis.

The theory showed that the most acknowledged divestiture types are: equity carve-out, joint venture, sell-off, spin-off, split-off and split-up. Further, 10 primary reasons for creating divestitures were identified, in which the authors divided the reasons into two main categories: *Financial reasons* and *Strategic reasons*. The four reasons that were categorized into *Financial reasons* are: *Capital market factors*, *Financial policies*, *Short-term financial gain* and *Tax benefits*, whereas the remaining six reasons, categorized into *Strategic reasons* are: *Innovative experiments & risk reduction*, *Marketing factors*, *Poor focus*, *Poor performance*, *Regulatory, legal & contractual issues* and *Strategic focus*.

The results show that the divestiture activity has increased during the analyzed period, especially in the last five years. The data clearly shows that sell-off is by far the most common divestiture type among these big pharma companies (89% of all divestitures), and that the majority of all divestitures is due to *Strategic reasons* (53% of all divestitures), although the largest primary single reason is due to *Short-term financial gain* (44% of all divestitures) which is a *Financial reason*. Additionally, the big pharma divestiture activity is very dissimilar and a potential reason for the differences in created divestitures is due to the company’s performance. Furthermore, the divestiture activity for AstraZeneca has increased to a large extent after the year of 2013, primarily due to the expiration of blockbuster patents and a change in business strategy. Similar to the analyzed big pharma companies, sell-off is also the most common type of divestiture for AstraZeneca, where the primary purpose is to divest non-core assets in order to reinvest the generated cash into current pipeline projects.

recommend AstraZeneca to continue to divest non-core assets through sell-offs and spin-offs. Additionally, the authors recommend AstraZeneca to continue to create joint ventures, however, they should consider creating joint ventures with actors outside their industry. Lastly, the authors also recommend AstraZeneca to consider creating equity carve-outs for externally overvalued core-assets. Further, the authors hope that the recommendation laid out in this thesis is valuable for AstraZeneca and can be used in their divestiture strategy.

Keywords: *AstraZeneca, big pharma, core activities, divestitures, equity carve-out, financial reasons, joint venture, pharmaceutical industry, sell-off, spin-off, split-off, split-up, strategic reasons*

ABBREVIATIONS

AZ: AstraZeneca

BVH: BioVentureHub

CDI: Cortellis Deals Intelligence

FDA: Food and Drug Administration

IP: Intellectual Property

IPRs: Intellectual Property Rights

IPO: Initial Public Offering

JV: Joint Venture

LLC: Limited Liability Company

MRQ: Main Research Question

M&A: Merger and Acquisition

NMEs: New Molecular Entities

ROI: Return On Investment

RQ: Research Question

R&D: Research and Development

SEC: Security and Exchange Commission

SMEs: Small and Medium-sized Enterprises

S&P: Standard & Poor's

WACC: Weighted Average Cost of Capital

TERMINOLOGY

Abnormal return: Describes the returns generated over a period (e.g. short-term, long-term) that is different from the the expected return.

Asset: An asset could be in form of tangibles (e.g. facility, equipment, pharmaceutical product) or intangibles (e.g. know-how, intellectual property).

Divestiture: A divestiture is when a company divest assets to another company through a sell-off, when a company creates a joint venture together with one or multiple other companies, when a company creates a new legal entity through an equity carve-out, spin-off and split-off, or when a company cease to exist and are divided into multiple new entities through a split-up.

Equity: Value of an ownership interest in any asset.

Pro rata transaction: The shareholders in the parent company automatically obtain an equal number of shares in the divestiture corresponding to their percentage of ownership in the parent company.

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1 INTRODUCTION

The focus of this thesis is to investigate whether AstraZeneca, as one of the largest pharmaceutical companies, follows the same divestiture trends as the comparison companies. In the introductory chapter the background, the problem statement, the purpose, the research questions, scope and delimitations, and the disposition of the study are defined.

1.1 BACKGROUND

During the last decades, the pharmaceutical industry, which Tannoury and Attieh (2017) defines as “*the industry that involves the process of discovering, developing, and manufacturing drugs by both private and public organizations*”, has been under economic pressure. For example, the approval of new medicines has decreased and in 2013 the US Food and Drug Administration (FDA) approved as little as 25 medicines, referred to as new molecular entities (NMEs), a decrease of 31% comparing the 2012 approvals (Mignani et al., 2015).

The primary reasons for the decrease in FDA-approved NMEs are that researchers are having a hard time finding novel therapeutic targets, and this results in increasing research and development (R&D) costs (Samanen, 2012). Leil and Bertz (2014) found that during 1950-1960, the average number of approved pharmaceuticals per billion US dollar in R&D spending was higher than 10, whereas 50 years later, 2000-2010, the average number has decreased to less than one approved drug per billion US dollar in R&D spending. Hence, the R&D expenses are increasing, which is illustrated in figure 1 below.

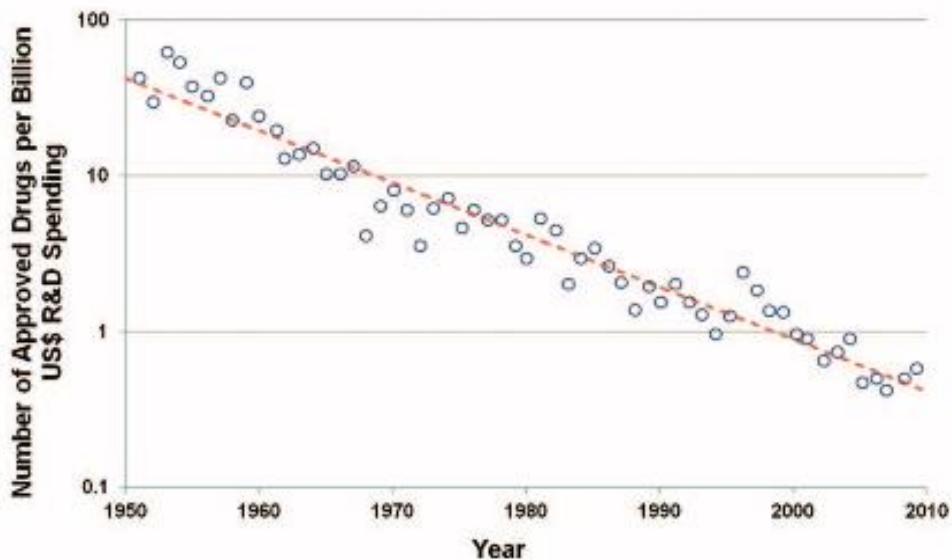


Figure 1: Graph showing the number of approved pharmaceuticals for every US dollar spent on R&D (adjusted for inflation) between 1950 and 2010 (Leil & Bertz, 2014).

According to Gautam and Pan (2016), a second reason for the decrease in FDA-approved NMEs is that the large pharmaceutical companies are shifting away from the business model where they focus on developing primary care and small-molecule medicine, and progressively moving their business model towards speciality medicines. Furthermore, Peruffo, Pirolo and Nenni (2014) found that the period of 1995-2005 was the time for large merger and acquisition (M&A) activity (e.g. the merger between Astra and Zeneca in 1999, and between Pfizer and Warner-Lambert in 1999). This trend became the push to a ‘bigger is better’-model that resulted in multiple manufacturing sites, large R&D hubs and a matrixed governance layer, see figure 2a. Moreover, in the late 2000s, the large pharmaceutical companies started to move more towards a ‘leaner and focused’-model (e.g. focusing more on core activities by divesting non-core assets) (Jain & Conley, 2014; Peruffo, Pirolo & Nenni, 2014), see figure 2b. This resulted in that the divestiture activities grown by 15% worldwide from 2005 until 2009.

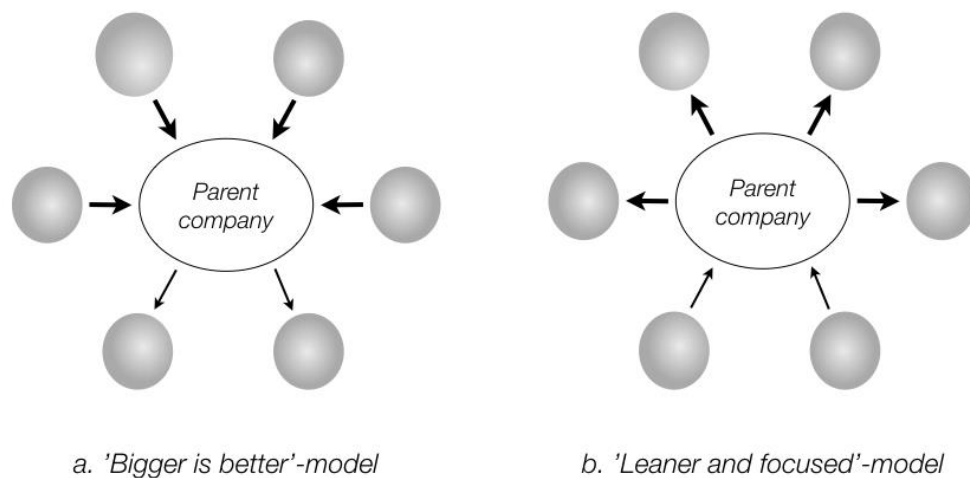


Figure 2: Shows the transaction from a. the 'bigger is better'-model, to b. the 'leaner and focused'-model according to research by Peruffo, Pirolo and Nenni (2014). The direction of the arrows illustrates if the parent company acquire or divest assets.

The creation of a divestiture does not necessarily need to be seen as a corrective action (i.e. an action carried out to correct past strategic mistakes) but could be seen as a proactive strategic choice with the aim of pursuing business opportunities that are not suitable for the parent company (Peruffo, Pirolo & Nenni, 2014). Due to the aforementioned changes within the pharmaceutical industry, as many as half of all pharmaceuticals developed in 2016 are developed through collaborations. In these collaborations, the most common development arrangements are through M&As, licensing agreements or co-developments, whereas as little as 2% of the pharmaceuticals are developed through joint ventures (JVs) (Mignani et al., 2016). A new way of co-developments is the creation of incubators and venture hubs for smaller companies. One example of this is AstraZeneca's (AZ's) BioVentureHub (BVH) that was established by AZ in 2014 and is located at the Mölndal (Sweden) premises. The main idea behind BVH was to give small and medium-sized enterprises (SMEs) access do AZ's resources, capabilities and knowledge (Björnsne, 2018; Dall & Johansson, 2017).

Ku (2015) defines big pharma (large pharmaceutical companies) as “*typically follows a vertically integrated business model. It means that big pharma carries out the work from beginning to the end on a worldwide scale including discovery research, drug synthesis, preclinical research, clinical development, regulatory work, scale up and manufacturing, and worldwide distribution, sales, and marketing*”. Due to patent expirations, declining R&D productivity and the rise of the generics companies, together with a skyrocketing production of generic products (Comanor & Scherer, 2013; Khanna, 2012; Mignani et al., 2015), big pharma companies need to revise their traditional business model, and start implementing a more innovative business model (Ku, 2015; Tannoury & Attieh, 2017).

Gautam and Pan (2016) have identified two camps within the big pharma companies, *the pure biopharma giants*, which are focusing primarily on innovative drugs, and *the diversified business*, which includes diagnostics, generics, medical devices, animal health and more. One innovative strategy *the pure biopharma giants* are implementing, is to narrow down their core competencies to a few therapeutic areas, and focus all their resources towards these areas (Gautam & Pan, 2016). For example, AZ, which is one of the actors in this field, narrowed down their core competencies from multiple primary activities into three main therapeutic areas: (1) cardiovascular and metabolic diseases, (2) oncology, and (3) respiratory (Buus-Laursen, 2018). The more focused business strategy results in that innovative ideas that fall outside the scope of the focused therapeutic areas may result in divestiture opportunities. Other big pharma companies in this camp are Novartis and Pfizer, and examples of companies in the other big pharmaceutical camp, *the diversified business*, are actors such as Abbott, Sanofi and Merck & Co. (Gautam & Pan, 2016)

1.2 PROBLEM STATEMENT

After an extensive literature review where more than 50 research papers were examined, it was not possible to find relevant literature in relation to how the largest big pharma companies' major divestitures differ in relation to the type of divestitures, number of divestitures and reasons for creating divestitures. In addition to this, no analysis was found that identifies the reasons why AZ chose to create divestitures and whether this strategy is supported by theory and data from the other big pharma companies. These problems are important to research in order for AZ to make the most optimal divestiture decisions in the future.

1.3 PURPOSE

The purpose of this research study is to identify the major types and reasons for divestitures in theory. Furthermore, the purpose is also to analyze the largest big pharma companies' divestiture strategies and see if AZ creates divestiture for the same purposes, as well as further analyze AZ's divestiture strategy in relation to theory.

1.4 RESEARCH QUESTIONS

In order to be able to answer the questions raised in the background and to achieve the purpose of this study, the following main research question (MRQ) has been created.

MRQ: How can AstraZeneca improve their divestiture strategy by analyzing the existing literature and divestiture trends in big pharma?

The MRQ has been broken down into five sub-research questions (RQs), which are presented below:

RQ1: What are the existing types of divestitures in theory?

RQ2: What are the reasons why companies create divestitures in theory?

RQ3: What types of divestitures do the largest big pharma companies create?

RQ4: What are the reasons why the largest big pharma companies create divestitures?

RQ5: What are the reasons behind AstraZeneca's divestiture strategy?

1.5 SCOPE & DELIMITATIONS

The scope of this study is to analyze the 10 largest big pharma companies, identified in regard to their total revenue in the pharmaceutical segments for 2016, divestiture activity over a 10-year period (2008-01-01 to 2017-12-31). Furthermore, AZ will have the main focus of this study and will be the case study of this master thesis.

The first delimitation in this study is that information gathered regarding the big pharma divestiture activity will be extracted from Cortellis Deals Intelligence (CDI), which is based on public information. For this reason, all deals that are not communicated publicly, as well as all other deals that for any reason are not included in CDI, will be left out of the analysis.

A second delimitation is that various definitions exist for divestitures in the literature. Additionally, it may also exist differences between theory and practice. For example, the deals made by the largest big pharma companies do not necessarily fall 100% within the identified definitions, however, in this study they will be viewed and categorized into the most adjacent divestiture types.

A third delimitation is that all reasons for creating divestitures are not always communicated publicly. For example, the parent company may not be communicating publicly that they are divesting assets which are performing badly, since this can send negative signals about the company to external stakeholders. Thus, for this reason, it was decided to only identify the primary reason for the divestiture according to the publicly communicated information. In addition to this, the identified primary reasons have in this study been viewed and categorized into the most adjacent category. Furthermore, an *Unclear* reason for the divestitures in cases where no informative information regarding the divestiture can be found has been incorporated.

The fourth and last delimitation is that confidential information needs to be kept in mind in relation to the information collected from the interviews with AZ employees. Hence, all confidential information will be excluded in this thesis and therefore important aspects of AZ's divestiture strategy may be left out.

1.6 DISPOSITION OF THESIS

Chapter 1, *Introduction*, defines the underlying background, the problem statement, the purpose, the MRQ & all RQs, as well as scope and delimitations of the study.

Chapter 2, *Theory*, introduces and explains the concept of divestitures, including types and definitions, what divestiture to choose, and reasons for divestitures. Hence, this chapter will answer RQ1-2.

Chapter 3, *Hypotheses development*, presents the four hypotheses that were developed based on the chosen theoretical framework.

Chapter 4, *Methodology*, presents the research strategy, research design and quality of data.

Chapter 5, *Research findings & analysis*, presents and analyses the findings from the collected data as well as answering RQ3-5.

Chapter 6, *Discussion*, the authors critically examined the results of this study and compare the obtained results with similar research. Hence, this chapter will further discuss the research finding for RQ1-5 & MRQ.

Chapter 7, *Conclusion*, this chapter concludes the research findings and answers all RQs as well as the MRQ.

Chapter 8, *future research*, lays out proposed further research based on key finding and discussions.

2 THEORY

This chapter presents an overview of the existing literature in the chosen field. The first part of the chapter, section 2.1, examines the overview of divestitures and presents well-established definitions and the most common types of divestitures. The first section leads into section 2.2, which goes through what divestiture type to choose depending on the goal of the divestiture and other circumstances. The final part, section 2.3, explains the different reasons for divestitures. This chapter will further answer the first two sub-research questions:

RQ1: What are the existing types of divestitures in theory?

RQ2: What are the reasons why companies create divestitures in theory?

2.1 DIVESTITURE TYPES - IN THEORY

This section covers the major forms of divestitures. There are different definitions of divestitures in the existing literature, e.g. Brauer (2006) defines a divestiture as “*a firm’s adjustments of its ownership and business portfolio structure via spin-off, equity carve-out, split-up, or unit sell-off*”, whereas Cumming and Mallie (1999) defines a divestiture as “*a divestiture is a disposal of a division or controlling interest in a subsidiary company*”. In addition to the above-mentioned types of divestitures, it was decided to include split-off since other research papers include these when researching divestitures (e.g. Bruner, 2004; Cumming & Mallie, 1999), as well as JV, since JV shares many of the characteristics as the other divestiture types (e.g. asset divestment, the creation of a new legal entity). Table 1 below shows a summary of the identified divestiture types together with a short explanation. The divestitures will be explained in depth in the following sections.

Table 1: Summary of identified divestiture types.

Type of divestiture	Summary
Equity carve-out	The parent company creates a new legal entity through a non pro rata transaction and sells a part of a certain asset through an initial public offering (IPO).
Joint venture	The parent company enters into a collaboration and creates a new legal entity with another, or several, other actor(s), with the goal of achieving common strategic objectives through joining portions of their resources.
Sell-off	The parent company sells a certain asset to an external actor. No new legal entity is created.
Spin-off	The parent company creates a new legal entity through a pro rata transaction.
Split-off	The parent company creates a new legal entity through a non pro rata transaction by splitting off a certain asset (division, subsidiary or unit).
Split-up	The parent company cease to exist and is broken down into a series of new legal entities through a non pro rata transaction.

2.1.1 Equity carve-out

An equity carve-out is a variation of a divestiture. This involves that the parent company sells a part of a certain asset through an IPO. Frank and Harden (2001) define an equity carve-out as “a partial divestiture in which the stock of the subsidiary is offered through an initial public offering (IPO)”.

In an equity carve-out, the parent company creates the shares (e.g. via a registration with the Security and Exchange Commission (SEC) in the US) and then distributes the shares of the asset on a non pro rata basis (Canina & Klein, 1998; Powers, 2001). This means that the shareholders in the parent company do not automatically get shares in the divestiture. The parent company generally sells less than 20% of the subsidiary since the parent company often wants to retain the option of redistributing the remaining stake to its shareholders through a tax-free equity carve-out, which requires that the parent company distributes at least 80% of the total combined voting power and any non-voting shares. (Pettit et al., 2004)

The transaction of the divestiture, therefore, provides (some) cash for the parent company. (DePamphilis, 2012; Pettit et al., 2004) The equity carve-out is a new legal entity that gives the investors ownership of the part of the subsidiary that is being divested through shares (Canina & Klein, 1998). However, since the parent company generally retains at least 80% of the subsidiary, the parent company controls the ownership of the equity carve-out (DePamphilis, 2012; Pettit et al., 2004; Slovin, Sushka & Ferraro, 1995). The creation of an equity carve-out is illustrated in figure 3 below.

