



Paradise Profits

- Tax Planning in Multinational Companies

A case study of Pfizer Inc.

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Abstract

In recent years, it has become increasingly evident that current tax regulations are not properly equipped to handle the business structures of multinational companies. A number of revelations and leakages have exposed how such companies, often from the US, make use of tax minimization strategies in order to shift profits and reduce tax liabilities. In this thesis, we examine the inner workings of these arrangements, and analyze the extent of aggressive tax planning in the pharmaceutical company Pfizer. In our preliminary analysis, we find that the company is able to defer large amounts of income tax by stashing \$187 billion in profits offshore, ultimately resulting in an effective tax rate of 0.28 percent in 2016. In our work to identify Pfizer's methods of profit shifting, we find evidence of, inter alia, tax-incentivized location of patents, excessive tax burden in the US and a tax-exempt CV/BV conduit structure in the Netherlands. We thereby conclude that Pfizer exploits loopholes in international tax regulations in order to significantly reduce their tax liability.

Foreword

This thesis was written as a concluding part of the Master of Science degree in Financial Economics at the Norwegian School of Economics. The research and writing was conducted during the fall of 2017.

The independent manner in which this paper was constructed provided us with a unique opportunity to devote our undivided attention to the matter at hand, and thus strive to make a contribution to the public debate. Tax avoidance is heavily disputed by governments and media alike, and our motivation to direct our efforts at the topic was driven by the captivating scope and impact of cunning tax arrangements.

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1. Introduction

1.1 Background and motivation

It has been said that nothing in life is certain except for death and taxes. In recent years, however, it has become evident that taxes are far from certain if you are a multinational company. Through aggressive tax planning, some of the world's most well-known companies, primarily from the US, have been able to exempt vast sums from taxation by shifting profits and exploiting beneficial tax treaties. As a response to the widespread criticism of tax avoidance, there has been an influx of regulation proposals from governments and international organizations, all aiming to create a more righteous system of taxation. Despite these new rules, however, it appears naive to believe that we will witness the end of systematic tax avoidance in the near future.

The various tax minimization strategies utilized by cross-border corporations have made it clear that current tax regulations are not properly equipped to handle the business flows of globalized markets. Through intricate company structures, non-transparent pricing of intellectual property and thin capitalization, multinationals are able to shift their profits to low-tax or non-tax jurisdictions. Consequently, the relatively high-taxed countries are deprived of tax revenues, which may ultimately weaken their welfare systems. It is important to underline the fact that a majority of these arrangements are legal, although the morale behind the exploitation of loopholes constitutes a continuous discussion.

Tax avoidance is never far from the headlines, and has been under particular scrutiny this latest decade. In 2012, Starbucks became the center of controversy when it emerged that they had paid £8.6 million in UK taxes on £3 billion of sales since 1998, which equates to an effective tax rate of 0.3% (Neville, 2012). The media storm that followed quickly exposed that other US multinationals like Google, Facebook and Amazon were guilty of running similar profit shifting arrangements. The following year, a US Senate Committee put Apple in the spotlight, when they revealed that the technological giant had avoided \$40 billion in income taxes over a four-year period, causing a public uproar (Gleckman, 2013). The most recent wave of headlines was triggered by the leakage of the so-called Paradise Papers in October 2017, which contained a set of 13.4 million documents relating to offshore investments (ICIJ, 2017). This

time, Nike was branded as the big culprit, as the leaked files revealed how the sports giant has made use of a complex structure in the Netherlands to avoid taxes.

In this thesis, we seek to identify the range and scope of tax avoidance strategies utilized by Pfizer, one of the world's leading pharmaceutical companies. Our choice of Pfizer as the subject of our case study was motivated by our belief that the company receives a disproportionately small amount of attention for their aggressive tax planning. Even though the pharmaceutical giant is infamous for stashing profits offshore in order to avoid taxation, the US tech industry has attracted far more of the public's attention and criticism.

1.2 Structure

This thesis consists of two main parts. In the first part, we seek to construct a foundation for understanding multinational companies, tax avoidance strategies and international tax regulations, which will act as important points of reference when examining Pfizer's aggressive tax planning in the second part of the paper.

In part one, we begin by presenting multinational companies, and in particular their choice of capital structure with regard to taxes. Next, we explain the concept of tax minimization strategies such as transfer pricing, thin capitalization and various other methods that have proved popular among the world's largest corporations. Following that, we look at some of the international tax regulations which are relevant to multinational companies, with a focus on standards related to transfer pricing and thin capitalization. Lastly, we end the first part of this thesis by reviewing relevant literature, where we look at empirical studies that have investigated multinationals' tax avoidance.

In part two, the case study of Pfizer starts with an introduction of the pharmaceutical company's operations, before we analyze financial reports in order to see whether their reported tax liability is an accurate reflection of their tax payments. After that, we make use of publicly available information in an attempt to analyze whether Pfizer utilizes known methods of tax minimization. Finally, we give an account of recent developments within international tax regulations which are likely to affect multinational companies' tax planning in the future.