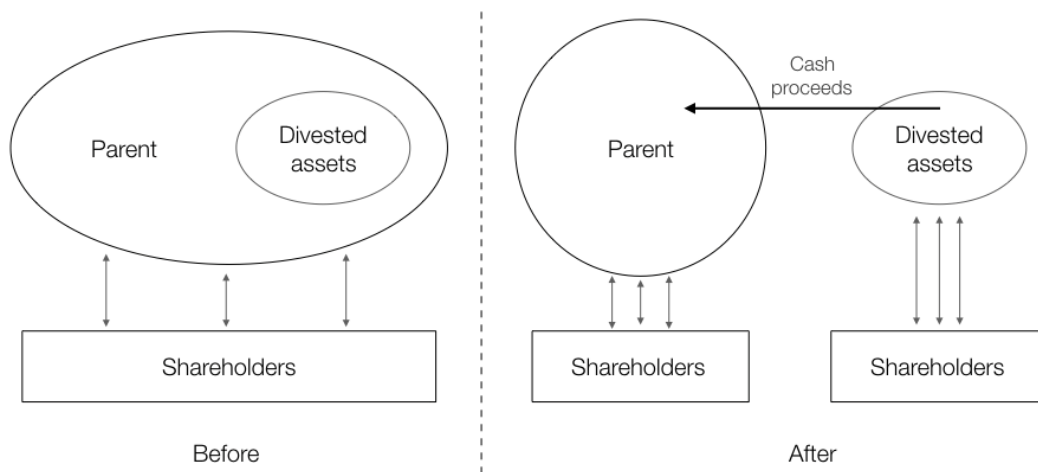


Figure 3: Equity carve-out. The figure illustrates before and after the creation of the divestiture.

The new entity has a new management team and functions as a separate company (Canina & Klein, 1998). Moreover, since the creation of the equity carve-out is through an IPO, the company must have a high disclosure of information before the announcement so that outside investors can analyze the equity carve-out's value (Slovin, Sushka & Ferraro, 1995). In addition to this, the equity carve-out can mitigate tax implications through issuing shares to the public and distribute dividends to the parent company (Pettit et al., 2004).

2.1.2 Joint Venture

A JV is a legal cooperative business organization between two or more separate business entities with the goal of achieving common strategic objectives through joining portions of their resources (Chen et al., 2015; DePamphilis, 2012; Kogut, 1988; Lin, 2017). Geringer and Hebert (1991) define a JV as “*Joint ventures (JVs) involve two or more legally distinct organizations (the parents), each of which shares in the decisionmaking activities of the jointly owned entity*”. Moreover, alliances (e.g. licenses, co-developments, JVs) are common in many industries such as the high-tech industry, the automotive industry as well as the pharmaceutical and biotechnology industry (Anand & Khanna, 2000; DePamphilis, 2012). Further, Anand and Khanna (2000) found that licenses are more common than JVs (56% vs. 44% respectively) and Reuer, Zollo and Singh (2002) found that JVs are the choice of an alliance in only about 20% of all alliances.

DePamphilis (2012) outlines the key characteristics that can be seen in JVs:

1. Independent legal entity derived from two or more parties
2. Responsibilities, ownership, risks and rewards are shared among the involving parties
3. Each party remains corporate identity
4. Assets for a specific purpose is contributed by the parties

The creation of a JV is illustrated in figure 4 below.

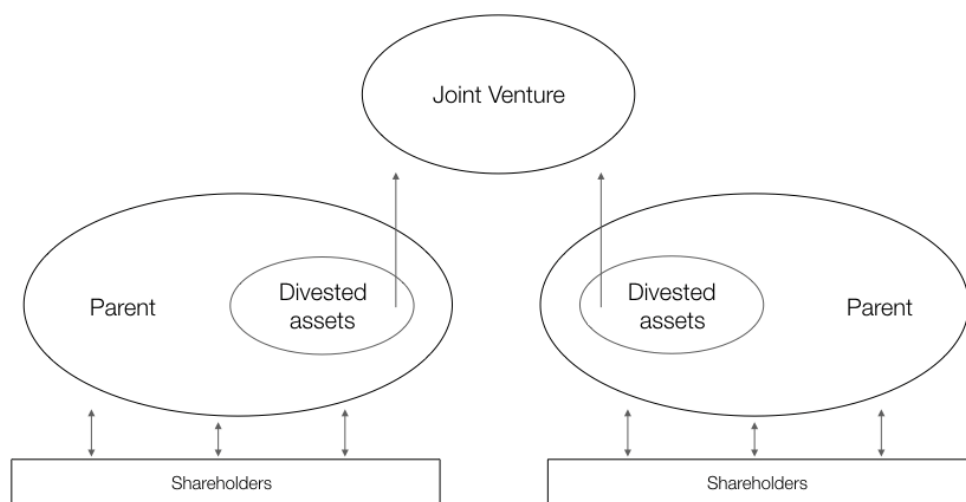


Figure 4: The figure illustrates the joint venture (JV), where parent companies create a new legal entity through divesting parts of their resources.

There are two different ways on how one can categorize JVs, depending on which factors that are considered. First, JVs could be categorized into two sections, vertical- and horizontal JVs (Carnovale et al., 2017). In a vertical JV, the collaborative companies constitute different stages in the supply chain, and common in a JV like this is that an imbalance of power exists, where one of the partners is more powerful. In a horizontal JV, both collaborative partners have similar roles within the supply chain, and due to that the power balance is more equally distributed. Second, JVs could be categorized in terms of ownership, i.e. minority, majority or 50-50 ownership (Piaskowska et al., 2017).

A JV can obtain different legal forms, e.g. as a subchapter S corporation, C-type corporation, a limited liability company (LLC) or through partnerships, each with their own advantages and disadvantages. For example, the C-type JV is subjected to double taxation, i.e. taxes on profits and by the shareholders when dividends are issued. Nevertheless, in the US a Subchapter S corporation, LLC or partnership can avoid the double taxation if they comply with the Internal Revenue Service (IRS) requirements that eliminate the primary characteristics of the C-type corporation¹. (DePamphilis, 2012)

The parent companies create the shares (e.g. via a registration with the SEC in the US) and receive equity in the JV according to the agreement between the involved parent companies (DePamphilis, 2012). Further, partnership and LLC members do not need to share the results of the JV on a pro rata basis (DePamphilis, 2012), however, JVs are generally pro rata to ensure that the partners receive their fair share of returns (Shishido, Fukuda & Umetani, 2015).

2.1.3 Sell-off

In a sell-off, the buyer normally purchases the whole asset in order to exert full control over the asset (Kemper & Khuen, 2004). Prezas and Simonyan (2015) define a sell-off as a *“transaction where one firm acquires 100% of certain assets of another firm”*. If the complexity of the asset is high, there is usually a transaction period. For example, when a company sells an asset such as a drug that still acquire R&D, manufacturing or marketing, the divestment occurs over a time-frame, called a transaction period. This means that the selling company might still be in control over the manufacturing while the buying company controls the marketing until all requirements can be performed by the buyer. (Buus-Laursen, 2018)

Furthermore, sell-off is the most common divestiture type (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Prezas & Simonyan, 2015) and is a privately negotiated deal, meaning that the parent company raises cash without the issuance of public securities, and the transaction does not create a new legal entity (Slovin, Sushka & Ferraro, 1995). Since the payment for a sell-off is usually cash, this type of divestiture is a taxable transaction (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Maydew, Schipper & Vincent, 1997; Prezas & Simonyan, 2015). The process of a sell-off is illustrated in figure 5 below.

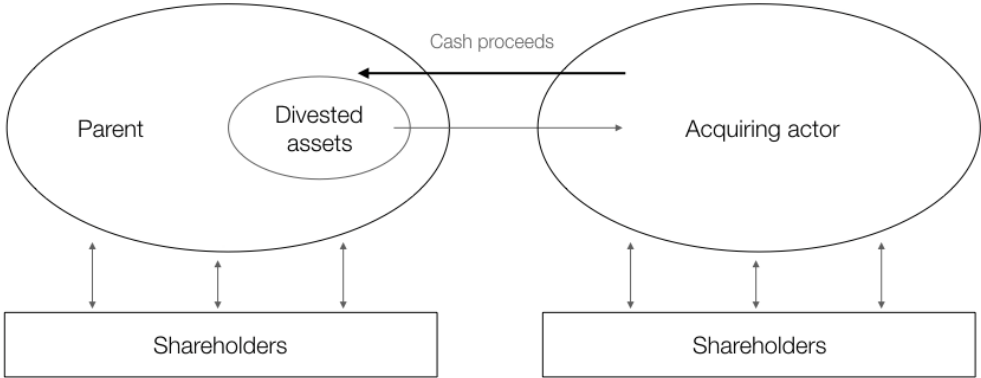


Figure 5 The figure illustrates the sell-off, where the parent company sells an asset to the acquiring actor.

¹ The primary characteristics include: (1) managerial autonomy, (2) continuity of ownership or life, and (3) ease of transferring ownership (DePamphilis, 2012).

2.1.4 Spin-off

The term spin-off refers to a new business formation, meaning that an asset is separated from the parent company, and the newly created spin-off is a new legal entity (Cumming & Mallie, 1999; DePamphilis, 2012). Spin-off is the most commonly used term, although spin-outs are sometimes used in research as well (Van de Velde et al., 2007). Further, Cumming and Mallie (1999) describe a spin-off as “*distributing the subsidiary’s stock pro rata to the parent company’s shareholders as a dividend*”. A spin-off is also the most common type of divestiture which results in the creation of a new legal entity (Pettit et al., 2004). The spin-off can be categorized into two main classes, depending on the parent company’s type of organisation, namely corporate spin-off and institutional spin-off (Tübke, 2005). The creation of a spin-off is illustrated in figure 6 below.

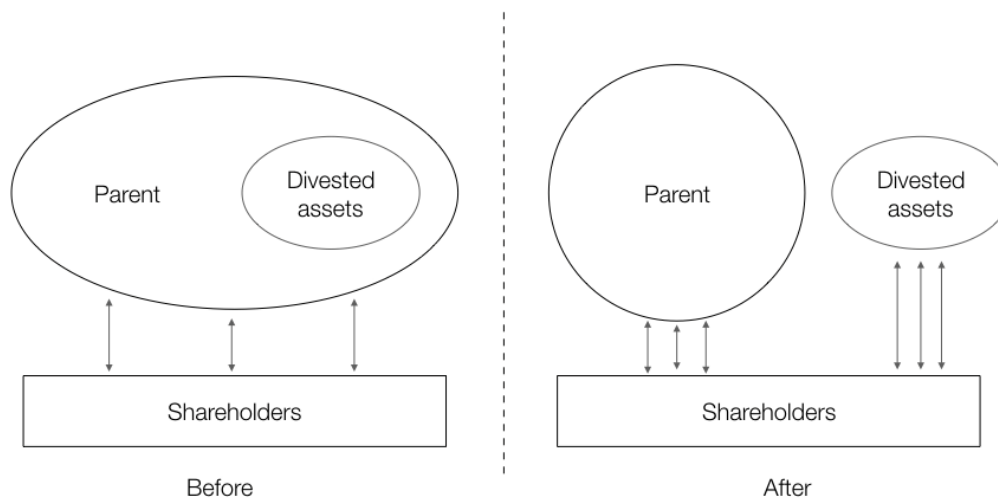


Figure 6: Spin-off. The figure illustrates before and after the creation of the divestiture.

2.1.4.1 Corporate spin-offs

In corporate spin-offs, the parent’s type of organization is a company. A corporate spin-off has many definitions within the existing literature. Parhankangas and Arenius (2003) defines corporate spin-off as “*new business formation based on the business idea developed within the parent firm being taken into a self-standing firm*”, whereas Van de Velde et al. (2007) defines corporate spin-off as “*new business start-up, which develops and markets new products or services based on proprietary technology or skills*”. As understood from the above-mentioned definitions, a corporate spin-off receives knowledge and/or technology from their parent company. The knowledge transferred from the parent company to the spin-off can be divided into three main categories: technology, production and marketing knowledge. These can take form in either tangible or intangible assets. (Fryges & Wright, 2014)

In their study, Van de Velde et al. (2007) defines three types of corporate spin-offs; assisted spin-outs, restructuring-driven spin-outs and entrepreneurial spin-offs. An assisted spin-out derives from the development of new discoveries within large companies. Two main reasons for creating an assisted spin-out are (1) to commercially exploit research results, and (2) develop technology that does not fit within the core of the parent company. A restructuring-driven spin-out is based on strategic decisions, e.g. when the parent company decides to divest a product or service, or when the parent company are being acquired by a competitor.

The third, and last, type of corporate spin-off is that of entrepreneurial spin-offs and this results in that one or more employees leave the parent company based on recognition of a market opportunity.

In a corporate spin-off, the parent company creates the shares (e.g. via a registration with the SEC in the US) and then distributes the shares of a certain asset to the existing shareholders on a pro rata basis (Canina & Klein, 1998; Cumming & Mallie, 1999; Powers, 2001; Prezas & Simonyan, 2015). The creation of a spin-off does not result in a direct infusion of funds into the parent company since the parent company does not sell the asset to a third party (Lee & Madhavan, 2010; Powers, 2001; Veld & Veld-Merkoulova, 2009).

In the US, the parent company can distribute the spin-offs shares to the shareholders tax-free, without triggering gain at the corporate or the shareholder level, if they comply with the requirements under Section 355 of the Internal Revenue Code (Cumming & Mallie, 1999; DePamphilis, 2012; Maydew, Schipper & Vincent, 1997; Powers 2001). One requirement for this is that the parent company distributes at least 80% of the total combined voting power and any non-voting shares. Similar requirements can be found within Europe, for example, the UK requirements are found under part 23 chapter 5 in the Corporate Tax Act 2010.

2.1.4.2 Institutional spin-offs

Lockett and Wright (2005) define university spin-off as “*new ventures that are dependent upon licensing or assignment of the institution's intellectual property for initiation*”. In an academic spin-off, the Institution stands as the parent company. The main characteristics of an academic spin-off are that technology and knowledge are transferred from the University to the newly created business, and that the founders of the spin-off originate from the University.

Fryges and Wright (2014) describe three different kinds of academic spin-offs; alumni startups, pure academic spin-offs and hybrid academic spin-offs. In an alumni start-up, the founders are university graduates or students, where knowledge gained through their university time plays a major role. The most common academic spin-off type is the pure academic spin-off. Here, the transfer of the asset from the University to the spin-off can mean multiple objects, e.g. in form of intellectual property (IP), pure technology or research results. The founders of a pure academic spin-off all come from academia and the University. The third, and last, type of academic spin-off is the hybrid, which refers to the founders of the new company, where some founders come from the University setting and some come from outside of the University.

2.1.5 Split-off

A split-off is when the parent company split off a certain asset (division, subsidiary or unit) through a non pro rata transaction and forms a new legal entity (Kemper & Khuen, 2004). The shareholders in the parent company are offered shares in the split-off in exchange for their shares in the parent company. Hence, the split-off will be owned by some of the former shareholders of the parent company, those who choose to exchange their shares in the parent company for shares in the split-off, and the parent company will be owned by the remaining shareholders that did not exchange their shares. (Cumming & Mallie, 1999; DePamphilis, 2012; Pettit et al., 2004) Further, the parent company generally receives no cash during the transaction (Canina & Klein, 1998; DePamphilis, 2012). The creation of a split-off is illustrated in figure 7 below.

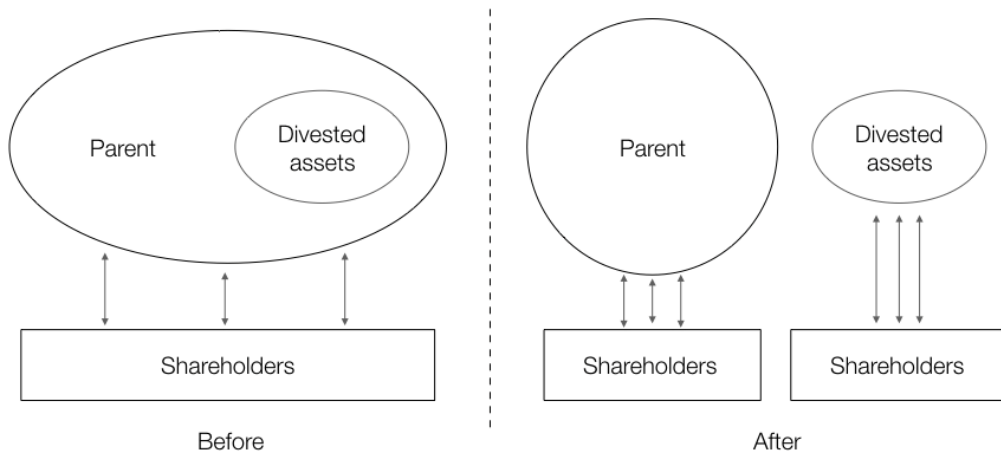


Figure 7: Split-off. The figure illustrates before and after the creation of the divestiture.

Similarly to a spin-off, the split-off can distribute the split-off shares to the shareholders tax-free by following certain requirements, e.g. Section 355 of the Internal Revenue Code in the US or the Corporate Tax Act 2010, part 23 chapter 5, in the UK (Cumming & Mallie, 1999; DePamphilis, 2012).

2.1.6 Split-up

A split-up is when the parent company ceases to exist and is broken down into a series of spin-offs through a non pro rata transaction. The shareholders of the parent company are given shares in the newly created spin-offs in exchange for their shares in the parent company. Further, the shareholders of the newly created spin-offs may be different compared to the ceased parent company since the shareholders may only have shares in one or a few of the spin-offs. (Canina & Klein, 1998; Cumming & Mallie, 1999; DePamphilis, 2012)

The process of a split-up is illustrated in figure 8 below.

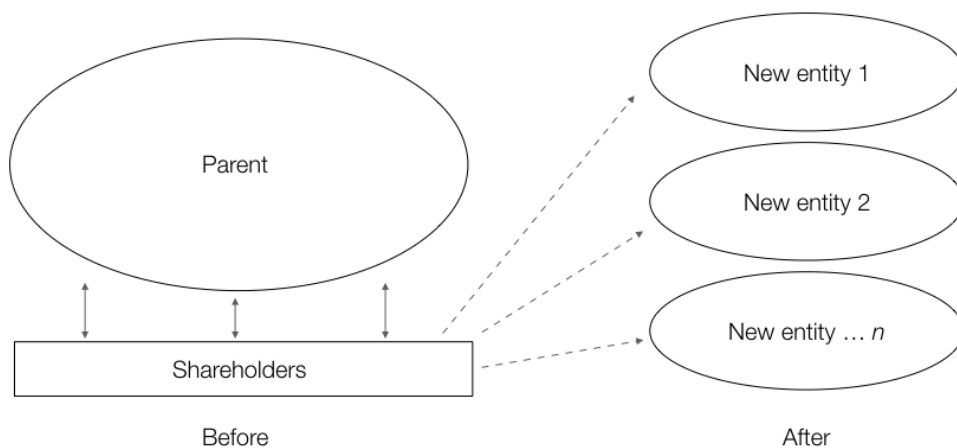


Figure 8: Split-up. The figure illustrates before and after the creation of the divestiture.

2.2 WHAT DIVESTITURE TYPE TO CHOOSE?

In this section, advantages and disadvantages of the different divestiture types will be considered from a parent company perspective. Since split-up results in that the parent company cease to exist, this divestiture alternative has been left out from here on in this analysis. Table 2 below summarizes this section in terms of the characteristics of the divestitures.

Table 2: Summary of the similarities and differences between the different types of divestitures.

Characteristics	Equity carve-out	Joint venture	Sell-off	Spin-off	Split-off
A new legal entity created	Yes	Yes	No	Yes	Yes
Parent company keeps control	Generally yes*	Depends **	No	No	No
Cash infusion to the parent	Yes	No	Yes	No	No
Taxable transaction	Yes	Yes	Yes	No****	No****
Short-term abnormal returns for the parent company	Positive	Positive	Positive	Positive	<i>No information found</i>
A larger size is positive (e.g. better performance, higher short-term abnormal returns)	Yes	Yes	Yes	Yes	<i>No information found</i>
Publicly communicated	High	Generally medium ****	Generally low ****	Generally medium ****	Generally medium ****

* The parent company generally retains at least 80% of the subsidiary ownership (DePamphilis, 2012; Pettit et al., 2004; Slovin, Sushka & Ferraro, 1995)

** Depends on the agreement between the involved actors and their percentage of ownership in the JV.

*** Requires that the parent company comply with certain requirements, e.g. Section 355 of the Internal Revenue Code in the US or the Corporate Tax Act 2010 (part 23 chapter 5) in the UK.