2. Multinational Companies

Globalization has created the conditions for a greater presence of multinational companies, whose influence on the world economy has grown strong through their increased access to important factors such as capital. In this chapter, we start by presenting a definition of multinational companies, before we focus on how multinational companies can construct a tax-efficient capital structure and optimize their mispricing of internal interest rates. Lastly, we look at how multinationals can organize their financial structure.

2.1 Definition

When defining a multinational company, several characteristics could be underlined. Abdullah (1987) defines a multinational company as a corporation where the proportion of foreign-based income is at least 25 to 30 percent of total income. Shapiro (2010) and Hill (2014), however, define a multinational company as a company engaged in producing and selling goods or services in more than one country. A multinational company's degree of multinationality can be assessed by studying factors such as number of affiliates, number of countries in which it operates, the proportion of foreign-based income to total income and the internalization of ownership (Dunning & Lundan, 2008).

2.2 Capital structure in multinational companies

Multinational companies utilize tax minimization strategies by taking advantage of international tax rate differences, which is an opportunity that is unavailable to one-jurisdiction companies. In the following pages, we will take a closer look at one of the tax tools possessed by the multinationals, which is the possibility of shifting debt from affiliates in low-tax countries to affiliates in high-tax countries. This is a profitable maneuver to the multinationals, as they can choose where to take advantage of the tax deductibility of interest expenses.

In addition to equity and external debt, multinational subsidiaries can use internal debt to finance their investments. External debt is issued by a third party, and is thus accessible for both multinationals and domestic companies. Internal debt, on the other hand, is intercompany lending and borrowing dependent on a multinational company structure.

Møen, Schindler, Schjelderup and Tropina (2011) model the joint allocation of external and internal debt in a multinational company, providing its tax-efficient capital structure. They show that the optimal debt shifting strategy is to always make use of both internal and external debt shifting. However, a multinational can also exploit internal pricing of interest rates on internal debt. Schindler and Schjelderup (2016) extend the abovementioned model by including the company's opportunity to manipulate the transfer price on internal debt. Thus, the extended model provides the tax-efficient capital structure of multinational companies in addition to the optimal mispricing of interest rates. A simplification of the model is presented below.

2.2.1 Tax-efficient capital structure

The basis for the model is a multinational company in country p , with wholly-owned affiliates in countries $i = 1, \dots, n$. The company can finance its investment in an affiliate in country i , by either equity (E_i), external debt (D_i^E) or internal debt (D_i^I) from its related affiliates. Therefore, the capital in affiliate i (K_i), can be stated as $K_i = E_i + D_i^E + D_i^I$. Each affiliate i uses K_i units of real capital to produce a homogenous good given by the production function $y_i = F(K_i)$. The risk-free market interest rate is exogenously given by $r > 0$. To find an expression for the worldwide profit in the multinational company situated in country p , the economic profit in affiliate i is derived. The economic profit in affiliate i is obtained by subtracting the user costs of capital and profit shifting from the revenue, shown in equation (2.1):

$$(2.1) \quad \pi_i^e = F(K_i) - [r + C_E(b_i^E) + C_I(b_i^I, P_i)]K_i - \tilde{\tau}_i b_i^I K_i$$

$C_E(b_i^E)$ and $C_I(b_i^I, P_i)$ are cost functions for affiliate-specific debt costs, which are the costs of external debt and internal debt, respectively. $b_i^E = \frac{D_i^E}{K_i}$ represents the external debt-to-asset ratio in affiliate i , whereas $b_i^I = \frac{D_i^I}{K_i}$ represents the internal debt-to-asset ratio in affiliate i . P_i represents the shifted income in affiliate i . The affiliate-specific costs of using external debt, $C_E(b_i^E)$, are related to the agency costs that are incurred if the level of external debt deviates from what is optimal. External debt below the optimal level may give rise to empire building strategies (Hart, 1993), whereas excessive borrowing could result in debt overhang, and ultimately bankruptcy costs (Fuest & Hemmelgarn, 2003). The affiliate-specific costs of using

internal debt, $C_I(b_i^I, P_i)$, are related to various tax-engineering expenses incurred to avoid or relax regulations such as thin capitalization rules. In addition, low profits caused by either transfer pricing (P_i) and/or a high internal debt-to-asset ratio (b_i^I), may cause suspicion from the tax authorities and lead to a costly audit (Schindler & Schjelderup, 2016).