**** For JV, Sell-off, Spin-off & Split-off, public disclosure can range between low-high. For JV, Spin-off and Split-off the publicly communicated information is generally medium due to that the parent company wants the shareholders to see the value in the divestiture, although not as much information as equity carve-out is required for this purpose. For sell-offs, the publicly communicated information is generally relatively low due to that sell-offs are created more frequently (Lee & Madhavan, 2010; Prezas & Simonyan, 2015; Cumming & Mallie, 1999) and the deal is privately negotiated (Slovin, Sushka & Ferraro, 1995). If it is a very large sell-off, however, the parent company wants the shareholders to see the value in this divestiture as well.

2.2.1 Equity carve-out

Bayar et al. (2011) identified three aspects that are important to consider when deciding on whether the company should choose an equity carve-out or not. The first, and most important aspect is regarding the heterogeneity in beliefs between the company's insiders compared to the beliefs of the outside investors regarding the value of the asset. If the outside investors' beliefs are more optimistic about the subsidiary, the parent company will find it optimal to finance the subsidiary through an equity carve-out. On the other hand, if the outside investors' beliefs are less optimistic, the parent company will find it optimal to let the subsidiary stay within the parent company. The second important factor is related to the potential synergy between the parent company and the subsidiary. The greater the synergy between the entities are, the more important is it for the parent company to keep the asset. The third, and last, important factor is related to the cost of effort for the employee(s) to generate the ideas within the subsidiary, and to what extent the employee(s) that will be in charge of the subsidiary will be motivated after creating the equity carve-out. The smaller the cost of generating the ideas, and the higher the motivation are for the employee(s) that will be in charge of the equity carve-out, the more incentive the parent company have to create an equity carve-out.

Slovin, Sushka and Ferraro (1995) found that the equity carve-out average short-term abnormal return is minus 1.1% for the divested asset but positive for the parent company at 1.2%. The authors believe that the explanation for this is that the equity carve-out signals overvaluation of the divested asset and therefore affects the divestiture valuation negatively. Further, more recent research by DePamphilis (2012) found that the average short-term abnormal returns were on average much larger, 4.5%. Slovin, Sushka and Ferraro (1995) suggest that a parent company should choose to divest through an equity carve-out when outside investors are likely to price the asset equity favorable (i.e. when the outside investors overvalue the asset). Moreover, Vijh (2002) found that on average larger sized equity carve-out result in an increased short-term return. Another benefit of the equity carve-out is that the transaction provides a direct infusion of funds into the parent company which can be used for example to pay off debt (DePamphilis, 2012; Pettit et al., 2004).

Furthermore, research by Vijh (1999) and Endres (2002) shows that the parent company receives on average insignificant long-term abnormal returns. Additionally, Endres (2002) found that the variance is very high, ranging from negative 67.2% long-term abnormal returns to positive 77.6% long-term abnormal returns.

2.2.2 Joint Venture

Research by Anand and Khanna (2000) found that the average short-term abnormal returns for JV were 1.8% when analyzing several different industries, but that the average short-term abnormal return was 3.3% when only analyzing the pharmaceutical industry. More recent research by DePamphilis (2012) shows that the average short-term abnormal returns for a JV are about 1.5%. Additionally, DepPamphilis found that a vertical JV creates on average more wealth for the supplier parties, whereas the horizontal JV creates on average equal wealth for the joint parties.

Furthermore, Merchant and Schendel (2000) found that on average high partner-JV business relatedness increased the value, whereas high partner-partner relatedness decreased the value created. This indicates that the parent company should create JVs that operates within the parent company's core activities and should create the JVs with actors that have different core activities if they want to maximize the value creation.

Merchant and Schendel (2000) additionally saw that greater equity ownership and larger company size on average positively affected the short-term abnormal returns. Research by Anand and Khanna (2000) shows that prior experience in creating JVs on average significantly positively affected the short-term abnormal returns and that the difference is largest for research JVs. The authors estimated that more experience in research JVs gave the JV on average a 1.3% increase in short-term abnormal returns.

Reuer, Zollo and Singh (2002) found that parent companies in the biotechnology industry refine the governance of the JV through board changes, contract alterations, and/or changes in monitor mechanism in close to 50% of the JVs studied. The researchers also identified that vertical collaborations, as well as collaborations with a relatively high complexity, are more likely to experience post governance alterations and that previous experience with creating JVs likely decrease the likelihood to experience post governance alterations.

2.2.3 Sell-off

One of the main benefits of a sell-off is that the transaction provides a fast infusion of funds for the parent company, however, this is a taxable transaction (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Maydew, Schipper & Vincent, 1997; Prezas & Simonyan, 2015). Maydew, Schipper and Vincent (1997) believe that a parent company should use a sell-off when increasing earnings and cash flow is important, and when the acquisition premia (i.e. the difference between the estimated real value and the actual value) on the sales is higher than the tax costs. Furthermore, sell-offs can be effectively used to align managerial incentives with shareholders' interests, and by that increase the parent company's efficiency when the parent company does not retain any proceeds of the divested asset (Slovin, Sushka & Ferraro, 1995).

Slovin, Sushka and Ferraro (1995) found that the average short-term abnormal return to the parent company is significantly positive at 1.7%, and research from DePamphilis (2012) found similar results (1.6%). In addition to this, the positive outcome is also on average increased if the divested asset is unrelated to the core activities of the parent company (Powers, 2001) and that larger sized divestitures results in higher short-term abnormal returns (Powers, 2001; Slovin, Sushka & Ferraro, 1995).

Francoeur and Niyubahwe (2009) found that divesting whole business segments through sell-offs does not on average result in any significant long-term abnormal return. However, they found that the companies that used sell-offs for whole business segments were able to keep up with the performance of their peers, and the authors hypothesized that these companies would not be able to keep up with the other companies' performances if they would not use sell-offs. Therefore, this indicates that sell-offs may have a slight positive effect on the long-term performance of the divesting parent company.

This divestiture type should be the first option when the parent company are in great financial need, and this is the cheapest option to relieve the financial constraints and/or when the company believes that the non-core asset is overvalued (Prezas & Simonyan, 2015). In addition to this, another benefit of the sell-off is that the transaction takes place privately, without the issuance of equity (Slovin, Sushka & Ferraro, 1995).

2.2.4 Spin-off

Research has found that the announcement of a spin-off seems to affect the parent company positively (Udden, 2010). Pettit and colleagues (2004) found that the spin-offs parent company outperformed the market on average by 7.6% around the time of the announcement. In addition to this, Veld and Veld-Merkoulova (2009) also saw similar results with regards to short-term abnormal returns in their meta-analysis. They found that the average short-term abnormal return was 3.0% and that only 2 out of 69 companies experienced a negative abnormal return. Research from DePamphilis (2012) found a slightly higher short-term abnormal return (3.7%).

Veld and Veld-Merkoulova (2004) studied 156 European companies between 1987-2000 and found that the average short-term abnormal return was 3.6% for the spin-offs that increased their industrial focus and only 0.8% for the companies that did not increase their focus. The authors also state that this finding is in line with earlier reported US results. In addition to this, Veld and Veld-Merkoulova (2009) meta-analysis also found that the industrial focus variable had a significant positive effect, and Powers (2001) found that the abnormal returns are on average higher if the divested asset is unrelated to the core activities of the parent company.

In addition to this, Veld and Veld-Merkoulova both studies (2004; 2009) found that a lower information asymmetry (i.e. when there is less imbalance of knowledge) is not significantly different from a high information asymmetry, with regards to short-term abnormal returns for the parent company. Nevertheless, it was a trend in both studies that the lower information asymmetry exhibits on average a higher short-term abnormal return (2.0% higher in the 2003 study & 0.2% higher in the 2009 study). Many studies have also found a correlation between larger spin-offs and better performance (Powers, 2001; Slovin, Sushka & Ferraro, 1995; Veld & Veld-Merkoulova, 2004; Veld & Veld-Merkoulova, 2009).

Pettit et al. (2004) found that spin-offs outperformed the market on average by 10% during the first year. This finding is in line with a more recent study by Udden (2010) who found that when a parent company creates a spin-off, the parent gain on average close to 15.7% shareholders value over a 10-month period. Of these 15.7% total adjusted shareholders value gain, about 9.1% occurs in the parent company shares and the remaining 6.6% occurs in the spin-off company. Further, Veld and Veld-Merkoulova (2009) meta-analysis found mixing results for the long-run stock market performance. Some studies found significant positive long-run abnormal returns and some studies show non-significant abnormal returns. For example, Veld and Veld-Merkoulova (2004) earlier study found that the parent companies long-run performance was not on average affected by the creation of the spin-off, although the spin-off showed on average a non-significant positive equal long-term abnormal return.

A two-year study, examining 203 spin-offs, showed that 47% of those have survived as viable independent entities, 39% have been involved in an M&A, 11% were bought back by the parent company and 3% delisted. Of the 47% that have survived, one can see a clear trend that the spin-offs that are independent outperform the spin-offs that are controlled by the parent company. The median return over the Standard & Poort's (S&P) 500 index was 26% for the independent spin-offs and minus 32% for the parent-controlled spin-off. (Pettit et al., 2004)

All these findings indicate that a spin-off has an economic benefit which helps to increase the shareholders' value compared to start-ups, that the parent company is positively affected by the spin-off creation and a trend towards positive long-term abnormal returns. These positive outcomes are also increased if the parent company increase their industrial focus through their divestiture, if the information asymmetry is low, if the spin-off is in control and/or the larger the spin-off is. Furthermore, research has concluded that the parent company should choose this divestiture type if they believe that the asset that is being divested is undervalued (Cumming & Mallie, 1999; Prezas & Simonyan, 2015; Slovin, Sushka & Ferraro, 1995), or if the parent company cannot find a suitable buyer for the asset (Cumming & Mallie, 1999; Olovsson, 2018). However, spin-off is not the preferably divestiture choice if the parent company are in great need of liquidity, since when the parent company creates the spin-off, the parent company does not receive a direct infusion of funds (DePamphilis, 2012; Pettit et al., 2004; Veld & Veld-Merkoulova, 2004; Veld & Veld-Merkoulova, 2009).

2.2.5 Split-off

When a parent company creates a split-off, the parent company does not receive a direct infusion of funds (DePamphilis, 2012; Pettit et al., 2004). A hypothesized benefit of the split-off is that the shareholders, both those who chose to keep their shares in the parent company and those who changed their shares for shares in the newly created entity, may be less likely to sell the shares afterwards since they believe in the stock they chose to have. In relation to this, since the parent company's total number of shares is reduced, the earnings per share of the parent company do increase (DePamphilis, 2012).

2.3 REASONS FOR DIVESTITURES - IN THEORY

There are many reasons for companies to use divestitures as a part of their business strategy. The need for divestitures may arise because the parent company wants to maximize the value for the shareholders while minimizing the risks and/or negative aspects of conducting business in multiple different technologies and/or geographical markets (Kemper & Khuen, 2004; Udden, 2010; Veld & Veld-Merkoulova, 2004).

The authors of this study created two primary categories for divestiture creation: *Financial reasons* and *Strategic reasons*. Within each category several different reasons have been identified, see table 3 below. Some of the identified reasons fit into both categories to some extent, still, all reasons have been placed in the most adjacent category.

Table 3: Illustrates the two primary categories and their respective reasons for creating divestitures.

<i>Financial reasons</i>	<i>Strategic reasons</i>
Capital market factors	Innovative experiments & risk reduction
Financial policies	Marketing factors
Short-term financial gain	Poor focus
Tax benefits	Poor performance
	Regulatory, legal & contractual issues
	Strategic focus

2.3.1 Financial reasons for creating a divestiture

In this section, four reasons for creating divestitures are presented: *Capital market factors*, *Financial policies*, *Short-term financial gain* and *Tax benefits*. The common objective for these divestiture reasons is that they directly aim to increase the financial gain for the parent company.

2.3.1.1 Capital market factors

One reason for creating a divestiture is to keep the complexity of the corporate structure as low as possible for both the divestiture and the parent company and thereby decreasing information asymmetry (Canina & Klein, 1998; Udden, 2010; Veld & Veld-Merkoulova, 2004). Furthermore, Canina and Klein (1998) also saw that the parent company obtains a clearer and better evaluation of performance, which is beneficial from an investment point of view, if they keep their structural complexity as low as possible by not diversify its activities.

Implementing more frequent, comprehensive and transparent disclosure of strategy, as well as operating and financial performances, make it easier for investors to understand the corporate structure of the two entities. This aids in the evaluation of the business and its worth, and may, therefore, provide greater access to capital markets compared to a more closed corporate structure (Canina & Klein, 1998; DePamphilis, 2012; Pettit et al., 2004).

The result of this is that the parent company, and the divestiture, have it easier to raise capital since they can focus on attracting investors that are directly related to their unique market-place(s). Since the evaluation of performance is clearer and better, and the projected growth rate is more in line with their business activities, the cost of debt of capital is more accurately calculated according to the respective risks of the companies. (Canina & Klein, 1998)

2.3.1.2 Financial policies

Another reason for why creating a divestiture is advisable is due to *Financial policies*. The optimal *Financial policies* (e.g. liquidity policies, funding policies, dividends and share repurchases policies) depends on the size of the company and how fast the company is growing. Therefore, by creating a divestiture, the company can optimize the weighted average cost of capital (WACC) and financial flexibility for the divestiture (i.e. the financial policies that the parent company has is not optimal for the divestiture). The divestiture can, therefore, justify a higher market multiple if it is spun-out from the parent company. (Pettit et al., 2004)

2.3.1.3 Short-term financial gain

A company can either partly sell an asset through equity-carve out or sell the asset completely through a sell-off when the company have financial needs, and this is the transaction that provides the cheapest source of funds (Depamphilis, 2012; Prowers, 2001). The funds from this transaction can then be used for several reasons, e.g. to invest in the development of core activities and/or to pay the debt (Cumming & Mallie, 1999).

2.3.1.4 Tax benefits

Tax benefits could be one reason to why the parent company wants to create a divestiture (Canina & Klein, 1998; Schipper & Smith, 1983; Udden, 2010; Veld & Veld-Merkoulova, 2004). Two ways have been identified when divestitures can obtain tax benefits. First, the divestiture can move the location to another country which has lower tax rates, which results in that the divestiture will be taxed according to the tax rates in the new country (Veld & Veld-Merkoulova, 2004).

Second, a parent company can obtain tax benefits if they comply with the requirements under Section 355 of the Internal Revenue Code (Cumming & Mallie, 1999; DePamphilis, 2012; Maydew, Schipper & Vincent, 1997; Powers 2001).

2.3.2 Strategic reasons for creating a divestiture

In this section, six reasons for creating divestitures are presented: *Innovative experiments & risk reduction*, *Marketing factors*, *Poor focus*, *Poor performance*, *Regulatory, legal & contractual issues* and *Strategic focus*. The common objective for these divestiture reasons is that they indirectly aim to increase the financial gain for the parent company through strategic decisions.

2.3.2.1 Innovative experiments & risk reduction

Companies can use divestitures as a way to commercialize and market products and/or services that the parent company are not interested in and/or are considered too risky. The managers may be reluctant to make innovative decisions since they are more concerned and focused on job securities and having a good reputation which may inhibit the internal innovation within the company (Lee & Madhaven, 2010). For these reasons, the parent company can create a divestiture (JV or spin-off) that pursue the (risky) innovation and then analyze the divestitures performance.

In addition to this, the parent company can also use divestitures as an experimental instrument with the goal of exploring and finding new business opportunities and business models. By focusing on shifting the business model for the created divestiture, the parent company can then later use the divestiture, or the lessons learned from it, to shift the focus for the parent company in a more effective and safer way (Chesbrough, 2006; Peruffo, Pirolo & Nenni, 2014).

The parent company may also wish to enter a specific line of business or another geographical market, although this could be considered risky for the parent company to enter, so the parent company creates a divestiture (JV or spin-off) that enters that market in their place. This option is appropriate when the parent company do not want to risk the setbacks of failure, but still want to receive funds from this market opportunity if the divestiture is shown to be successful (Peruffo, Pirolo & Nenni, 2014).

2.3.2.2 Marketing factors

The creation of a divestiture may occur due to marketing considerations. The parent company may have a tailored marketing approach to its target customers and suppliers which limits the marketing possibilities for the divestiture (Canina & Klein, 1998). For example, the parent company may market that they require its suppliers to meet certain criteria, which are impossible for the divestiture suppliers to meet. Therefore, by creating a divestiture, the parent company will optimize the marketing for both the parent company and the divestiture.

Additionally, by implementing more frequent, comprehensive and transparent disclosure of strategy, as well as improve the managerial accountability, the parent company can market this and by that attract skilled and knowledgeable managers and employees (Pettit et al., 2004).

2.3.2.3 Poor focus

One incentive to create a divestiture is to increase the focus towards the divested asset since overloaded managers may pay less attention towards the asset as they must focus on several tasks simultaneously, which is both time-consuming and distracting (DePamphilis, 2012; Peruffo, Pirolo & Nenni, 2014). By divesting this asset, managers within the parent company will reduce their number of tasks, and the CEO of the divestiture will only need to focus on developing one asset. It may also be that the parent company has more attractive business opportunities within the portfolio that obtains greater attention, which results in that this asset is put on the shelf (Canina & Klein, 1998).

2.3.2.4 Poor performance

Another reason for creating a divestiture is when an asset does not meet the required profitability (Canina & Klein, 1998; Depamphilis, 2012; Pettit et al., 2004). In this scenario, where the asset is underperforming, the asset can either be divested through a sell-off and the cash generated from the transaction can be reinvested in higher valued segments (Cumming & Mallie, 1999). It could also be divested through a JV, spin-off or split-off with the objective of long-term financial gain.

The main reasons for why the divestiture may perform better independently, or as part of another company (sell-off), is that the management team of the new company may be utilizing the asset more effectively since they are more experienced than the parent company's management team in this line of business (Canina & Klein, 1998; Depamphilis, 2012). In addition to this, parent companies can also use sell-offs to mask past mistakes such as failed investments and/or M&As (Cumming & Mallie, 1999).

2.3.2.5 Regulatory, legal & contractual issues

Regulatory, legal and/or contractual factors can prevent the company to accomplish its objectives. In some of these situations, a divestiture can avoid these problematic obstacles (Canina & Klein, 1998). For example, contracts that the parent company has with its suppliers and/or other collaborations may inhibit the objectives of the new business opportunity. Therefore, the parent company can for example be forced to create a divestiture if they wish to pursue the new business opportunity due to contractual boundaries. The parent company can also be mandated by the European Commission to divest an asset through a divestiture as a result of another previous deal. Further, studies show that about 30% of all corporate divestitures are created partly because they want to loosen the institutional and/or regulatory environment (Michaely & Shaw, 1995).

2.3.2.6 Strategic focus

The last incentive for creating a divestiture is due to that the asset of the divestiture does not align with the core activities of the parent company and/or if the parent company wants to increase its focus in certain geographical areas by ceasing its operations in others. By creating a divestiture, the parent company can continue to focus on its core activities but still receive monetary payments from the divestiture through shares and/or royalty fees from the spin-off, split-off, JV and equity carve-out, or a direct infusion of funds from a sell-off and equity carve-out.

Veld and Veld-Merkoulova (2004) brings up two possible reasons where creating a divestiture for a foreign division, and thereby decreasing the geographical areas for the parent company, may be beneficial. First, Veld and Veld-Merkoulova believe that the creation of a divestiture for the foreign division may lower monitoring and coordinating costs.

Second, the creation of the divestiture may also reduce cross-subsidization of less efficient divisions (i.e. charging higher price for the product and/or service to allow lower prices for another).

Furthermore, by not diverse the activities that the parent company encompasses, or by decreasing their number of core activities, the managerial accountability will be improved (Aron, 1991; Canina & Klein, 1998; Markides & Singh, 1997; Schipper & Smith, 1983) as well as the governance of the company (Qian & Sudarsanam, 2007). In addition to this, one can also expect to see a reduction in operational diseconomies, inefficiency and information asymmetry (Udden, 2010; Veld & Veld-Merkoulova, 2004).

Moreover, if the divestiture is a non-parent-controlled JV, spin-off or split-off, it will obtain strategic freedom (Canina & Klein, 1998; Pettit et al., 2004; Veld & Veld-Merkoulova, 2004), resulting in that the parent company can shift the investment portfolio decisions to its shareholders (Cumming & Mallie, 1999). This is especially important if the organizational structure of the parent company inhibit the asset to operate optimally (Peruffo, Pirolo & Nenni, 2014).

2.3.3 Summary table

Table 4 below summarizes this section and provide an overview of the identified divestitures, and their possible reason(s) behind the creation thereof.

Table 4: Shows possible reasons for the creation of the identified divestiture types.

Reasons for divestitures	Divestiture types				
	Equity carve-out	Joint Venture	Sell-off	Spin-off	Split-off
<i>Financial reasons</i>					
Capital market factors	x	x		x	x
Financial policies	x	x		x	x
Short-term financial gain	x		x		
Tax benefits				x	x
<i>Strategic reasons</i>					
Innovative experiments & risk reduction		x		x	
Marketing factors	x	x		x	x
Poor focus		x	x	x	x
Poor performance		x	x	x	x
Regulatory, legal & contractual issues	x	x	x	x	x
Strategic focus		x	x	x	x

3 HYPOTHESES DEVELOPMENT

Based on the literature review above, four hypotheses have been developed which are believed to be the findings on RQ3-5. The first hypothesis is developed in relation to RQ3 “*What types of divestitures do the largest big pharma companies create?*”, the second hypothesis is developed in relation to RQ4 “*What are the reasons why the largest big pharma companies create divestitures?*” and the last two hypotheses are developed in relation to RQ5 “*What are the reasons behind AstraZeneca’s divestiture strategy?*”.

Hypothesis 1 is based on four key insight obtained from the literature review. First, Prezas and Simonyan (2015) found that sell-off is by far the most common divestiture type compared to spin-off which is the most common type of divestiture which results in the creation of a new legal entity (Pettit et al., 2004). Second, sell-off is more common for larger companies. Third, sell-off generally require the least amount of efforts compared to the other divestiture types since it does not result in a new entity and it is a privately negotiated deal without the issuance of public securities (Slovin, Sushka & Ferraro, 1995). Fourth, sell-off results in a direct infusion of funds for the parent company that can, for example, be used to invest in core activities and/or paying off debt (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Maydew, Schipper & Vincent, 1997; Prezas & Simonyan, 2015).

Hypothesis 1: Sell-off is (by far) the most common divestiture type for big pharma companies.

Hypothesis 2 is based on two key insights derived from the literature review. First, the pharmaceutical industry is in a middle of a paradigm shift, where they are moving away from a ‘bigger is better’-model to a more ‘leaner and focused’-model. This shift has resulted in that some assets that the parent company possesses falls outside of their core activities, which may, therefore, be divested through divestitures. Additionally, creating JVs and spin-offs can be seen as a proactive strategic choice with the objective to pursue business opportunities that are outside of the parent company’s core activities. (Peruffo, Pirolo & Nenni, 2014)

Hypothesis 2: The most common reason for a divestiture is due to the parent company’s strategic reasons.

Hypothesis 3 is based on three key insight obtained from the literature review. First, divestiture through spin-off does not result in a direct infusion of funds into the parent company (DePamphilis, 2012; Pettit et al., 2004; Veld & Veld-Merkoulova, 2004; Veld & Veld-Merkoulova, 2009). Second, spin-off is an attractive option when external actors undervalue the asset which is more likely when they do not have the capabilities to utilize the asset optimally. Third, when the tax benefits obtained² through creating the divestiture outweigh the external valuation (Cumming & Mallie, 1999; Prezas & Simonyan, 2015; Slovin, Sushka & Ferraro, 1995).

Hypothesis 3: Spin-off is the first divestiture option when the asset is believed to be undervalued by external actors, when the tax benefits outweigh the valuation by external actors, when the divested asset is very innovative, and/or it does not exist a buyer that have the capabilities to utilize the asset efficiently.

² Require that the parent company comply with certain requirements, e.g. Section 355 of the Internal Revenue Code in the US or the Corporate Tax Act 2010 (part 23 chapter 5) in the UK

Hypothesis 4 is based on two key insights gathered from the literature review. The first reason, which also is one of the reasons hypothesis 1 is based on, is that the parent company receives a direct infusion of funds into the parent company's organization when the parent company is divesting through a sell-off (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Maydew, Schipper & Vincent, 1997; Prezas & Simonyan, 2015), which can then be reinvested in higher valued segments (Cumming & Mallie, 1999). The second reason, which also is one of the reasons hypothesis 2 is based on, is that the pharmaceutical industry is shifting to a 'leaner and focused'-model which may result in an increased divestiture activity (Peruffo, Pirolo and Nenni, 2014).

Hypothesis 4: The primary reasons why AstraZeneca divest through sell-off is to receive a direct infusion of funds which can be used for developing new innovative medicine which is within the parent company's core activities.

4 METHODOLOGY

This chapter describes the method of the study, highlighting the chosen research strategy and research design. The chapter further explains the research process by describing the required data and the method for collecting said data. The chapter concludes with the quality of data, where the validity and reliability of the study are evaluated.

4.1 RESEARCH STRATEGY

When conducting a study, it is important to consider what research strategy should be followed, i.e. the relationship between theory and research, as well as the epistemological and ontological issues (Bryman & Bell, 2011).

4.1.1 Strategy approach

In this thesis, a deductive approach has primarily been used. Bryman and Bell (2011) define a deductive approach as when a theoretical consideration is the starting point and a hypothesis is formulated based on that consideration. Following that, the result in a deductive approach is to conclude whether or not the theory is correct (figure 9).

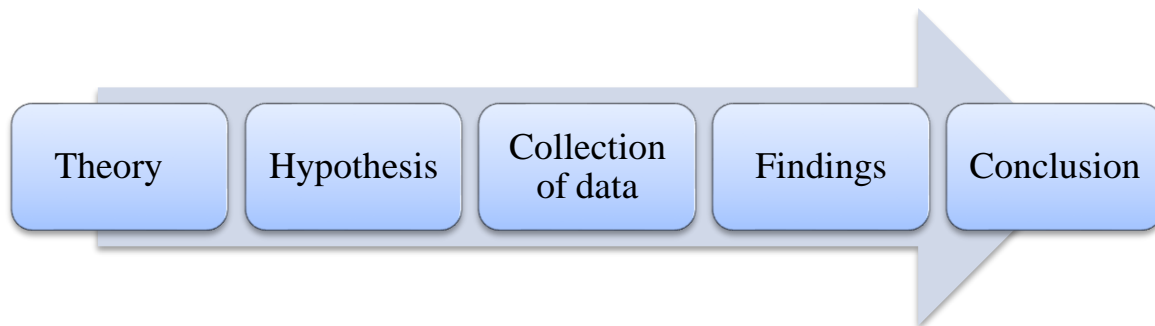


Figure 9: Shows the strategy and steps in a deductive approach.

4.1.2 Epistemological and ontological foundations

Epistemological and ontological considerations also play an important role in the study. This study has looked at numerous divestitures from the largest big pharma companies. The framework on which the divestiture has been based on is solely from a constructivist ontological perspective since this is a creation by social actors and not something that exists independently without social actors. Further, divestitures exist without the opinions of social actors and can, therefore, be considered as interpretivist epistemological. (Bryman & Bell, 2011)

4.1.3 Choice of method

Decisions revolving what kind of research that will be conducted, i.e. mixed method research, quantitative or qualitative, is also an important aspect to consider and include in the research strategy. In this study, a mixed method has been conducted. The qualitative part of the thesis has been in form of a literature review, interviews and case study. The quantitative part of the thesis has been in form of analyzing divestiture deals for the 10 largest big pharma companies over a 10-year period.

4.2 RESEARCH DESIGN

Research design refers to the framework used for the collection and analysis of data. In this study, two different research design methods have been used, namely cross-sectional design and case study design (Bryman & Bell, 2011). In this study, the cross-sectional design is the cases analyzed which is the 10 largest big pharma companies. Further, the object of the case study is AZ as a single organization. The goal of this study has been to compare divestitures, including types and reasons for creation, between the studied companies as well as in theory vs. practice.

4.2.1 Required data

In order to be able to answer the MRQ presented in this study, required data had to be identified and collected. Figure 10 below presents the required data in relation to each RQs.

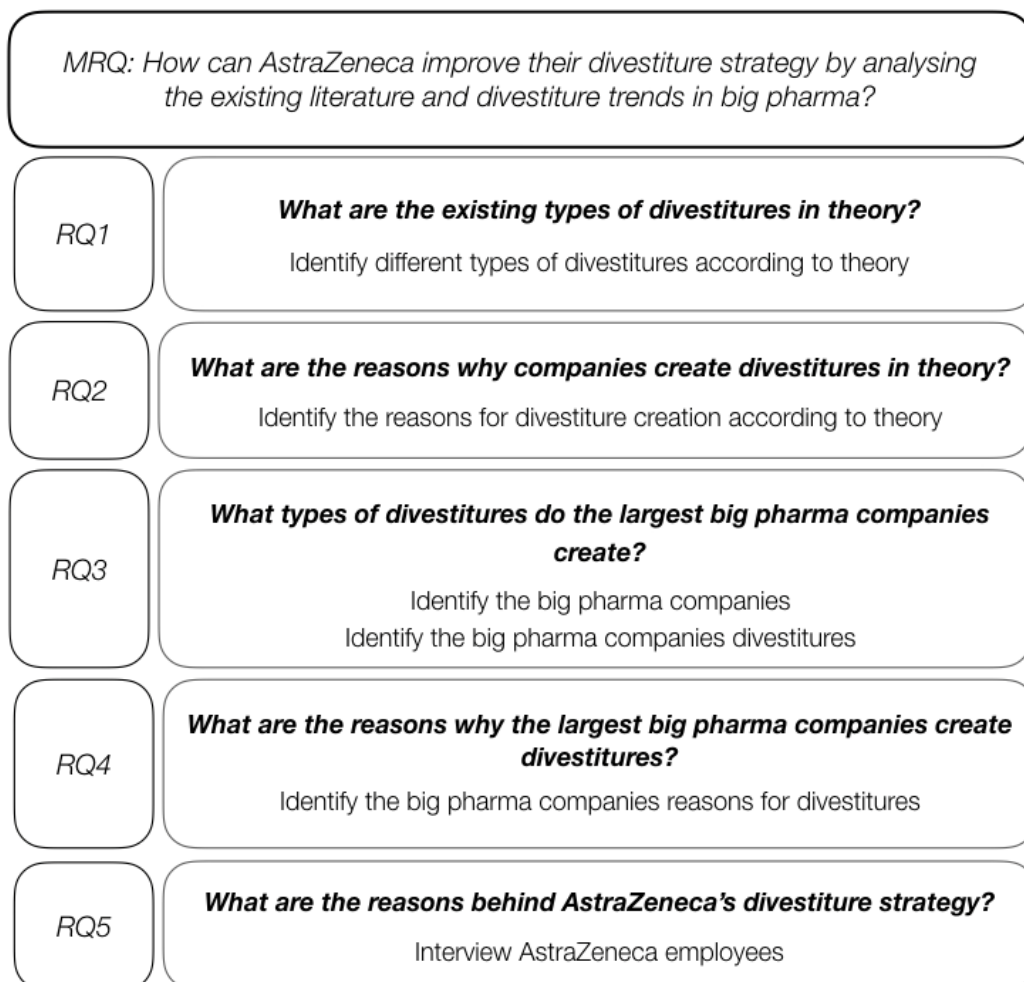


Figure 10: Shows the required data in order to answer the research questions.

The first and second RQ: *What are the existing types of divestitures in theory?*, and, *What are the reasons why companies create divestitures in theory?*, required the identification of divestitures types, including its reasons behind the creation. The third RQ: *What types of divestitures do the largest big pharma companies create?*, concerns the largest big pharma companies and its divestiture, hence, the big pharma companies had to be determined and its divestitures had to be identified. To answer the fourth question: *What are the reasons why the largest big pharmaceutical companies create divestitures?*, required the identification of the companies reasons for creating divestitures. The final RQ: *What are the reasons behind AstraZeneca's divestiture strategy?*, covers AZ as this thesis case study, and in order to gain insights into AZ's divestiture strategy interviews had to be conducted with employees at the company.

4.2.2 Data collection

Multiple methods have been used in this study in order to collect the required data. The methods include literature review, data samples, case study, divestiture searches as well as interviews.

4.2.2.1 Literature review

A systematic and comprehensive literature review has been employed, where more than 50 research papers have been examined and several sources have been used for every concept. In addition to this, the quality of the included studies was controlled by examining the number of citations. The conducted literature review is based on two steps explained in depth below.

As a first step, the relevant body of literature was determined by identifying the different types of divestitures that exists in theory by using two procedures. First, two digital databases were examined: ScienceDirect and Google Scholar, where a wide variation of keywords was used to find relevant studies: *divestiture, equity carve-out, joint venture, sell-off, spin-off, split-off, types, definitions, reasons, abnormal returns, pro rata, trends, effectiveness, big pharma, pharmaceutical industry, business model, R&D and open innovation*. Second, the so-called "ancestry" approach (i.e. the forward citation searching) was used in order to back-trace some of the referenced sources in the already identified articles.

As a second step, the authors corresponded face-to-face and/or through emails with employees at AZ and researchers employed at Chalmers School of Entrepreneurship, Chalmers University of Technology and Sahlgrenska School of Innovation & Entrepreneurship, Gothenburg University, from whom additional relevant information was received.

4.2.2.2 Data samples

The analyzed data sample consists of the 10 largest pharmaceutical companies, based on their total revenue in the pharmaceutical segment in 2016. The 10 largest big pharma companies were identified by using a report generated by IgeaHub (2017) and the report was validated in two different ways. First, the numbers were validated by looking up the majority of the companies' annual reports. Second, the authors analyzed annual reports from other large big pharma companies that were not included in IgeaHub's report in order to validate that their revenues in the pharmaceutical segment was less than the companies included in IgeaHub's report.

4.2.2.3 Case study

In this study, AZ was selected as the main object for the case study, due to an internship performed by the authors at the company when the research was conducted. The case study was performed in order to gain a deeper insight into one of the selected big pharma company's divestiture strategy, and in order to better compare theory with practice.

In addition to the information obtained through the other data collection methods (e.g. divestiture searches, interviews), information has been obtained through conversations at AZ as well as AZ's webpage, press releases and annual reports.

4.2.2.4 Divestiture searches

To find the major divestitures from the 10 largest pharma companies for the chosen 10-year period, 2008-01-01 to 2017-12-31, an analytic tool called CDI from Clarivate Analytics was used. This means that in order to be included in the sample, the divestiture needs to be within the determined time-period and exists in CDI. See Appendix A for CDI's inclusion criteria. The authors chose this period to be able to identify the latest trends for the largest big pharma companies.

CDI allowed the authors to find the required data. To find the required data in CDI, and to exclude all irrelevant data, the advanced search alternative on CDI's tool was used, and all deals that included some sort of divestiture was searched for. This resulted in a search on five different types of deals, namely:

- *Company - Joint Venture*
- *Company - In whole or part³*
- *Drug - Asset divestment*
- *Patent - Asset divestment*
- *Technology - Asset divestment*

4.2.2.5 Interviews

A total of six interviews was performed. All interviews except for one was performed in a semi-structured way and the other interview was performed in an unstructured way (Bryman & Bell, 2011). See table below for a list of all interviewees.

Table 5: List of all interviewees.

Interviewee	Role	Organization
Bengt Järrehult	Former Adjunct Professor. Current CEO.	Chalmers University of Technology. Beng(t) AB
Ian Kirk	Vice President Business Development Operations	AZ
Jane Buus-Laursen	Senior Director Business Development	AZ
Katarina Emanuelsson	Business Development Associate Director	AZ
Magnus Björsne	CEO BioVentureHub	AZ
Martin Olovsson	CEO	OnDosis

³ CDI named this type 'Company - M&A (in whole or part)', which included divestitures of units, departments, facilities, JV's as mergers, and more. A decision was made to call this 'Company - In whole or part' due to minimize the risk of misinterpretation.

A framework created by the authors, based on the literature of Bryman and Bell (2011), Roulston, deMarrais and Lewis (2003) and Silverman (2013), was used when the interview questions for the semi-structured interviews were constructed. The aim with the framework was to recognize which RQ(s) that the interviews would help to answer and to identify what kind of data that will be gathered through the interviews, i.e. qualitative or quantitative data.

Before the interviews were conducted, the interviewees were contacted in order to set up the interview preferences and to give them the prepared questions and some background information. The general preferences that were decided on with the interviewees before the interviews were whether the interviewee wants to be anonymous, if the interviewee agreed to be recorded, and to make sure that the interviewee understood that the information he/she gave during the interview will be made public. Furthermore, in Appendix B, the reader can find the complete list of all questions that were prepared for the interviews.

The participant in the unstructured interview was asked about his research in relation to divestitures. The participants in the semi-structured interviews were asked questions about AZ's divestiture strategy as well as some questions regarding the data results from CDI. The general aim for the prepared questions was to encourage the interviewees to speak freely and at length about AZ's strategy and at the same time covering the information that the authors were interested in and needed for the research.

Furthermore, the aim of the prepared interviews questions was not to read these out verbatim but to give a starting point and framework for the interviews. All prepared questions were not asked to all interviewees and questions may have been asked during the interviews which are not included in the prepared document.

4.2.3 Analysis of data

Once the data had been collected in regard to the divestitures created by the big pharma companies, the data was analyzed and compared to existing literature, both in regard to the types of divestitures and the reasons for creating divestitures. The aim of this comparison was to compare theory and practice with regards to the types of divestitures and the reasons for creating divestitures.

Further, the answers collected from the interviews were analyzed and compared in two ways. First, it was compared with the existing literature. Second, it was compared to the data obtained from the divestiture search. The aim of this comparison was to compare theory and practice, with regards to the reasons for creating divestitures, as well as to compare the data obtained through the divestiture search with the information obtained through the interviews.

4.3 QUALITY OF DATA

This thesis includes both qualitative and quantitative research, however, the thesis was analyzed from a qualitative perspective since the authors of this study believed this was the most appropriate way since the majority of the study is qualitative. Therefore, according to Bryman and Bell (2011), should the quality of this study primarily be based on two aspects, the validity and the reliability, which is addressed below.

4.3.1 Validity

The validity can be interpreted as how truthful the research study is (Silverman, 2013). Further, Bryman and Bell (2011) distinguished validity into two categories, internal validity and external validity, which are analyzed below.

Internal validity refers to the credibility of the research results and whether or not there is a good match between the researchers' observations and the theoretical ideas they establish, i.e. how believable are the research results (Bryman & Bell, 2011). One aspect that has been thought of, that could increase the internal validity of the study, is that the authors would obtain a more accurate data collection, regarding the big pharma companies deals, if a manual search also was included. Nonetheless, analytic tools, like CDI, are very suitable for this type of work since they use the same algorithm and inclusion criteria. In other words, even though the numbers may not be 100% correct, an assumption was made that the proportion of error for the included companies will be the same. Thus, the conclusion in this thesis will be valid in relation to the internal validity.