The taxable profit in affiliate i is presented in equation (2.2). It is assumed that costs associated with both external and internal debt are tax deductible, contrary to the model presented by Møen et al. (2011), where the costs of external and internal debt are not considered tax deductible for the sake of empirical investigation. Furthermore, the total interest costs of internal debt are given by $(r + \tilde{r}_i)$. The term \tilde{r}_i is a surcharge rate to capture the multinational company's incentive to deviate from the arm's length principle when pricing their intra-firm transactions. This principle is described further in chapter 3.1.2, but briefly explained, it states that internal transactions should be made at prevailing market terms.

$$(2.2) \quad \pi_i^t = F(K_i) - [rb_i^E + (r + \tilde{r}_i)b_i^I + C_E(b_i^E) + C_I(b_i^I, P_i)]K_i$$

With an expression for both the economic and taxable profit in affiliate i , the global after-tax profits of the multinational company, π_p , can be derived, and is given by equation (2.3). Here, t_i is the corporate tax rate in country i .

$$(2.3) \quad \pi_p = \sum_i (\pi_i^e - \pi_i^t t_i)$$

A multinational company maximizes worldwide after-tax profits, and the optimal capital structure is thus found by the corresponding level of external and internal debt. Equation (2.4) shows the maximization problem of the multinational company's global after-tax profits, considering the internal lending constraint and the profit shifting constraint, $\sum_i (rD_i^I) = 0$, and $\sum_i (\tilde{r}_i D_i^I) = 0$, respectively.

$$(2.4) \quad \max_{b_i^E, b_i^I, \tilde{r}_i} \pi_p = \left\{ (1 - t_i)F(K_i) - K_i \left[r - t_i r(b_i^E + b_i^I) + (1 - t_i) \left(C_E(b_i^E) + C_I(b_i^I, P_i) \right) + (1 - t_i) \tilde{r}_i b_i^I \right] \right\}$$

$$s.t. \sum_i (rD_i^I) = 0 \quad (\lambda) \quad s.t. \sum_i (\tilde{r}_i D_i^I) = 0 \quad (\eta)$$

The optimal capital structure for a multinational company and its affiliates is derived by differentiating the worldwide profits with respect to the external and internal debt, subject to the abovementioned constraints. The resulting first order conditions for external and internal debt are presented by equation (2.5) and (2.6), respectively.

$$(2.5) \quad C'_E(b_i^E) = \frac{t_i}{1-t_i} r > 0 \text{ for all } i$$

$$(2.6) \quad (t_i - \lambda)r = (1 - t_i) \frac{\partial C_i}{\partial b_i} \geq 0 \text{ for all } i$$

Equation (2.5) implies that the optimal level of external debt is given when the marginal costs of using external debt equal the marginal value of the tax shield. Correspondingly, equation (2.6) states that the optimal level of internal debt is given when the net marginal benefit of debt is equal to the tax-adjusted marginal cost of concealing debt and profit shifting (Schindler & Schjelderup, 2016). Due to the external debt tax shield, shown in equation (2.5), the optimal level of external debt for a multinational company is higher than the optimal level in a world without taxes. From equation (2.6), it also follows that for the multinational company to maximize the internal debt tax shield, the affiliate located in the country with the lowest effective tax rate should be the group's provider of internal debt.

The adaption of a multinational company to optimize its capital structure, shown in equation (2.5) and (2.6), entails that increased pressure on multinational companies through regulations for the use of excessive debt will affect their optimal capital structure. The introduction of new or stricter regulations related to the use of internal debt, such as thin capitalization rules designed to restrict tax deductibility, will decrease the optimal level of internal debt as the marginal concealment cost will increase. The same reasoning applies for regulations against the use of external debt shifting.

2.2.2 Optimal mispricing of interest rates

To derive the optimal mispricing of interest rates, which is reflected in the surcharge rate on internal debt, equation (2.4) is maximized with respect to \tilde{r}_i . The result is shown in equation (2.7).

$$(2.7) \quad \eta - (1 - t_i) = (1 - t_i) \frac{\partial C_i}{\partial P_i} K_i \text{ for all } i$$

The net marginal benefit of over-invoicing the interest rate is reflected by the left-hand side, whereas the right-hand side shows the after-tax marginal concealment cost of interest-rate mispricing. With $\eta = \max_i(1 - t_i)$ being the shadow value of an additional unit of profit being income shifted, there is a unilateral way to structure the intercompany transactions in order to maximize the gains from transfer pricing on internal debt: Each affiliate in country $i > 1$, where country 1 has the lowest tax rate, pays a surcharge on the market interest rate to shift profits into affiliate 1 (Schindler & Schjelderup, 2016).

In the case of transfer pricing, stricter regulations or alterations to the arm's length principle will cause the after-tax marginal concealment cost of interest-rate mispricing to increase. Thus, the optimal amount of shifted income will decrease.

2.3 The financial structure of multinational companies

According to Mintz and Weichenrieder (2010), multinational companies can be organized as corporations, branches, trusts and partnerships. A corporation is a separate legal entity, registered and incorporated in a country, that is able to operate with limited liability. Subsidiaries, companies whose parent is a majority shareholder, are most commonly formed as a corporation. In comparison to corporations, branches are not a separate legal entity of the parent corporation. They are entities with no distinct legal character, as they are part of the operations of a corporation or partnership that derive profits from the branch and are liable for all losses (Mintz & Weichenrieder, 2010). Trusts are entities created to provide a fiduciary relationship between a trustor and trustee, where the trustor enables the trustee to receive distributions of income and capital from the trust. Lastly, partnerships are companies jointly owned by investors, where the partnership can be organized such that all partners share liabilities and profits equally, or in a way giving specific partners limited liability.