External validity refers to the transferability of the research results, i.e. if the research results can be generalized beyond the specific context and applied to other contexts (Bryman & Bell, 2011). Some parts of the thesis, such as the types and definitions of divestitures, what divestiture to choose and reasons for divestitures, can be used and applied to other contexts as well. However, the results and conclusions, with regards to the amount and what types of divestitures, in this thesis cannot be applied outside the pharmaceutical industry since the other industries do not share the same context (e.g. a shifting business model from 'bigger is better' towards 'leaner and focused', the enormous importance of protecting each asset through IP, the large number of investments that are required to develop the asset, and the huge risk associated with developing new asset).

4.3.2 Reliability

The reliability can be interpreted as how repeatable the research study is (Silverman, 2013). According to Bryman and Bell (2011), the reliability of a qualitative research study is dependent on two variables, internal reliability and external reliability, which are analyzed below.

The internal reliability refers to what degree the researchers, if there is more than one, agree on what they observe, and if they are affecting the results of the observation (Bryman & Bell, 2011). The authors have thought of four aspects which increased the internal reliability of the study in relation to the interviews. First, both authors were present and asked questions during all interviews and the authors also discussed the interviews afterwards to make sure the authors had a common view. Second, all interviews were recorded, transcribed and analyzed a second time between the authors after the interviews. Third, the authors had the possibility to send questions to the interviewees after the interviews to eliminate any uncertainties. Fourth, AZ approved the thesis before publication to make sure that the thesis does not include any confidential information.

With regards to the data obtained from CDI, both authors analyzed all data together to make sure the authors agreed on the primary reason behind the divestitures. If the authors were not in an agreement of the primary divestiture reason, a decision was made to refer this divestiture as *Unclear*.

The external reliability refers to which extent a research study can be replicated (Bryman & Bell, 2011). Five aspects have been thought of by the authors to increase the external reliability. First, the authors have shown what combination of keywords they used and where they searched for the literature. Second, the authors made it clear on how they identified the included companies. Third, the authors have explained in detail how they found the divestiture deals for the included companies. Fourth, the authors have explained in detail how they have analyzed the divestiture deals. Fifth, all interviews except for one were semi-structured and the prepared questions that was sent out to the interviewees before the interviews can be found in Appendix B. For the above-mentioned reasons, the authors believe that the external reliability of the thesis is high.

5 RESEARCH FINDINGS & ANALYSIS

This chapter presents this study's research findings and the analysis of the collected data as well as from the performed interviews. These findings will be further elaborated in chapter 6. This chapter is divided into three sections: Big pharma divestitures, Reason for divestitures and AstraZeneca's divestiture strategy. Hence, this chapter will answer three of the sub-research questions:

RQ3: What types of divestitures do the largest big pharma companies create?

RQ4: What are the reasons why the largest big pharma companies create divestitures?

RQ5: What are the reasons behind AstraZeneca's divestiture strategy?

5.1 BIG PHARMA DIVESTITURES

Through CDI, a total of 110 deals was identified from the 10 largest big pharma companies⁴, for the selected period from 2008-01-01 to 2017-12-31⁵. The companies were chosen and ranked based on their revenue in their pharmaceutical segment for the year of 2016. See table 5 below for a full list of the included companies.

Table 6: The 10 largest big pharma companies by revenue in their pharmaceutical segment for the year of 2016. The companies are ranked based on their revenue in the pharmaceutical segment 2016.

Rank	Company	Revenue pharmaceutical segment 2016 (million dollars)
1	Pfizer (US)	52 824
2	Roche (Switzerland)	39 494
3	Sanofi (France)	35 850
4	Merck & Co. (US)	35 151
5	Johnson & Johnson (US)	33 464
6	Novartis (Switzerland)	32 562
7	Gilead Sciences (US)	29 953
8	AbbVie (US)	25 638
9	AstraZeneca (UK)	23 002
10	Amgen (US)	22 901

⁴ CDI includes the big pharma companies' subsidiaries

⁵ One of the including companies, AbbVie, was founded in 2013. Hence, the data from AbbVie is not from a 10-year period.

When the data found in CDI was analyzed, it was noticed that two deals should be excluded from the analysis. For one of the deals, the divestiture company was Solvay Pharmaceuticals, a subsidiary of Abbott Laboratories (Bloomberg, 2018), which is not one of the included companies and should, therefore, be excluded from the analysis. For the second deal, the divestiture company was Icagen, which today is a subsidiary of Pfizer (Pfizer, 2011). This deal was made in 2010, which was one year before Pfizer acquired Icagen, and should, therefore, also be excluded from the analysis. This resulted in a total of 108 deals were included in this analysis, see figure 11 below.

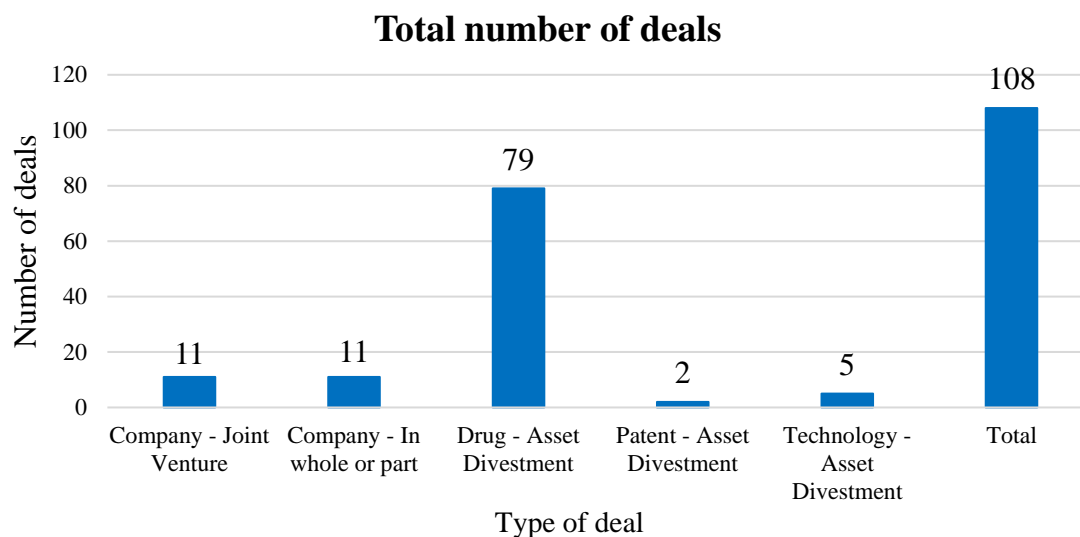


Figure 11. Shows the total number of deals identified and analyzed in the study, divided among the different deal types based on CDI's search queries.

The deals are divided into five different deal types, based on the search queries from CDI. Out of 108 deals, 79 divestitures were in relation to *Drug - Asset divestment*, a finding which was not surprising given that all 10 investigated companies operate in molecule-/drug development. *Company - Joint Venture* and *Company - In whole or part* had 11 deals respectively. Further, both *Technology - Asset divestments* and *Patent - Asset divestments* were relatively uncommon, a total of five and two deals respectively. A potential reason for a low number of *Technology - Asset divestments*, according to the authors, could be that the company focus its resources on developing and divesting pharmaceutical molecules and, therefore, do not have the resources to divest the technology. A potential reason for a low number of *Patent - Asset divestments*, according to the authors, is when these companies divest their pharmaceutical molecule assets, they also divest their patents in relation to those assets and this deal only counts as a *Drug - Asset divestment*.

One interesting insight obtained from the analyzed data is that 10 out of all divestitures involved the selling of facilities. AZ, Pfizer and Roche divested two facilities each, and Merck & Co., Johnson & Johnson, Sanofi, and Amgen divested one facility each during the selected 10-year period. According to the interviews, the primary reasons for these divestitures are for the parent company to obtain *Short-term financial gain* or as a consequence of a strategic decision.

Figure 12 below shows the number of deals made per year for all companies combined. In 2008, the number of divestitures was 2 which increased to 12 in 2012. In 2013 the divestiture activity experienced a dip and reached a low point, with as few as 2 deals. In 2014, the divestiture activity increased substantially to 13 deals and the divestiture activity peaked in 2016 with 21 deals. The three last years, 2015-2017 stands for 53% of all divestitures and a fair assumption to this vast increase of divestitures is the shifting business model, i.e. moving from a 'bigger is better'-model to a 'leaner and focused'-model, according to Peruffo, Pirolo and Nenni (2014) beliefs.

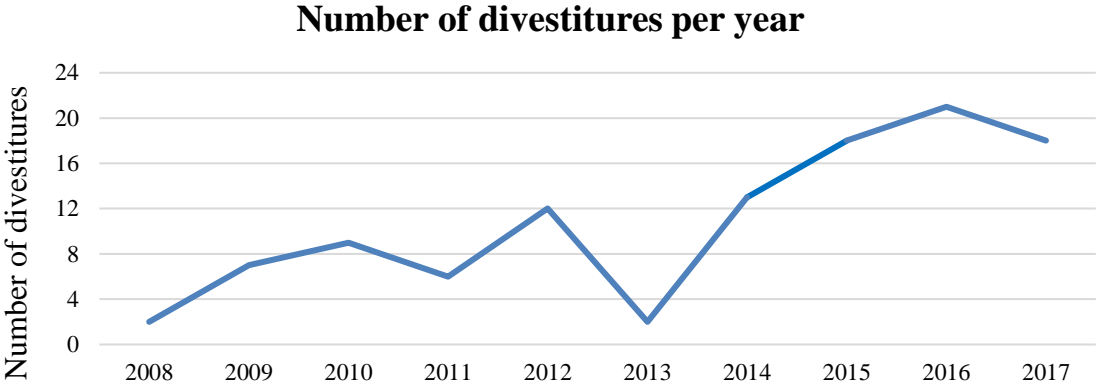


Figure 12: Shows the number of divestitures each year for the 10 big pharma companies combined in the 10-year period.

With regards to the included companies, an insight that was found is that the divestiture activity is very dissimilar among the big pharma companies. The three most active companies with regards to divestitures, AZ (22 deals), Novartis (21 deals) and Pfizer (18 deals), are involved in 56% of all divestitures, whereas the three least active companies with regards to divestitures, AbbVie (0 deals), Amgen (2 deals) and Gilead Sciences (3 deals), are involved in only 5% of all divestitures. Figure 13 below shows the total number of deals made by each big pharma company.

“I believe that we have performed more divestitures than the other big pharma companies, mainly due to the expiration of some of our major patents” -AZ

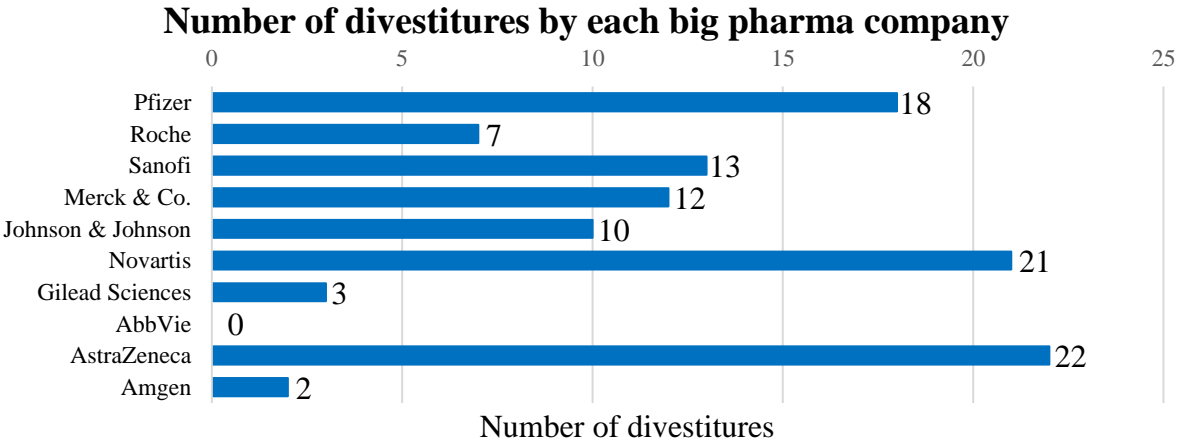


Figure 13: Shows the number of divestitures by the 10 big pharma companies individually. The companies are presented according to their revenue in the pharmaceutical segment in 2016.

Figure 14 below illustrates the divestiture trend for each big pharma company. In 2008, the divestiture activity was low for all actors, followed by an increase in divestiture activity for the majority of the big pharma companies. Between 2008-2013, Pfizer performed the most number of divestitures. In 2013, all big pharma companies experience a drop in activity except for Merck & Co. that was very steady throughout the analyzed period. After 2013, the divestiture activity for the majority of companies experienced an increase again which was larger than the period before 2013. Between 2013-2017, AZ and Novartis were the two companies that performed the most number of divestitures.

Number of divestitures per year by each big pharma company

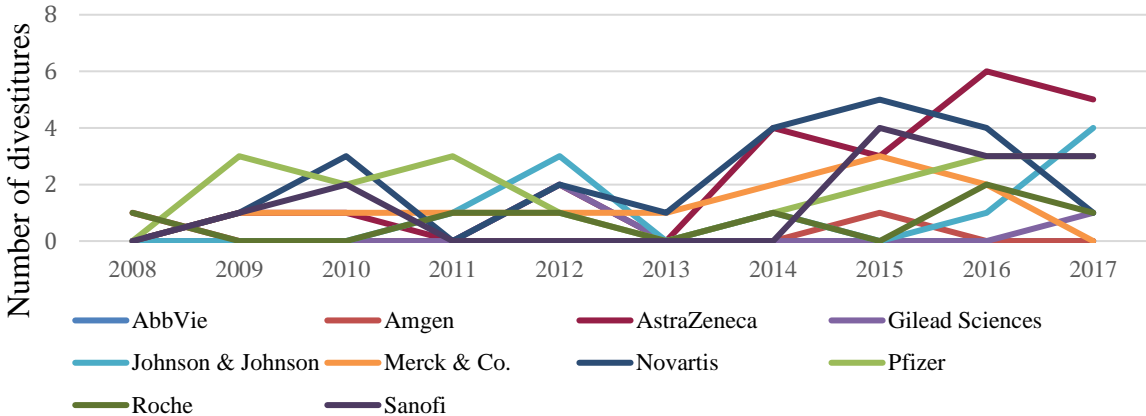


Figure 14: Shows the number of divestitures each year for the 10 big pharma companies individually in the 10-year period.

A clear trend that was obtained regarding what type of divestiture that are being made within the big pharma companies, is that 89% of all divestiture deals made is sell-offs and the remaining 11% divestiture deals is JVs, see figure 15 below. This finding, therefore, supports the first hypothesis: *Sell-off is (by far) the most common divestiture type for big pharma companies.* A reason for this finding is that these assets are most easily divested through sell-offs and a reason for creating JVs is to increase the likelihood of success as well as reducing the cost of failure. Further, a reason for why the remaining divestiture types: spin-off, split-off and equity carve-out was not found in the analyzed data, can be due to the relatively huge amount of effort and work needed to create these kinds of divestitures.

Types of divestitures

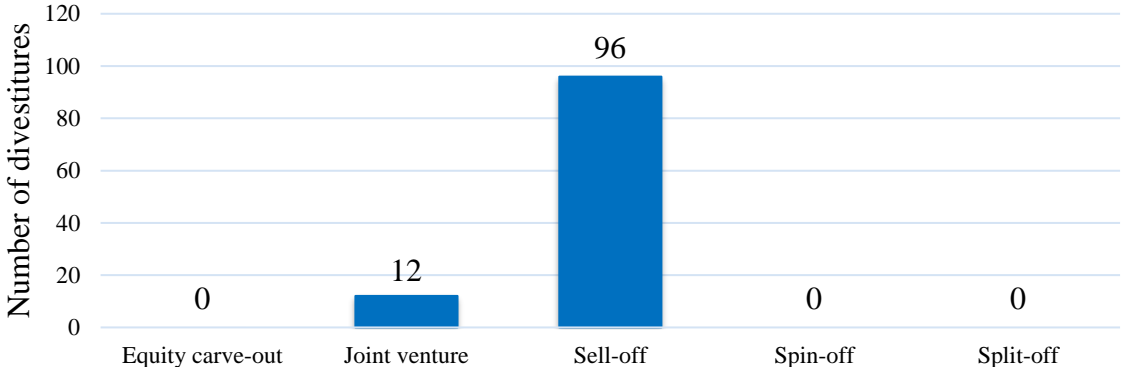


Figure 15: Shows the types and number of divestitures for the 10 big pharma companies combined.

According to the data, AZ was not the only most active company with regards to overall divestiture activity, but also in the split lead when it comes to creating JVs. Figure 16 below shows the number of created JVs by the 10 big pharma companies. The gathered data shows that two of the analyzed companies, AZ and Sanofi, stood for $\frac{2}{3}$ of all JVs, and only $\frac{1}{2}$ of the analyzed companies have created one or more JV during the analyzed period. More specifically, AZ and Sanofi have created four JVs respectively, Merck & Co. have created two JVs, Novartis one and Pfizer one for the selected period. The information obtained from the interviews support the lower number of created JVs compared to sell-offs among the 10 big pharma companies, mainly due to the relatively large complexity of starting a joint company as well as the management and termination thereof. Still, collaborations do occur among the big pharma companies according to the interviews, but then in form of co-developments, leading to that no new legal entities are created, and/or no assets are being divested.

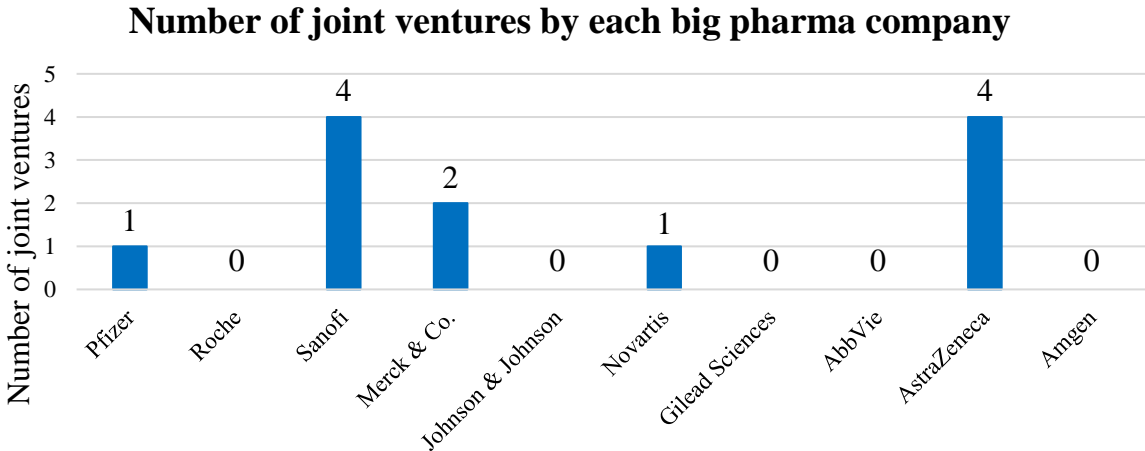


Figure 16: Shows the number of joint ventures by the 10 big pharma companies individually.

Figure 17 below shows the number of sell-offs and JVs per year by the big pharma companies combined. As seen below, the increase in divestiture activity is solely driven by the increase in performed sell-offs, whereas the creation of JVs has been relatively steady throughout the analyzed period.