In addition to organizing their operations using different entities, multinational companies can utilize direct and indirect financing structures. With direct financial structures, a parent corporation finances investments in foreign locations by directly holding a foreign affiliate. The more elaborate, indirect structures involve a multinational parent taking advantage of an

entity set up in a third country to hold an affiliate (Mintz & Weichenrieder, 2010). An indirect financial structure allows for a much wider set of financial arrangements compared to a direct financial structure, as the subsidiary can be financed through equity (retained earnings and share issuance), external debt and internal debt. Thus, the indirect financial structure allows for the use of tax minimization strategies to a greater extent.

The setup of holding companies are often part of a multinational company's complex structure, for a range of both non-tax and tax reasons. A holding company exists only for the purpose of controlling another company, and can provide a possibility of centralizing financing and management activities to more efficiently manage a group of subsidiaries. Mintz & Weichenrieder (2010) separate holding companies into three categories: (i) country holdings that manage the operations a multinational company pursues in one country, (ii) separate holding companies located in the home country of the parent, and lastly, (iii) holding companies located in third countries, also known as conduit holding companies. Taxes are allegedly the prime motive for establishing a conduit holding company, and is an important instrument to organize foreign activities in a tax-efficient way (Mintz & Weichenrieder, 2010).

3. Tax Minimization Strategies

The major trends of globalization and digitalization have altered the way business is conducted. Some of these developments have strained traditional tax regulations, enabling a number of arrangements aiming to reduce tax liabilities. As companies aim to maximize profits, it also follows that they will seize the opportunity of minimizing taxes. Especially multinational companies have been able to play by a different set of tax rules compared to purely domestic companies. Through intricate corporate structures, exploitation of tax treaties and widespread use of tax havens, some of the world's largest companies have been able to exempt vast sums from taxation. Despite increased attention from governments and other institutions in later years, some of these gaps and loopholes are proving challenging to mend.

In this section of the report, we seek to shed light on some of the fundamental methods of reducing tax liabilities used by multinational companies. This will act as a central point of reference for subsequent discussion and the case study that follows in the second part of this thesis.

3.1 Defining key terms

Before we move on to explain methods used to reduce tax liabilities, an important distinction of terms should be made.

3.1.1 Avoidance versus evasion

In this report, we will focus on strategies of tax avoidance, which describes arrangements made to reduce tax liability in a legal manner (OECD, 2017a). With that being said, such maneuvers tend to contradict the original intent of the exploited tax regulation in question. A closely related, yet different, concept to tax avoidance is tax evasion. The distinguishable feature lies in legality, as tax evasion describes illegal arrangements made to reduce taxes (OECD, 2017a). We find it fair to assume that multinational companies strive to avoid criminal conduct and the prosecution it entails, and followingly we do not find it practical to elaborate on this. However, the line between avoidance and evasion is often unclear, creating a grey area in which legality may be disputed.

3.1.2 Arm's length principle

Among the regulatory tools used to combat tax avoidance and profit shifting, the so-called “arm's length principle” is worth mentioning in detail at this point, as it proves a valuable component in this report. This universally applied principle reads that any transaction between related affiliates should be valued as if they were executed by unrelated parties acting in their own best interest (OECD, 2017b). In other words, transactions should be carried out at prevailing market prices. This guideline is an integral part of both the UN's and the OECD's taxation conventions, which combined form the basis for nearly all bilateral tax treaties. For instance, all OECD members are obliged to comply to the arm's length principle.

3.1.3 Tax havens

A challenging aspect in the discussion of tax havens, is that there is no agreed definition of what constitutes a tax haven (Tobin & Walsh, 2013). Followingly, there is no consensus on which jurisdictions one should label with this term. As part of a project against harmful tax practices in 1998, the OECD defined four identifying features in their description of tax havens (OECD, 2009). Even though these were later abandoned, they are worth mentioning. First, the tax haven should have no or nominal taxes. Second, they were to have laws or practices that impede effective exchange of information with other governments. The third feature of tax havens was their general lack of transparency, while the fourth and final criterion was that there are no requirements to activities being of a substantial nature. At the time of creation, these conditions led the OECD to identify 41 jurisdictions as tax havens. However, these so-called “non-cooperative” jurisdictions were able to whitewash themselves with relative ease by signing superficial information exchange agreements (Shaxson & Christensen, 2011). At the time of writing, there are no remaining jurisdictions classified as non-cooperative by the OECD (2017c).¹

The emergence of the “Panama Papers”, and the recent “Paradise Papers”, have both made tax avoidance a prevalent part of global news. On both occasions, the dismay arising from the papers' revelations has led the EU to construct their own blacklist, with an aim of being more exhaustive than the OECD's list (Guarascio, 2017). In 2016, their initial draft list encompassed close to 80 jurisdictions, but some EU countries have opposed the assembly of a blacklist as

¹ On November 23, 2017, Trinidad and Tobago, the last non-cooperative jurisdiction, was whitewashed by the OECD.

they are themselves considered tax havens by several parties. Examples of such countries include Ireland, Luxembourg and the Netherlands. As a compromise, a potential EU blacklist will only include non-EU jurisdictions, thus being a somewhat biased register.