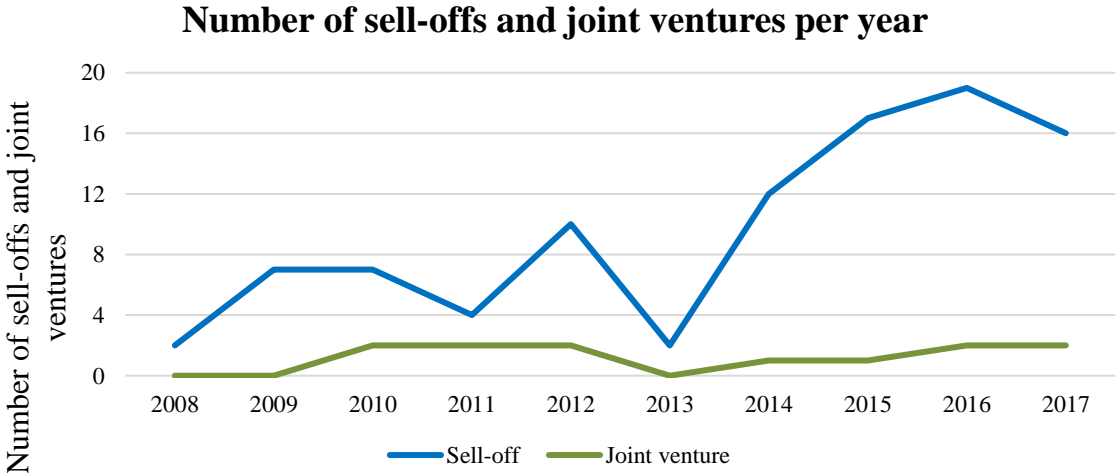


Figure 17. Shows the number of sell-offs and joint ventures each year for the 10 big pharma companies combined in the 10-year period.

5.2 REASON FOR DIVESTITURES

In theory, multiple reasons to create divestitures exist (see section 2.3). Figure 18 below shows the identified primary reasons for creating divestitures, together with how many divestitures that have been made within each of the two categories, based on the data gathered from CDI. Deals that are placed in *Short-term financial gain* are divested assets that are considered to be within the companies' core activities, as such, these assets are divested primarily in order for the companies to generate cash. *Strategic focus* refers to divested assets that are outside of the companies' core, hence moving towards the 'leaner and focused'-model, whereas all JVs falls within *Innovative experiments & risk reduction*. *Regulatory, legal & contractual issues* refer to deals in which the parent companies were required to divest these assets because of a prior deal made by the company, or to be able to complete another deal. No information could be obtained from press releases, annual reports or CDI about the three remaining deals. Hence, these deals were marked *Unclear*.

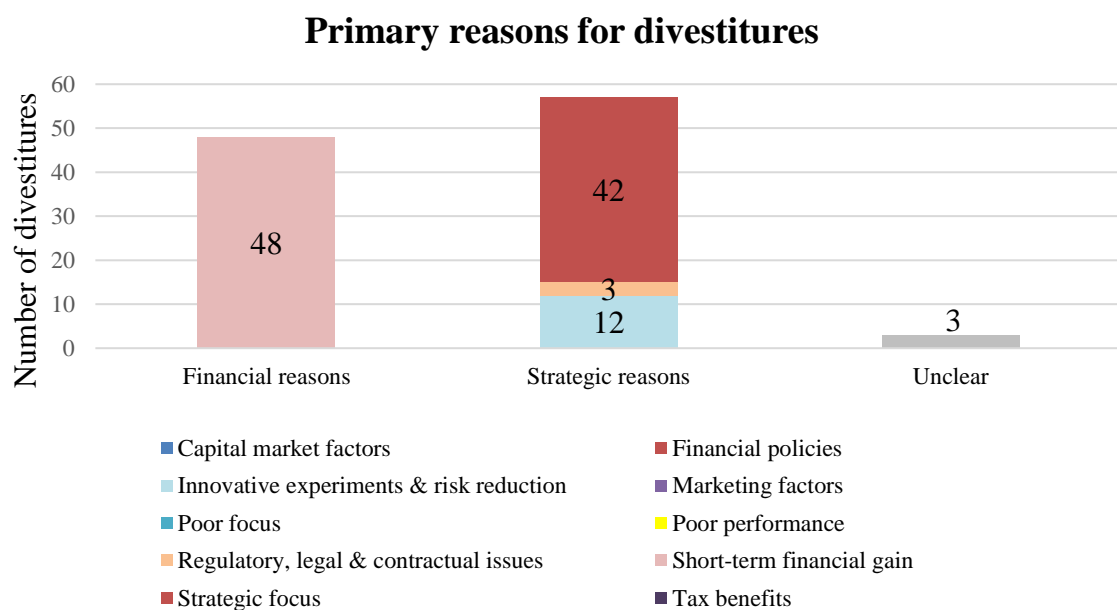


Figure 18: Shows the reasons for divestiture divided into the two main categories: Financial reasons and Strategic reasons.

The data show that the most common reason (53% of all deals made) for the big pharma companies to create divestitures are for *Strategic reasons*, i.e. due to *Innovative experiments & risk reduction*, *Marketing factors*, *Poor focus*, *Poor performance*, *Regulatory, legal & contractual issues* and *Strategic focus*. These findings, therefore, somewhat support the second hypothesis: *The most common reason for a divestiture is due to the parent company's strategic reasons*. Further, the majority of the strategic reasons are due to the *Strategic focus* (42) and the remaining strategic reasons are due to *Innovative experiments & risk reduction* (12) and *Regulatory, legal & contractual issues* (3). All the financial reasons are due to *Short-term financial gain* (48).

Figure 19 below shows the primary reasons for creating divestitures by each big pharma company, together with how many divestitures that have been made for each primary reason. As seen in the figure, Pfizer is the leading actor when it comes to creating divestitures due to *Regulatory, legal & contractual issues*. Further, Novartis is the leading actor of creating divestitures to obtain *Short-term financial gain*. AZ has shown to be the leading actor of creating divestitures due to *Strategic focus*, as well as the split leading actor, together with Sanofi, when it comes to creating divestitures due to *Innovative experiments & risk reduction*.

Primary reasons for divestitures by each big pharma company

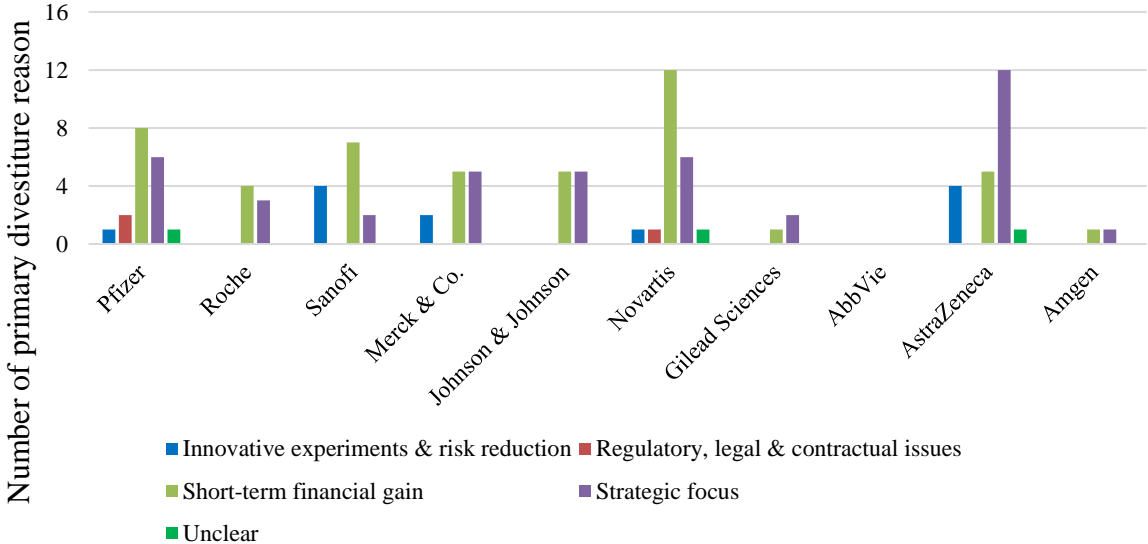


Figure 19: Shows the primary reasons for divestiture for the 10 big pharma companies individually.

5.3 ASTRAZENECA'S DIVESTITURE STRATEGY

It is clear from the collected data that when it comes to divestitures, AZ is in the top of performed divestitures and that sell-offs is the most common type, see figure 20 below. This finding is also supported from the interviews with AZ employees that sell-off, internally called out-bound, is the most common type of divestiture, as well as that JV is more common compared to the other types.

*"Sell-off, or out-bound that we internally call it here at AstraZeneca, we usually call divestment or out-licensing"
-AZ*

Furthermore, according to the interviews, the two primary reasons for why sell-offs is the most common divestiture type is that this type of divestiture is the least resource-demanding choice and that they result in a direct infusion of funds into AZ.

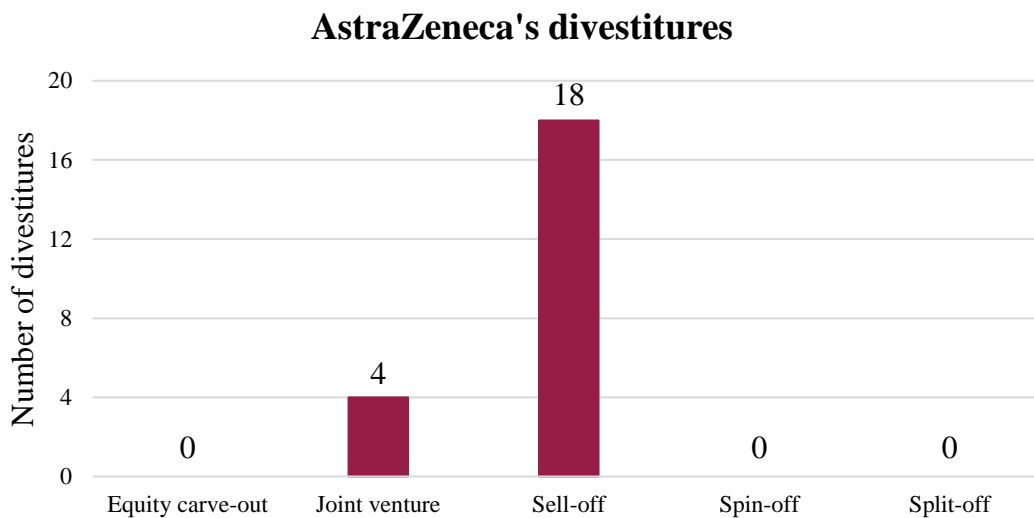


Figure 20: Shows the number & type of divestitures by AstraZeneca.

Figure 21 below shows the increased divestiture activity AZ experienced during the analyzed period. According to the interviews, the main reasons for that divestitures has increased over the last six to seven years is due to changes in leadership (new CEO), blockbuster patent expirations (e.g. patents for Crestor and Losec), as well as the decision to narrow down the company's core activities to just three focus areas.



Figure 21: Shows AstraZeneca's divestitures each year in the 10-year period.

According to the data gathered from the interviews, it is clear that divestitures have become an important part of AZ's business strategy over the past years. AZ's divestiture strategy involves many considerations, primarily regarding whether or not the asset is included in their core activities. In addition to this, the strategy is slightly different depending on what stage the asset currently is in. The two stages are internally referred to as early- and late stage. Early stage is when the asset is in pre-clinical stage, in phase 1 or phase 2, whereas late stage is when the asset is in phase 3 or when the asset is launched and is on the market. Furthermore, a late stage asset requires relatively lesser work in terms of development and marketing, compared to an early stage asset, since this asset already has a market value and has shown its potential. An early stage asset does not tend to generate as much revenue and requires much more investments since the asset's value and potential are more uncertain. In addition to this, divesting an early stage asset obtains a higher risk for the divesting company since the potential value of the asset is unclear, which can result in that the divesting company divest an asset significantly under the asset's true market value.

From the interviews, it was found that ethical-financial responsibilities play a role when creating divestitures with regards to what stage the divested asset currently is in. The ethical question most often arises in early stage developments, when divesting the asset may result in a net loss versus placing the asset on the shelf, even though the research shows promising results. The divestitures of early stage assets happen rarely as it is more common to see co-developments through collaborations in order to be able to keep the IP ownership. If an early stage asset is divested through a divestiture (sell-off), AZ sells the asset to actors whom they know has an established infrastructure and the muscles to further develop the asset. By doing so, AZ has the reassurance that this product has the best chance to be launched and be available for the patients.

"We always find a way of getting the product to the market, either through us or externally, since we always have the patients in mind"
-AZ

Further, as aforementioned no spin-offs could be identified in the collected data, although information from interviews says otherwise. According to the interviews, AZ has created at least two number of spin-offs during the analyzed period (Albireo & Ondosis). The main reasons for creating a spin-off, according to AZ, is to obtain long-term financial gain without having to develop the asset themselves, as well as not having the asset affecting the company's P&L. Given this, the parent company can draw from the benefits of the spin-off, without letting it affect their P&L, which is a strategy that has been implemented by AZ. A spin-off is also a solution for an early stage asset when the company see value in the asset but the financial means to continue to develop the asset currently don't exist, when external actors which could be potential buyers undervalue the asset, and/or when it does not exist a buyer that can utilize the asset optimally.

However, creating a spin-off is a big risk and they do not generate any short-term benefits for the parent company since this transaction of the asset does not generate any cash but only a minor, often 19.9%, ownership in the newly created company. The above-mentioned findings in relation to when and why AZ

"Spin-off is a lot of work, and we don't get a lot of short-term benefits, so as long as we do them for the right reasons" -AZ

creates spin-offs supports the third hypothesis: *Spin-off is the first divestiture option when the asset is believed to be undervalued by external actors, when the tax benefits outweigh the valuation by external actors, when the divested asset is very innovative, and/or it does not exist a buyer that have the capabilities to utilize the asset efficiently.*

A big part of AZ’s divestiture strategy is finding the right buyer for the sell-off, right partner and CEO for the JV, and right CEO for the spin-off. In a sell-off, the deal is adjusted to the buyer’s capabilities. In some cases, the initial objective behind an asset divestiture, and type of divestiture, turns into another sort of deal in the end. One example of this could be when an idea of a complete sell-off becomes a sell-off or license agreements only for a certain region since the buyer does not have the capabilities to optimally utilize the asset globally. This is further strengthened by the fact that depending on what the buyer’s long-term goal with the asset is, hugely impact what kind of divestiture and transaction that will proceed. Moreover, with regards to JV and spin-off, it is not entirely the asset that holds the value, but it is also the person/people that will drive the company forward.

”This is something that makes AstraZeneca stand out when it comes to divestitures, that we fit the deal to the buyer’s capabilities”
 -AZ

The decision of creating divestitures lies in the relation between AZ’s assets in their pipeline and accessible revenue. All assets are prioritized and those assets that fall outside of what is financeable has the possibility to be divested, either through a divestiture or a licensing deal. From the 108 divestiture deals analyzed in this study, *Short-term financial gain* and *Strategic focus* are the two top reasons for divestitures, and AZ is no exception. Figure 22 below clearly shows that AZ’s divestitures are mostly due to *Strategic focus*, a fact that is confirmed by the interviewees. Nevertheless, in many of these cases, *Short-term financial gain* and *Strategic focus* go hand-in-hand, where a short-term goal of generating financial means are reinvested in the company’s long-term goals of developing their core activities and becoming a leading actor in these areas.

”Divesting due to outside core business or to generate cash is very common” -AZ

“During the last 3-4 years, divestment has taken a whole new life, where we have been more focused on what we want to keep in our portfolio and what we want to sell”
 -AZ

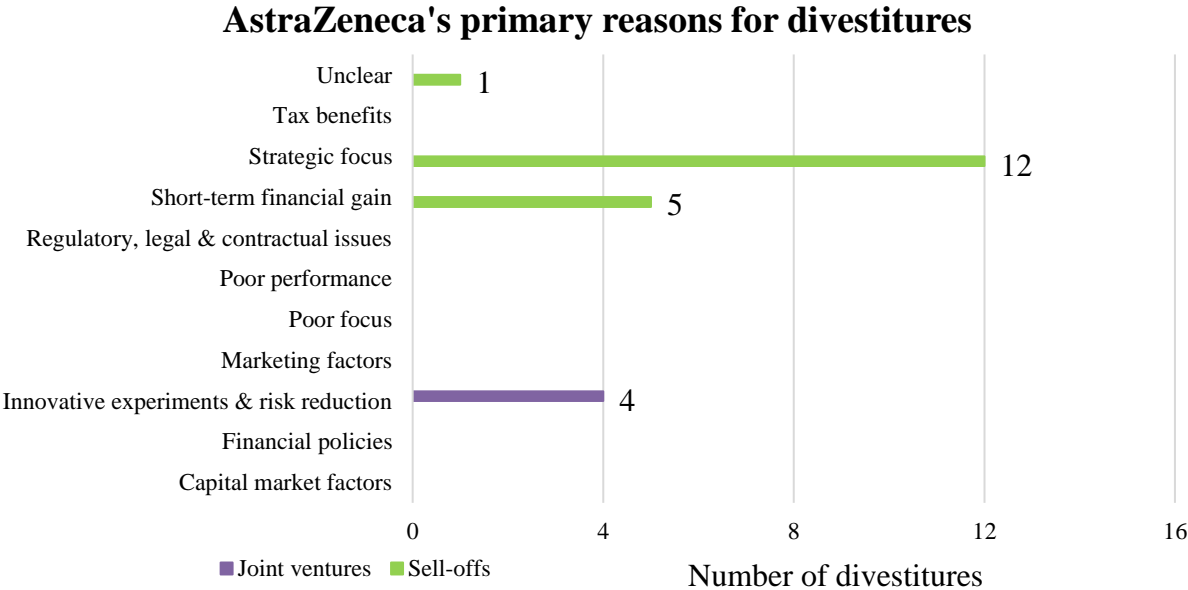


Figure 22: Shows the number of divestitures by AstraZeneca, divided between Sell-offs and Joint Ventures, & the primary reasons for these divestitures.

The above-stated findings support the fourth hypothesis: *The primary reasons why AstraZeneca divest through sell-off is to receive a direct infusion of funds which can be used for developing new innovative medicine which is within the parent company's core activities.* In some of the analyzed deals, however, the purpose of the divestiture is solely due to narrowing down core business or to generate cash, indicating that these reasons do not always go hand-in-hand.

According to the employees at AZ, the company have a strong clinical pipeline. Still, the expirations of AZ's blockbuster patents, as well as the increased R&D expenses, which is a progression of a problem that was introduced in the introduction chapter, has resulted in that all assets cannot be financially supported. Due to this, AZ created, what is referred to in their annual reports as *Externalization revenue* introduced in 2014, a section dedicated to collaborations and divestitures. The *Externalization revenue* has increased more than 100% from 2015 to 2017, see table 6 below. One example of a deal where generating cash is the primary objective, i.e. when *Short-term financial gain* outweighs *Strategic focus*, is a collaboration between AZ and Merck & Co., where an asset within AZ's core (oncology) was shared. The reason behind this collaboration was that Merck & Co. had a complementary asset and the potential of the combined assets could reach far greater value than what AZ's asset had on its own.

Table 7: AstraZeneca's Externalization revenue 2015-2017. This information is gathered from AZ's annual reports 2015, 2016 & 2017.

Year	Revenue (million \$)	The actual rate of exchange (%)
2015	1067	140
2016	1683	57
2017	2313	37

6 DISCUSSION

This chapter discusses the research findings from the gathered data as well as the interviews in relation to chapter one, Introduction, and chapter two, Theory. The chapter is divided into six sections. The first five sections discuss the sub-research questions 1-5, and the last section discusses the main research question. Hence, this chapter will discuss the following research questions:

RQ1: What are the existing types of divestitures in theory?

RQ2: What are the reasons why companies create divestitures in theory?

RQ3: What types of divestitures do the largest big pharma companies create?

RQ4: What are the reasons why the largest big pharma companies create divestitures?

RQ5: What are the reasons behind AstraZeneca's divestiture strategy?

MRQ: How can AstraZeneca improve their divestiture strategy by analyzing the existing literature and divestiture trends in big pharma?