3.2 Transfer pricing

3.2.1 Definition

Generally speaking, “transfer pricing” is the pricing of cross-border transactions between associated entities in an enterprise, e.g. between a parent company and its subsidiary, or between affiliates (United Nations, 2013). The transactions may involve a transfer of goods, services, loans or intangibles such as patents.

3.2.2 Use of transfer pricing

As is evident from the definition above, transfer pricing is not an inherently tax avoiding concept, as cross-border transactions are a normal and necessary part of multinational companies’ business operations. However, the differences in tax regulations between countries may provide multinational companies with an incentive to manipulate their transfer price in order to achieve some economic gain, often through tax savings. In such cases where the transfer price deviates from the arm’s length principle, it may be referred to as transfer mispricing or abusive transfer pricing (Tax Justice, 2017). It is in these cases that conflicts of tax avoidance and evasion may arise with the relevant tax authorities.

At this point, we would like to illustrate the mechanics of transfer pricing, and its benefits for multinational companies, using a model formulated by Schjelderup (2016) in the book “*Multinationals and Transfer Pricing*”. Using this model, we assume that a multinational company is comprised of two affiliates. These are named Company 1 and Company 2, and reside in Country 1 and Country 2, respectively. Both firms are monopolists in their respective markets, and the multinational company as a whole aims to maximize group profits after tax.

In this example, Company 1 manufactures its product in quantities Q_1 and Q_2 . The former quantity is sold in Country 1 at a price of $P_1(Q_1)$, resulting in a revenue of $R_1(Q_1)$. The quantity Q_2 is exported to Country 2 at a transfer price p , where it is sold at price $P_2(Q_2)$, and yields a

revenue of $R_2(Q_2)$. The cost of production for Company 1 is given by $C(Q_1 + Q_2)$. The profit functions are concave, given by $R' > 0$ and $R'' < 0$, while the cost function is convex, $C' > 0$ and $C'' > 0$. Given the listed parameters, the profit functions of the two affiliates can be formulated as follows:

$$\begin{aligned} \text{(Company 1)} \quad & \pi_1 = R_1(Q_1) - C(Q_1 + Q_2) + pQ_2 \\ \text{(Company 2)} \quad & \pi_2 = R_2(Q_2) - pQ_2 \end{aligned}$$

Further, as we assume that Company 1 and 2 are separate legal entities, they are subject to separate tax rates in their respective domiciles. Using the same notations as earlier, the tax rates in Country 1 and 2 are defined as t_1 and t_2 . The overall after-tax profits of the multinational company can thus be stated as:

$$\begin{aligned} (3.1) \quad & \pi = (1 - t_1)\pi_1 + (1 - t_2)\pi_2 \\ & = (1 - t_1)[R_1(Q_1) - C(Q_1 + Q_2) + pQ_2] + (1 - t_2)[R_2(Q_2) - pQ_2] \end{aligned}$$

As we have assumed that the multinational company's only interest is to maximize group profits after tax, a central organ will have to decide upon quantities Q_1 and Q_2 , and the transfer price p , that yields the highest profit. According to Schjelderup (2016), this maximization problem can be treated as a two-staged procedure. First, the optimal transfer price p should be determined upon, before this will serve as an input used to maximize profits with respect to Q_1 and Q_2 in the second stage.

In the following passage, we will assume that the multinational company is free to practice unrestricted transfer pricing, i.e. that they are not bound by any government regulations when setting the transfer price. Differentiating (3.1) results in the following condition:

$$\begin{aligned} (3.2) \quad & p = (1 - t_1)Q_2 - (1 - t_2)Q_1 \\ & = Q_1(t_2 - t_1) \end{aligned}$$

From (3.2) it is evident that the relationship between the tax rates in Country 1 and 2 will impact the optimal transfer price that maximizes corporate profits. We will now assume that $t_2 > t_1$, meaning that Country 2 is a high-tax jurisdiction relative to Country 1. Hence, the multinational company would like to shift its taxable income to low-tax Country 1, which

implies that they will set a high transfer price, $p: (t_2 - t_1) > 0 \Leftrightarrow \frac{\partial \pi}{\partial p} > 0$. If we assume that losses in one company cannot be deducted against the taxes of its affiliate in another country, the optimal transfer price, p^* , will be the value of p that makes $\pi_2 = 0$. When that is the case, all of Company 2's profits will be shifted to Company 1. Solving (3.1) for p such that $\pi_2 = 0$, we get that:

$$(3.3) \quad p^* = \frac{R_2(Q_2)}{Q_2}$$

Finding the optimal transfer price was the first stage of the multinational company's maximization problem, whereas the second stage is to choose the optimal quantities Q_1 and Q_2 . By inserting the expression for the optimal p into the overall profit function from (3.1), we get the following:

$$(3.4) \quad \pi = (1 - t_1)[R_1(Q_1) - C(Q_1 + Q_2) + R_1(Q_2)]$$

By examining this expression, one can see that the global profits are solely dependent on the quantities, with the first order conditions being:

$$(3.5) \quad \frac{\partial \pi}{\partial Q_1} = (1 - t_1)[R'_1 - C'] = 0 \Rightarrow R'_1 = C'$$

$$(3.6) \quad \frac{\partial \pi}{\partial Q_2} = (1 - t_1)[R'_2 - C'] = 0 \Rightarrow R'_2 = C'$$

That is, when the multinational company is free to practice unrestricted transfer pricing, production volume is not affected by the transfer price, and optimal production will match the choice of a monopolist, where marginal revenue equals marginal cost.

If the initial tax assumption were to be inverted, such that $t_1 > t_2$, the transfer price p would be set as low as possible in order to shift profits from Country 1 to Country 2. Assuming that the transfer price cannot be negative, the value of p would thus be equal to zero. The final scenario, in the case where $t_1 = t_2$ (i.e., no difference between corporate tax rates), the optimal transfer price, p^* , will also be equal to zero.

3.2.3 Royalties

As intangible assets constitute an increasing share of companies' total assets, royalties are perceived as one of the primary profit sources for multinational companies (Juraneck, Schindler, & Schjelderup, 2016). A royalty is a payment made to an owner for the use of a property, and most often pertains to the use of intellectual property like patents and trademarks. Examples of this are paying royalties for showing a movie, playing a song or using a software. Pricing of intangibles often involves significant uncertainty, thus complicating enforcement of the arm's length principle. Therefore, royalty payments are widely used by multinationals as a mean of shifting profits in order to reduce their tax liabilities.

The profit shifting opportunity inherent in royalties is typically exploited by multinational companies by locating a patented property in an affiliate with a relatively low tax rate. In fact, previous research by Karkinsky and Riedel (2009) suggests that there is a negative correlation between corporate tax rate and patent filing. According to the same study, the rationale behind such strategic location is comprised of two elements. First, the magnitude of profit generation stemming from the intangible assets makes it attractive to locate patents in low-tax affiliates, simply because a large share of the group's profits become taxable under a low-tax jurisdiction. Second, the difficulty in assessing the arm's length-prices of intellectual property allows the company to distort the royalty payments made by all other affiliates to the patent holding entity, thus creating a profit shifting link between all the affiliates and a favorable tax jurisdiction.

3.3 Thin capitalization

3.3.1 Definition

Thin capitalization describes a situation in which a company is financed through an unproportionate amount of debt relative to equity (OECD, 2012). Such companies may also be referred to as being "highly leveraged" or "highly geared".

3.3.2 Thin capitalization as an instrument for tax savings

Interest on debt is deductible from the taxable income of a company, which provides companies with an incentive to be highly leveraged. Considered in isolation, debt is thus a more tax efficient source of financing compared to equity, an argument which holds for both national and multinational companies. With this being said, the scope of possible tax savings does not act as a sole determinant for the capitalization of a company. One must also consider factors such as the risk of bankruptcy and its adherent costs, and the disciplining effect debt can have on management, to mention some.

The concept of thin capitalization is often used to address the case in which multinational companies exploit differences in tax jurisdictions between countries in order to reduce their overall tax liability. By definition, multinational companies are located in more than one country. This enables them to shift their debt strategically from affiliates in low-tax countries to affiliates in high-tax countries, and thereby transfer corporate profits due to the tax deduction on interest expenses.

3.3.3 The workings of thin capitalization

When multinational companies use debt to reduce tax liabilities, their optimal capital structure may be affected through three different channels. These are the (i) standard debt tax shield, (ii) external debt shifting and (iii) internal debt shifting (Møen et al., 2011). The following section will strive to explain these three mechanisms and their impact on the financing decision of multinational companies.

The capitalization of any given affiliate i can be expressed through the overall debt-to-asset ratio, b_i , which can be written as:

$$(3.7) \quad b_i = \beta_0 + \beta_1 * t_i + \beta_2 * \sum_{j \neq i} \rho_j (t_i - t_j) + \beta_3 * (t_i - t_1) \text{ for all } i > 1$$

In equation (3.7), Møen et al. (2011) have defined $\beta_0 = \frac{\mu b^*}{\mu + \gamma}$, $\beta_1 = \frac{r}{\mu + \gamma}$, $\beta_2 = \frac{\gamma r}{(\mu + \gamma)\mu}$, $\beta_3 = \frac{r}{\eta}$ and $\rho_j = \frac{K_j}{\sum_j K_j}$, where r is the cost of capital, and μ and γ are positive constants. The various

components in the equation constitute different drivers for the optimal debt-to-asset ratio, and these drivers will be accounted for in turn in the next paragraphs.