6.1 DIVESTITURE TYPES - IN THEORY

It exists many definitions on what a divestiture is, as well as on four of the six types of divestitures, however, definitions on two of the divestiture types could not be found (split-off and split-up). If we analyze the definition made by Cumming and Mallie (1999): “*a divestiture is a disposal of a division or controlling interest in a subsidiary company*”, we can see that this is an open definition that only have one inclusion criterion. This results in that all of our divestiture types are included in this definition since they all meet this one criterion. We think that this open definition gives divestitures justice, compared to Brauer's (2006) definition: “*a firm's adjustment of its ownership and business portfolio structure via spin-off, equity carve-out, split-up or unit sell-off*”, since this is a closed definition which excludes some of the divestitures that were chosen to be included in this study. Additionally, from the literature review, it was found that JV is not a divestiture type that is commonly included. Due to the many similarities between a JV and the other types of divestitures (see table 2), we think that this type of activity should be considered a divestiture activity.

According to the interviews, the identified divestiture names are not commonly used in practice. We believe that as long as there are no misunderstandings between the included parties, there is no real benefit of using the names as the theory does, except for that it might be easier to track the companies divestiture activity. However, using the names defined in theory decrease the likelihood of misinterpretation as well as makes the types more easily researchable. One potential reason for why companies decide to use other terminology, compared to the theory, is since the types of deals the company performs does not always fit into one type of divestiture defined by the theory.

6.2 REASONS FOR DIVESTITURES - IN THEORY

We have identified several divestiture studies that include a smaller comparison section which lays out the reasons for creating one or two types of divestitures. To our surprise, no substantial comparison section has been found in relation to reasons for creating divestitures. In addition to this, no study has been identified where the reasons for creating divestitures is one of the main sections of the paper. Potential reasons for the lack of research is that the researchers may only want to analyze the divestiture types that have specific similarities and differences, analyze the most common divestitures and/or that this type of study is relatively more time-demanding.

6.3 BIG PHARMA DIVESTITURES

As mentioned in the previous chapter, there is no surprise that the clear majority of the deals are related to the pharmaceutical molecules as this is the main focus for these big pharma companies. When these companies divest their pharmaceutical molecule assets, they also divest their patents in relation to those assets. This explains why the *Drug - Asset divestment* is the largest and *Patent - Asset divestment* is so low. Additionally, a second potential reason for why the *Patent - Asset divestment* shows a low number could be that the big pharma companies often use licensing deals instead of divestitures for patents as they want to keep the IP ownership. It was also found that very few divestitures were in relation to the technology (e.g. innovative devices). A possible reason for why the number of these deals are so low is due to the fact that the big pharma companies are focusing on pharmaceutical molecules. This fact was also confirmed by the interviews, even though the technology itself has the potential of being a stand-alone unit and a great value, it is not within the focus for the company and therefore many of these developments ends up on the shelf or is divested. The finding that 10 of the deals included the selling of facilities was not expected. Although, according to the interviewees, this amount of deals seems quite reasonable due to the fact that these facilities are quite specialized, meaning that when a company exit a certain field, they often divest the facility as well, due to it being specialized for developing the pharmaceuticals within that field. Another alternative, instead of selling a facility through a sell-off, the big pharma companies can for example utilize unused office space as venture hubs. This theory is also supported by the fact that the big pharma companies have created venture hubs during the analyzed period (e.g. AZ's BVH, Pfizer's Healthcare Hub). Further, most of the divested facility deals was to relatively small companies, that objective is believed to grow.

Our findings, with regards to the increase in divestiture activity, is supporting the prior research findings by Peruffo, Pirollo and Nenni (2014) who believes that the large pharmaceutical companies are changing their business model towards a 'leaner and focused'-model. This is further supported by the information obtained through the interviews that showed that employees at AZ believes that the expirations of blockbuster drugs, the increased (generic) competition as well as the drive of being the experts in certain areas, have resulted in that some of the big pharma companies are adopting the 'leaner and focused'-model. Our data also showed that this increase is solely driven by an increase in sell-offs, a result that is not very surprising since research has shown that this is generally the divestiture type that requires the least amount of efforts (Slovin, Sushka & Ferraro, 1995). Sell-offs also accomplish the objective to narrow down the core activities, and that this type of divestiture results in a direct infusion of funds to the parent company (Cumming & Mallie, 1999; Lee & Madhavan, 2010; Maydew, Schipper & Vincent, 1997; Prezas & Simonyan, 2015).

Moreover, the analyzed data shows that the divestiture activity, with regards to the number of divestitures for each big pharma company, is very dissimilar. As aforementioned, the top three divestiture creating big pharma companies, AZ (22 deals), Novartis (21 deals) and Pfizer (18 deals), performed 56% of all divestitures, and one thing these three actors have in common is that they all are in the *pure biopharma giants* camp according to Gautam and Pan's (2016) definition. It is also clear after analyzing the big pharma companies' annual reports that these three actors emphasize their divestitures more compared to the other big pharma companies included in the analysis. Furthermore, it is also clear that AZ is the company that emphasize it the most as AZ is the only company that has a separate section for divestitures called *Externalization revenue*.

The result, that AZ is the company that have performed most divestitures, is not very surprising since they experienced some major changes during the analyzed period. As aforementioned, AZ has narrowed down their number of core activities which naturally increase the number of divestitures. Moreover, when analyzing Novartis annual reports, we noticed that their net sales have decreased in the last years. Novartis net sales the years 2013 and 2014 were \$9,3 billion and \$10,3 billion respectively, which has decreased to \$6,7 billion in 2016 and \$7,7 billion in 2017 respectively (Novartis, 2018). Due to this decline in net sales, we believe that Novartis is trying to increase their net sales by increasing their number of divestitures. Similarly to Novartis, Pfizer's revenues have decreased slightly in four of the last five years (Pfizer, 2018). Again, we believe that the slight decrease in revenue results in that Pfizer seeks other channels, such as divestitures, for increasing their revenue. Further, the bottom three divestiture creating big pharma companies, AbbVie (0 deals), Amgen (2 deals) and Gilead Sciences (3 deals), performed only 5% of all divestitures. When analyzing their annual reports, we noticed that all three big pharma companies' total revenues have significantly increased during the analyzed period (AbbVie, 2018; Amgen, 2018; Gilead Sciences, 2018). We believe that these companies, therefore, do not focus on divestiture since they are more focusing on growing due to their increase in sales. These findings, therefore, indicates that some of the big pharma companies are moving towards the 'leaner and focused'-model, described by Peruffo, Pirolo and Nenni (2014), although not all big pharma companies are moving towards that model.

Even though the data showed a dissimilar number of divestiture activity, the majority of the big pharma companies follows the same trend. Our data shows that the majority of the big pharma companies increased their divestiture activity during the analyzed period, and common for the majority of the analyzed companies, was the decline in divestitures in 2013. According to the interviewees, AZ decrease can be explained by a change of business strategy where they adopted the 'leaner and focused'-model in 2013, which has resulted in the increase of divestitures the following years. The interviewees are, however, unaware of a particular reason for why this decrease is shown for the big pharma companies 2013. Further, the finding that the majority of the analyzed big pharma companies follows the same trend, with regards to an increase in divestiture activity, is expected since these companies operate in the same industry and, therefore, experience the same increase in (generic) competition. Because of the rise of more generic companies and the development of generic products, the original products decrease in market value, leading to that the parent company generates less revenue. The results from the gathered data indicate that the big pharma companies believe that the new business model, i.e. the 'leaner and focused'-model, shows a greater potential.

With regards to types of created divestitures, our data shows clearly what type of divestitures that is most common. The prior research performed, which hypothesis 1 is built upon, also supports the research findings with regards to that sell-off is the most common divestiture type. As previously mentioned, the second most common divestiture type was JV and the number of JVs created during the analyzed period was very dissimilar. This indicates that the big pharma companies have different opinions on the value of JVs. According to the interviews, AZ only creates JV when everything fits perfectly and when the potential value outweighs the risks. Further, the main problem with JVs, according to the interviewed employees at AZ, is that the management of the JV is very complex and that it is very hard to agree on the JV's exit strategy.

Since no theory have been identified that indicate that JV is becoming more common or more valuable, the result that the creation of JVs is stable throughout the analyzed period was expected. We believe that JV will become more common in the near future due to the advancements in other industries such as the technology industry since other competencies, that these big pharma companies do not possess, will be required.

The fact that equity carve-out & split-off showed no results in our data was likely. If the company needs a direct infusion of funds, we believe that performing a sell-off is an easier option and generates more short-term cash, compared to equity carve-out, since the equity carve-out involves an IPO and the company generally sells less than 20% (Pettit et al., 2004), which is also supported by the information obtained from the interviews. Another potential reason for why the low number of equity carve-outs is since the big pharma companies have more experience in creating spin-offs and JVs and are, therefore, more reluctant towards equity carve-outs. When it comes to a split-off, no asset is sold, meaning that the parent company gets no direct infusion of funds (DePamphilis, 2012; Pettit et al., 2004). These kinds of deals are usually very large and entails for example that a whole division, subsidiary or unit of a company becomes a new separate entity. One potential reason to why no split-offs was found among these companies are that the pharmaceutical industry and molecule development, have not experienced any major changes during the analyzed period. It could be that split-offs will become more common in the coming decades, when the technology has been even further developed and when a bigger difference in ways of treating conditions/diseases can be seen.

That the data showed no spin-offs, however, was more shocking. The information from the interviews contradict the findings gathered from CDI with regards to the number of created spin-offs. For an unknown reason, CDI has not registered at least two spin-offs (Albireo & Ondosis) that AZ has created during the analyzed period. Therefore, we assume that CDI might have missed more spin-offs created by the other big pharma companies as well. We think that the main reason this might be is due to that these transferred assets were relatively small, and that these divestitures were not publicly communicated to the same extent compared to the other types of divestitures. Nevertheless, three primary reasons exist to why the big pharma companies choose other forms of divestitures over spin-offs. The first two reasons are theories which hypothesis 3 is built upon, and the third reason is a consideration based on information obtained through the interviews. First, there are no short-term financial benefits for the parent company when creating a spin-off, and it always involves a risk that the spin-off company will not be successful, which mean that the long-term benefits for the parent company will be lost. Second, it has been understood from the interviews that one of the most important aspects is finding the right CEO, which can be very time-consuming.

Third, quite often the asset that is intended to be divested through a divestiture within these setting (the pharma industry) is quite large and therefore requires a secure and well-functioning infrastructure. Given this, placing the asset in a spin-off setting could be considered riskier for the parent company, and the likelihood of bringing that asset to the market may decrease.

Lastly, the collected data are based on publicly available information, and it is likely that these companies create divestitures that are too small, in relation to their other activities/news to be communicated publicly. We assume that the deviation between these companies are similar and therefore only reduce the validity of the data to a very small extent. Additionally, it is important to have in mind that, due to the relative small sample size and the qualitative focus this study has taken, no statistical analysis have been conducted.

6.4 REASONS FOR DIVESTITURES

Our data, which shows that the primary reason for creating divestitures for the big pharma companies are due to strategic reasons, although the margins was very small (53% strategic and 44% financial). This finding, therefore, somewhat supports our second hypothesis. Peruffo, Pirolo and Nenni (2014) believes that the shift in business model, from a ‘bigger is better’-model towards a ‘leaner and focused’-model, is one of the primary reason for the increase in divestiture activity. This idea is further supported by the fact that *Strategic focus* was the second biggest single primary reason for creating divestitures, as this reason include creating a divestiture due to narrowing down the number of core activities.

When analyzing the individual companies reason for divestitures, we found that primarily four divestiture activities stood out for four of the companies, Pfizer, Sanofi, Novartis, and AZ, where the specific primary reason for creating the divestiture was significantly larger compared to the other companies. Pfizer was the company that created the most number of divestitures for *Regulatory, legal & contractual issues*, a total of two deals. In both deals, Pfizer was mandated by the European Commission to divest these assets due to previous acquisitions. These divestitures, therefore, supports our view that *Regulatory, legal & contractual issues* are categorized as a *Strategic reason* since this divestiture is a direct result of a previous strategic action. Sanofi and AZ were the two companies that created the most number of divestitures due to *Innovative experiments & risk reduction*, a total of four deals each. This indicates that these two companies seem to utilize innovative experiments more, compared to the rest of the big pharma companies. However, information from the interviews shows that you cannot draw this conclusion based on this aspect only. According to the interviews, as well as research by Mignani et al., 2016, it is much more common that big pharma companies perform co-developments, in form of collaborations, instead of creating a new legal entity. Therefore, to be able to see which of the companies that utilize innovative experiments the most, you need to take this aspect into consideration as well. Due to the fact that this data is not publicly available, it is impossible to analyze this properly, hence, finding the most innovative experimental company based on these two aspects is not possible.

Furthermore, Novartis created the most number of divestitures due to *Short-term financial gain*, 12 deals, and as previously mentioned, we believe that this increase in divestiture is primarily driven by a decline in net sales. Lastly, AZ was the company that created the most number of divestitures due to *Strategic focus*, a total of 12 deals, and as previously mentioned, we believe that this is primarily driven by the fact that AZ has narrowed down their core activities into just three focus area. This fact was also strengthened by information obtained from the interviews that showed that AZ is more inclined to publicly communicate when deals are made due to *Strategic focus* compared to *Financial gain*.

Moreover, it was expected that some of the reasons would not be communicated publicly, especially reasons that could affect the company's brand negatively. For example, *Poor performance*, which indicate a sub-optimal utilized asset, showed zero deals in the data. One argument for why not communicating this publically could be due to that information could harm the company and thereby making the shareholders feel uncertain about the company's performance. However, we do believe that some of the deals are created primarily due to *Poor performance*, only that these deals are not communicated out to the public for this reason, but instead are communicated for other reasons such as *Short-term financial gain* or *Strategic focus* depending on the divested asset is included in the companies core or not.

Another example of a divestiture reason that is not communicated publically, hence not shown in our data, is *Tax benefits*. According to the information obtained from the interviews, and from the prior research by several authors (Canina & Klein, 1998; Schipper & Smith, 1983; Udden, 2010; Veld & Veld-Merkoulova, 2004), *Tax benefits* is a reason for creating divestitures. Nevertheless, we believe that the companies do not communicate this publicly since this is a sensitive topic that can easily be taken out of context and, therefore, is misinterpreted. These beliefs were also confirmed by the interviewees.

Quite surprisingly, some of the deals required a lot of research in order to find information regarding the reason for divestitures. This was not expected since we believed that the companies always strived to be as clear as possible when communicating to the public. Additionally, we found that only in 29% of the deals made, the parent company communicated the deal out to the public through a press release. However, according to the interviews, the parent company usually only communicate bigger deals, and when a smaller deal has been made, or if the acquiring company is of smaller size, the acquiring company send out press releases.

When only having access to public information, we believe that it is not doable to analyze multiple reasons for creating a divestiture, hence, the decision was made to only analyze the primary reason behind each deal. However, if one should have access to all the reasons for creating the divestitures, we believe that this analysis would have been more comprehensive and that more conclusions could have been drawn. In this scenario, we believe that the overall result would show the same, i.e. that the *Strategic reasons* would still outnumber the *Financial reasons*. Furthermore, we expect that the number of deals within the individual reasons would show a different result compared to our result, as well as all reasons for creating divestitures would have been used to some extent.

6.5 ASTRAZENECA'S DIVESTITURE STRATEGY

AZ took the decision to narrow down their number of core activities in order to become the leading actor in the chosen areas, instead of being one pharmaceutical company in the crowd. This decision naturally leads to that AZ started to divest more assets that were now outside of their core focus, and this is also something that we saw in our data. We believe that AZ's number of divestitures per year has reached its peak since we assume that AZ will not further reduce their number of core activities due to that they will not simply maximize their revenue only by selling pharmaceuticals within one or two therapeutic areas. As mentioned above, the creation of the *Externalization revenue* shows that divestitures are a big part of AZ business strategy, and similar sections could not be identified for the other big pharma companies when analyzing their annual reports.

Due to the other big pharma divestiture activity are smaller compared to AZ, especially when considering the size of the companies, we do not think that these companies will create a similar section since it is not being such a major part of their strategy.

According to the interviews, AZ has had a difficult time for the last decade. Additionally, it has become harder to find novel therapeutic targets, which has resulted in increasing R&D costs (Samanen, 2012). This resulted in that AZ could not financially support all their pipeline projects. This meant that AZ had two options, first they could decrease the number of pipeline projects they chose to develop, i.e. some of the pipeline projects would be put on hold. Second, they could increase the divestiture activity of both early- and late stage assets that fall outside their core in order to be able to maximize the pipeline projects.

By divesting assets that currently are on the market, AZ would receive a smaller total income from those assets compared to continue to sell those assets themselves for several years. The benefit of divesting those assets at that time is that they would receive more cash short-term that could be reinvested into the pipeline, which would result in that AZ could pursue more pipeline projects and, thereby, potentially increase their sales revenue by 2020-2025. In 2012, Pascal Soriot becomes AZ's new CEO and he believed that option two was the superior choice, even though it is riskier since he saw the benefits of becoming a world-leading expert within fewer therapeutic areas. Additionally, according to the interviews, it is too early to see if this was the best strategic choice. Further, as our data show, this business strategy resulted in primarily an increase of sell-offs, where, according to the interviews, the cash generated was reinvested into their pipeline, as hypothesis 4 predicted.

If looking at the big pharma divestiture activity, one can see that the number of divestitures is increasing for the majority of the big pharma companies which indicates that they are moving towards the 'leaner and focused'-model. Therefore, it is believed that most of the big pharma companies consider this business model to be more valuable and this also strengthen AZ choice of strategy. We agree that AZs approach is riskier, but we believe that the benefits outweigh the risks. The benefits of this approach are that AZ increases their chances of becoming the leading expert in certain therapeutic areas as well as increasing the chances of higher sales revenue in the long-run. The drawbacks of this approach are that the risk is higher due to that AZ invest more resources into earlier stage assets that show great potential, however, they might as well turn out to be non-valuable. Another risk associated with this strategy is also that the higher risk might scare off shareholders that do not see the value in 'higher risk, higher reward' type scenarios.

AZ is in the split lead, together with Sanofi, in creating JVs and, as mentioned previously, this activity is not an accurate indicator of the innovative aspect of a company. We noticed that two of AZ's JVs was together with Chinese actors, and the primary reason for these JVs was to develop and commercialize new medicines in China. This strategy is only used by Sanofi for one of their JVs which implies that this strategy is not shared among the big pharma companies. According to the interviews, creating a JV together with a Chinese actor increase the likelihood of obtaining investments in China. We also assume that the reason for creating a new legal entity with a Chinese actor instead of entering the market by themselves is primarily due to the believed intellectual property right (IPR) benefits gained by being a Chinese actor. As mentioned, we believe that the total number of JVs will increase in the future as well as in China, although we believe that we will see a decrease of JVs in China due to the benefits of being a Chinese actor will diminish as the IP legislation becomes more strict and effective (Bader, 2015).

6.6 MAIN RESEARCH QUESTION ANALYSIS

This section will analyze and discuss the findings of the MRQ:

MRQ: How can AstraZeneca improve their divestiture strategy by analyzing the existing literature and divestiture trends in big pharma?

Unfortunately, long-term abnormal return research is scarce and was only identified for spin-offs, equity carve-outs and sell-offs. These studies (Endres, 2002; Francoeur & Niyubahwe, 2009; Veld & Veld-Merkoulova, 2004; Veld & Veld-Merkoulova, 2009; Vjih, 1999) shows on average no significant or a small positive long-term abnormal return for the parent company, which indicates that divestitures may positively affect the performance of the parent company in the long-run. Further, a not as good insight but still valuable, is that all identified divestiture types show on average a positive short-term abnormal return, which indicates that they are believed by the shareholders to have a positive impact on the parent company. As all identified types of divestitures seems to have a neutral or a small positive long-term effect on the parent company as well as positively affect the parent company short-term, we believe that it is more important to focus on finding the right buyer for a sell-off, right partner and CEO for the JV, and right CEO for the spin-off, as AZ focuses on today.