Standard debt tax shield

The standard tax shield mechanism is represented by the second term in equation (3.7), namely $\beta_1 * t_i$. This tax shield can be profited from by domestic and multinational companies alike, as it states that a higher corporate tax rate, all else equal, results in higher leverage.

External debt shifting

The third term in equation (3.7), $\beta_2 * \sum_{j \neq i} \rho_j (t_i - t_j)$, is the external debt tax shield mechanism, which is the capital weighted tax difference to all affiliates. This mechanism implies that one should allocate external debt to the affiliates with the highest corporate tax savings.

Internal debt shifting

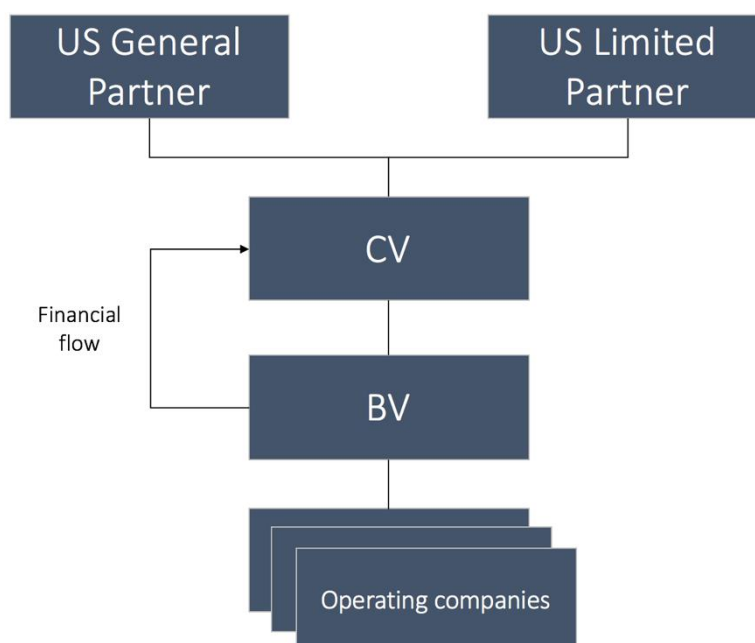
The final term of equation (3.7), $\beta_3 * (t_i - t_1)$, expresses the use of internal debt. With t_1 being the affiliate in the country with the lowest tax rate, this term states that the scope of the tax differential between affiliates will affect the overall debt-to-asset ratio.

3.4 Other tax minimization strategies

3.4.1 Dutch CV/BV structure

Many US multinationals make use of a so-called “Dutch CV/BV” structure in order to avoid taxation on their non-US earnings. CV is short for *Commanditaire Venootschap*, which translates to limited partnership, while *Besloten Venootschap*, or BV, means limited liability. In this structure, the multinational company establishes a Dutch limited partnership (CV) which is typically owned by two US-based partners; one less-than-5% general partner and one more-than-95% limited partner (Vleggeert, 2016). This CV will then hold all the shares in at least one Dutch operating company (BV). However, the BV will in most instances only act as a holding company for some or all of the multinational’s various non-US operating affiliates. Put simply, the profits of these latter operating subsidiaries will flow through the BV to the CV. See figure 3.1 for an illustration of the structure.

Figure 3.1: An illustration of a Dutch CV/BV Structure²



The key to tax reduction inherent in this structure lies in the fact that the CV is a transparent, or “closed”, entity for Dutch tax purposes, meaning that it is exempt from Dutch corporate and withholding tax, and the profits or losses are directly attributable to its US partners. When earnings from the operating companies flow into the CV, they are classified as dividends or royalty payments. As such, the US partners may be subject to Dutch taxation of dividends distributed by the BV as well as royalties paid by the BV to the CV (Vleggeert, 2016).³ However, the US partners can organize the CV as a foreign pass-through entity using check-the-box rules⁴, which effectively disregards the CV from US corporate income tax. Corporate income tax is thus avoided in both the US and the Netherlands, and the US tax can in theory be deferred indefinitely as long as profits are not repatriated. At the same time, the royalties and interests to the CV are deductible at the level of the paying company (the BV or the operating companies) (RSM, 2016).

Thus, there are two channels of tax savings from a Dutch CV/BV hybrid structure: The CV is exempt from Dutch and US taxes, while BV/operating companies can gain tax deductibility

² The illustration is adopted from RSM (2016).

³ The Dutch dividend withholding tax on dividends distributed by the BV amounts to 15%. Royalties paid by the BV to the CV are subject to Dutch corporate income tax (25%).