Another important aspect when creating divestitures is regarding the heterogeneity in beliefs between the company insiders compared to the belief of the outside investors regarding the value of the asset. If the outside investors overvalue the true value of the asset, equity carve-out (Bayar et al., 2011) and sell-off (Prezas & Simonyan, 2015) are the two most suitable divestiture types. If the overvaluation of the asset is extremely high which results in that the acquisition premia (i.e. the difference between the estimated real value and the actual value) on the sales is higher than the tax costs, then sell-off is the recommended divestiture (Maydew, Schipper & Vincent, 1997). Performing sell-offs for non-core assets also have other benefits such as improving the managerial accountability (Canina & Klein, 1998; Markides & Singh, 1997; Schipper & Smith, 1983) as well as the governance of the company (Qian & Sudarsanam, 2007). In addition to this, if the overvaluation is on an asset that is outside the company's core activities, then sell-off is the recommended divestiture (Powers, 2001; Prezas & Simonyan, 2015). If the asset is within the company's core activities, the company can either create an equity carve-out and, thereby, take advantage of the overvaluation by outside investors but at the same time keep the control over the asset since the asset is within the company's core activities, or chose not to divest the asset at all.

Another important aspect with regard to an equity carve-out is the synergy that asset has with the rest of the company (Bayar et al., 2011). If the synergy is high, then keeping the asset within the company is recommended, and if the synergy is low, the company can divest that asset through an equity carve-out. Based on this theory, if AZ is in need of cash, we see that equity carve-out can be a suitable choice of divestiture for core asset that is being overvalued by external actors and have a low synergy with the rest of the company.

In terms of JVs, we could see that all the JV's created by AZ during the analyzed period was together with other companies within the pharmaceutical industry. As aforementioned, we believe that two of these JVs that were created in china were primarily created in order to increase the likelihood of obtaining investments as well as gaining IPRs benefits. Given that the IP rules are becoming more and more regulated within China (Bader, 2015), we do believe that creating JVs in China in the future due to the IPRs benefits will not be a beneficial strategy for AZ since the advantage of being a Chinese actor diminishes. However, we do think that AZ should keep creating JVs in the future due to the benefits of JVs as well as the increased likelihood of obtaining investments. According to research by Merchant and Schendel (2000), JVs where the parent companies are not within the same industry, and where the JV is within the parent company industry (i.e. within AZ's industry), results in more value.

Research also shows that pharmaceutical JVs results on average in higher short-term abnormal return compared to other industries (Anand & Khanna, 2000), which shows that JVs are more positively accepted in the pharmaceutical industry. Further, according to research by Reuer, Zollo and Singh (2002), it is recommended to create horizontal JVs with partners that have prior experience in creating JVs to reduce the risk of unwanted post governance alterations. For the above-mentioned statements, we believe, based on the theory, that AZ should create horizontal JVs in the pharmaceutical industry, with actors outside their industry that have prior JV experience, primarily due to two main reasons. First, to extend the combined knowledge and competencies to a greater extent compared to creating a JV with a partner in the same industry as AZ. Second, creating a JV within the pharma industry, together with an actor from another industry, shows that AZ is not only focusing on narrowing down their business and are narrow-minded, but that they are also an innovative company that strives to become the leading expert in their core activities through multiple ways. Additionally, it is worth that AZ keeps in mind what type of JV they create in order for the company to avoid double taxation.

The interviewees confirmed that AZ has at least created two spin-offs during the analyzed period, although our initial thought was that the number of spin-offs would be higher for a company like AZ. From the interviews, it was also clear that AZ does not have the intention of acquiring back a spin-off once created. Further, according to Bengt Järrehult (2018), a researcher from Chalmers School of Technology, this approach is believed to be more beneficial primarily due to acquiring back the spin-off could results in a lot of work due to the dissimilarities in culture, management and day-to-day operations. Moreover, based on the science, Bengt believes that companies can achieve a much greater return on investment (ROI) if they create spin-offs that are riskier due to that the possible upside is much higher, but the company cannot go for this option because of the negative effect failures have on the company's image. Additionally, Pettit et al. (2004) found that independent spin-off outperforms parent-controlled spin-off and Peruffo, Pirilo and Nenni (2014) believes that it is especially important to create a non-parent-controlled spin-off if the parent company's organizational structure inhibit the asset to operate optimally.

Other research concludes that the parent company should choose this divestiture type if they believe that the asset that is being divested is undervalued (Cumming & Mallie, 1999; Prezas & Simonyan, 2015; Slovin, Sushka & Ferraro, 1995), or if the parent company cannot find a suitable buyer for the asset (Cumming & Mallie, 1999; Olovsson, 2018).

Having the above-mentioned research in mind, we believe that AZ long-term value can be increased by trying to create riskier non-parent-controlled divestitures with higher potential upsides for non-core assets that cannot be utilized optimally by other actors or if they undervalue the assets. Further, it is also recommended that AZ owns 19.9% of the spin-off due to the tax benefits obtained (Cumming & Mallie, 1999; DePamphilis, 2012; Maydew, Schipper & Vincent, 1997; Powers 2001).

As for split-offs, we see no benefits, or reason, for AZ to create a divestiture like this. A split-off is only advisable if AZ, in the future, would experience a conflict of interests regarding one of AZ's core business and, therefore, choose to create a split-off for that specific core business.

In addition to all this, we believe that it is important that AZ starts to capitalize, to a larger extent, on assets that are not related to pharmaceutical molecules (e.g. innovative devices). AZ could either create a JV with a manufacturing company, sell the assets through sell-offs and/or create spin-offs for these assets. If AZ chose to create a JV together with an established manufacturing company, they can then divest other similar assets to this JV and successively increase the number of assets that the JV possesses. This strategy would also go hand-in-hand with AZ's overall strategy which is to become the leading expert within three therapeutic areas.

7 CONCLUSION

In this chapter, the conclusion based on the research findings and the discussion will be presented by answering the sub-research questions 1-5 as well as the main research question.

The purpose of this research study is to identify the major types and reasons for divestitures in theory. Furthermore, the purpose is also to analyze the largest big pharma companies' divestiture strategies and see if AZ creates divestiture for the same purposes, as well as further analyze AZ's divestiture strategy in relation to theory.

7.1 WHAT ARE THE EXISTING TYPES OF DIVESTITURES IN THEORY?

This question is answered in section 2.1, where the existing types of divestitures are presented and is further discussed in section 6.1. The authors decided to include JVs as a divestiture since it shares many similarities to the other divestiture types. The authors identified six divestiture types in the theory, which is presented below:

- *Equity carve-out*: The parent company creates a new legal entity through a non pro rata transaction and sells a part of a certain asset through an initial public offering (IPO).
- *Joint venture*: The parent company enters into a collaboration and creates a new legal entity with another, or several, other actor(s), with the goal of achieving common strategic objectives through joining portions of their resources.
- *Sell-off*: The parent company sells a certain asset to an external actor. No new legal entity is created.
- *Spin-off*: The parent company creates a new legal entity through a pro rata transaction.
- *Split-off*: The parent company creates a new legal entity through a non pro rata transaction by splitting off a certain asset (division, subsidiary or unit).
- *Split-up*: The parent company cease to exist and is broken down into a series of new legal entities through a non pro rata transaction.

7.2 WHAT ARE THE REASONS WHY COMPANIES CREATE DIVESTITURES IN THEORY?

This question is answered in section 2.3 and discussed in section 6.2. After the identification of the reasons why companies create divestitures, the authors decided to categorize the identified reasons into two main categories: *Financial reasons* and *Strategic reasons*.

The common objective for the divestitures included in the *Financial reasons* is that they directly aim to increase the financial gain for the parent company. These reasons are:

- *Capital market factors*
- *Financial policies*
- *Short-term financial gain*
- *Tax benefits*

The common objective for the divestitures included in the *Strategic reasons* is that they indirectly aim to increase the financial gain for the parent company through strategic decisions. These reasons are:

- *Innovative experiments & risk reduction*
- *Marketing factors*
- *Poor focus*
- *Poor performance*
- *Regulatory, legal & contractual issues*
- *Strategic focus*

7.3 WHAT TYPES OF DIVESTITURES DO THE LARGEST BIG PHARMA COMPANIES CREATE?

This question is answered in section 5.1 and discussed in section 6.3. The gathered data clearly shows that the vast majority of all divestitures created are sell-offs, which supports the first hypothesis, and the second most common divestiture type are JVs (89% and 11% respectively according to the analyzed data). This data was also supported by the information obtained from the interviews with employees at AZ. However, also obtained from the interviews, was that spin-offs have been created during the analyzed period, although this divestiture type is uncommon. Moreover, the data shows that the analyzed companies divestiture activity, with regards to the number of divestitures, are dissimilar. However, the majority of the big pharma companies follows the same trend, which is an increase in sell-offs. Potential reasons for this increase is due to that all analyzed actors are in the same industry and therefore experience the same increase in (generic) competition, as well as moving towards a new business model, the 'leaner and focused'-model. The three big pharma companies that are involved in the least number of divestitures, AbbVie, Amgen and Gilead Sciences, increased their revenue by a large extent during the analyzed period and is, therefore, believed not to focus on divestitures.

7.4 WHAT ARE THE REASONS WHY THE LARGEST BIG PHARMA COMPANIES CREATE DIVESTITURES?

This question is answered in section 5.2, where the primary reason for creating divestitures have been identified, and is further discussed in section 6.4. The result showed that the most common primary reason for creating divestitures is due to *Strategic reasons*, which was the primary reason for 53% of all deals made. These findings, therefore, somewhat support the second hypothesis as well as supports the findings gathered from the literature review, stating that companies are moving towards a more 'leaner and focused'-model. The three single primary reason for creating divestitures are due to *Short-term financial gain* (48 primary reason), *Strategic focus* (42 primary reason) and *Innovative experiments & risk reduction* (12 primary reason). A few differences between the big pharma reasons for divestitures have been identified:

- Pfizer was the company that did the most number of divestitures due to *Regulatory, legal & contractual issues*
- Sanofi and AZ were the two companies that did the most number of divestitures due to *Innovative experiments & risk reduction*
- Novartis was the company that did the most number of divestitures due to *Short-term financial gain*
- AZ was the company that did the most number of divestitures due to *Strategic focus*

It was also found that many of the identified reasons gave zero results, such as *Poor performance* and *Tax benefits*. This result came to no surprise since divestitures that are categorized within these reasons would not be communicated publicly due to that information like this might harm the company brand or offer no additional value.

7.5 WHAT ARE THE REASONS BEHIND ASTRAZENECA'S DIVESTITURE STRATEGY?

This question is answered in section 5.3 and discussed in section 6.5. The increase in divestiture activity is primarily driven by *Strategic focus* (the primary reason for 12 divestitures), as well as *Short-term financial gain* (the primary reason for 5 divestitures) and *Innovative experiments & risk reduction* (the primary reason for 4 divestitures). The data showed that sell-offs are the most common type of divestitures and according to the interviews is the primary reason why AZ perform sell-offs is to generate short-term financial gain, i.e. fast cash, in order to reinvest these into their long-term goals. These findings support the fourth hypothesis. Further, AZ creates spin-offs primarily to obtain long-term financial benefits without having to develop the asset themselves, as well as not having the asset affecting the company's P&L, or when it does not exist a buyer that can utilize the asset optimally. These findings support the third hypothesis. AZ also creates JVs in order to extend their competencies as well as to develop and commercialize new medicine more effectively in China.

AZ chose to implement a new and riskier business strategy that involves an increase in divestitures of non-core assets to be able to finance all their pipeline projects. Whether or not this business strategy has a positive outcome can first be validated around the year 2025. Moreover, AZ is the only company out of the analyzed big pharma companies that actively created a section, called *Externalization revenue*, in their annual report, dedicated to collaborations and divestitures.

7.6 HOW CAN ASTRAZENECA IMPROVE THEIR DIVESTITURE STRATEGY BY ANALYZING THE EXISTING LITERATURE AND DIVESTITURE TRENDS IN BIG PHARMA?

This question is discussed in section 6.6, where the authors present several potential improved divestiture strategies. No improvements have been found regarding AZ's sell-off strategy since AZ uses this divestiture type today when assets are externally overvalued and when AZ wants to divest outside core assets. In terms of externally overvalued core assets which have a low synergy with the rest of the company, equity carve-out is an attractive divestiture option. The benefits of this option are that AZ will still remain in control of the (core) assets, and at the same time take advantage of the external overvaluation.

It is proposed that AZ should continue to create (horizontal) JVs, especially together with actors from other industries. The upside of such JVs, according to research, is that these JVs are more valuable (Merchant & Schendel, 2000), as well as resulting in higher short-term abnormal returns for the parent company (Anand & Khanna, 2000). Additionally, by creating JVs with actors that are in other industries, AZ shows that they are not only narrowing down their business and are narrow-minded, but that they are an innovative company.

Further, according to the gathered data, AZ created two JVs in order to gain IPRs benefits within the Chinese market. It is believed, however, that the Chinese IP legislation is becoming more strict and effective (Bader, 2015), and this is, therefore, not a recommended strategy in the future. However, if the JV increase the chances of obtaining investments due to being stationed in China, creating JVs in China still offers some advantages which need to be taken into considerations. Additionally, if possible, it is also recommended to create JVs with actors that have prior experience in creating JVs.

AZ should dare to take riskier chances and invest more in creating spin-offs, as well as in JVs, which is a suggestion that is being supported by research. Järrehult (2018) believes that companies can achieve a much greater ROI by creating more riskier divestitures with higher upsides (e.g. creating a JV with a non-pharma parent company). Further, based on the research, it is recommended to create non-parent-controlled spin-offs with an ownership of 19.9% to take advantage of the tax benefits.

Additionally, it is not recommended to incorporate into AZ's strategy to acquire back the divestitures due to the dissimilarities in culture, management and day-to-day operations. Moreover, it is not only recommended to create riskier divestitures for non-core assets that cannot be utilized optimally by other actors or if they undervalue the assets, but also to create divestitures for assets that are not pharmaceutical molecules (e.g. innovative devices) to ensure that AZ optimally capitalizes all their assets.

8 FUTURE RESEARCH

This chapter present suggested future research of the subject based on the findings and discussion from this study.

Throughout this study, a few interesting aspects (not fitted in this study) arises that potentially could be suitable for future research. Short-term abnormal returns were identified for all divestiture types except for split-off. Hence, it would be interesting to see if shareholders also respond positively to this type of divestiture. Additionally, an even greater prediction of how divestitures affect the parent company is long-term abnormal returns, and as previously mentioned, this research is scarce. Therefore, the authors believe that future research into long-term abnormal returns for divestitures is important to more accurately analyze the effectiveness of creating divestitures.

It would be interesting to further analyze the reasons for why parent companies create divestitures. First, it would be interesting to research this area more thoroughly and see if more reasons for creating divestitures exists. Second, it would be interesting to categorize the reasons for creating a divestiture into *short-term financial gain* and *long-term financial gain* and analyze which of these categories the parent company primarily creates divestitures for. Third, it would be interesting to analyze multiple reasons behind each deal to get a more accurate picture of why parent companies create divestitures.

It would also be interesting to do a follow-up study on the finding from this thesis in 2025-2030, to analyze the effectiveness of the 'leaner and focused'-model which some of the included big pharma companies utilizes. Additionally, it would be interesting to see if the other divestiture types (equity carve-out, joint venture, spin-off, split-off, split-up) follows the trend we have seen with sell-offs (the increased activity). It would also be interesting to see whether the big pharma companies start to utilize all their assets (e.g. innovative devices) and not only the pharmaceutical molecule assets.

Finally, one interesting aspect is to analyze the correlation between M&As and divestitures, to see whether companies are primarily focusing on M&As when growing and divestitures when narrowing down, or if they utilize both strategies at the same time. For example, one could perform a similar study like this thesis, with the same included companies and under the same period, but focus on M&As instead and then compare the results with this thesis.

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APPENDIX A: CORTELLIS DEALS INTELLIGENCE'S CRITERIA

Deals prior to mid-2015 include deals:

- Between two remit companies
- Between a remit and a non-remit company
- Between a remit company and a blank company field
- Between a non-remit company and a blank company field
- For certain proprietary therapeutics/programs (drugs) for human use
- For certain patents for human use
- For certain technologies for human use
- For drug development services
- For funding and CRADAs
- Certain generics
- Joint ventures for the specific development of a program/technology
- Diagnostics, companion diagnostics, biomarkers, personalized medicine programs

Deals from mid-2015 onward include the above deals, plus:

- Medical Device deals
- OTC, ready to use or prescription products
- Distribution with pharmacies (or pharmacy networks) for general public use/distribution
- Deals between spin-off companies and their parent entity
- Plant/agricultural products
- All instruments deals
- Genetic databases or database services
- Site/location/facility acquisition, but not leases
- Bioreactors, biofuels or energy products
- Any IT/web-based information portals
- Any kind of process/manufacturing solutions
- Animal health products and technologies
- Cosmetics/anti-aging products (including moisturizers)
- Plasters/bandages/wound dressings
- Stents/devices not covered by drug development companies
- Patent litigation settlement deals

APPENDIX B: INTERVIEW QUESTIONS

Questions for interviewing the employees at AstraZeneca

The interviews were performed in order to gather qualitative data and to better understand AstraZeneca's rationale for the divestiture. The following questions were asked:

General

Can you please tell us what your job role at AZ includes and how that relates to divestitures?

Were you familiar with the different divestiture types and terminology before we introduced them?

What terminology does AZ use when talking about divestitures?

What primarily value do you believe AZ gain through divesting compared to internally developing an asset?

Reasons

What are the main reasons for creating the different types of divestiture?

- Does the strategy differ between the types (e.g. sell-off vs. spin-off)?
- Does the strategy differ between early and late stage development?
- Does the strategy differ whether AZ is in control of the divestiture or not (i.e. spin-off strategy vs. equity carve-out strategy)?

What are the primary reasons why AZ divest more often through sell-off compared to other divestiture types?

Do you think that the external asset valuation makes a difference in strategic choice for the type of divestiture (e.g. when the asset is believed to be undervalued by external actors)?

Development

How far has AZ generally developed the asset before divesting it? Does this differ from what type of divestiture it is?

Does AZ purposely develop assets that are intended to be divested? If yes, when does AZ decide to divest their assets?

Strategy

Do you believe that AZ divestiture strategy is similar to other big pharma companies strategies? If no, how and why do you think AZ differ from some, or all, of the other big pharma companies' strategies?

Does AZ have a specific strategy for press releases regarding divestitures?

Is there anything else you think is important to mention w.r.t. AZ's divestiture strategy that we have not talked about?

Questions for interviewing a CEO of an AstraZeneca spin-off

The interview was performed in order to gather qualitative data and to better understand the viewpoint of the receiving party. The following questions were asked:

General

Tell us about your company and what you do?

Were you familiar with the different divestiture types and terminology before we introduced them?

What primarily value do you believe AZ gain through divesting compared to internally developing the asset?

Reasons

Do you know the reason why AZ decided to divest this innovation?

How involved were you in the process and decisions regarding the divestiture (i.e. did you get involved early or later in the divestiture process)?

What were the primary reasons why you decided to be the CEO of the divestiture?

What do you think were the primary reasons to why AZ decided to divest this asset through spin-off compared to, for example, selling the asset to a competitor (i.e. a sell-off)?

Development

In what phase of development was the asset before it was divested?

In what phase is the development of the divested asset now?

Do you know when AZ decided that they wanted to divest this asset?

Involvement

How much equity does AZ have in your company?

How involved is AZ now w.r.t. the development of your company?

Strategy

Is there anything else you think is important to mention w.r.t. AZ's divestiture strategy that we have not yet talked about?