⁴ Check-the-box rules allow certain business entities to choose their classification for Federal tax purposes. The subject is discussed in detail in chapter 4.3.1.

on the financial flow to the CV. All in all, the CV/BV structure exploits national mismatches to avoid taxation.

3.4.2 Double Irish with a Dutch Sandwich

The “Double Irish” tax arrangement has been a popular tax avoidance tool for a number of well-known multinational companies for decades, including Apple, Microsoft and Google (Duhig & Kocieniewski, 2012). A similarity worth noting between these companies is the role intellectual property plays for their profit generation. The Double Irish strategy requires the multinational enterprise to set up two Irish companies, hence the “double” nickname. While one of the companies is both incorporated and tax resident in Ireland, the other is only incorporated in Ireland, but tax resident under another jurisdiction. This other company is typically tax resident in an offshore tax haven, for example Bermuda or the Cayman Islands.

The mechanism in which multinational companies has benefitted from this dual-Irish setup has typically been by locating rights to intellectual property, i.e. patents and copyrights, in the company that is tax resident in a tax haven (Schjelderup, 2014). This entity will then charge the entity resident in Ireland a royalty fee for using the patented property, thereby effectively shifting taxable profits to the tax haven. For this reason, the Double Irish arrangement is first and foremost a tax avoidance tool available for multinationals who share the characteristics of technological and pharmaceutical companies, whose main assets can be patented and earn royalties.

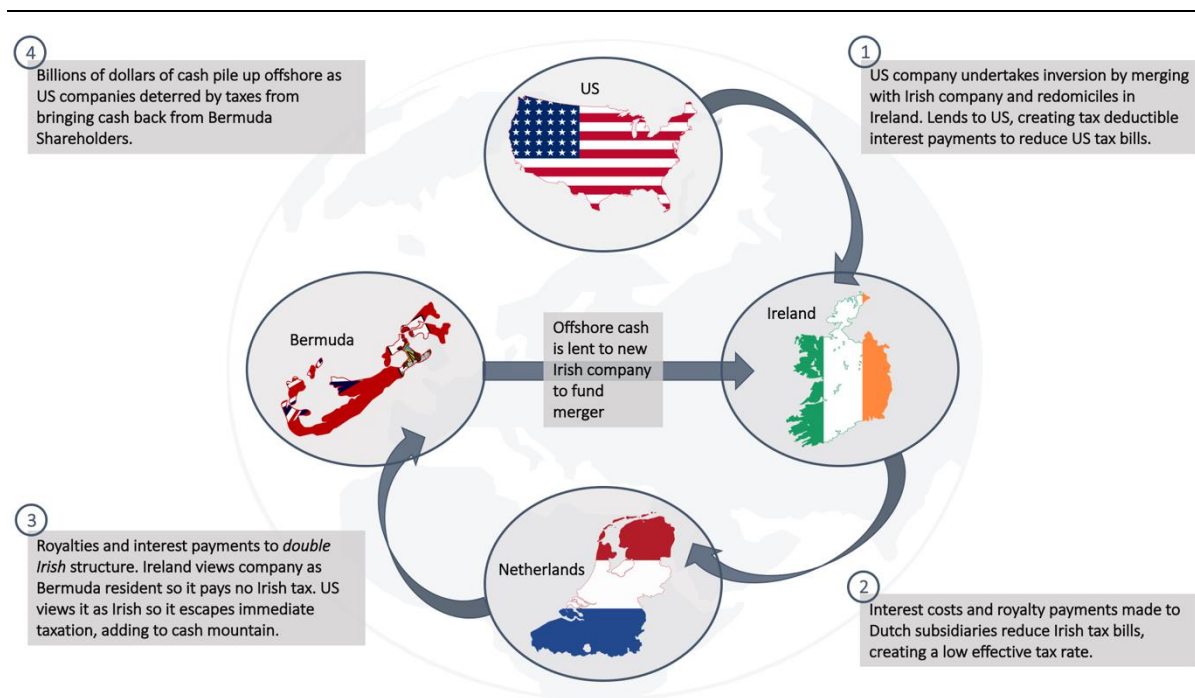
As most countries levy withholding taxes on dividends, interest and royalty payments to foreign affiliates, some profits are still subject to taxation when using the Double Irish arrangement. However, this can be evaded by adding yet another entity in the corporate chain, and funneling profits through a shell company in another country with lenient tax regulations (Schjelderup, 2014). The Netherlands act as the world’s biggest conduit to offshore tax havens, and by supplementing the Double Irish with such a Dutch intermediate, one gets what is popularly referred to as a “Double Irish with a Dutch Sandwich” (Offshore Shell Games, 2017). In this analogy, the two Irish companies act as the bread on each side of the sandwich, while the Dutch pass-through company is the cheese in the middle. Similarly, diverting funds through other big conduits like Switzerland or Luxembourg results in a Swiss or

Luxembourgish sandwich. This act of funneling funds through a country with beneficial treaty provisions is known as “treaty shopping” (Davies, 2004).

3.4.3 Tax inversion

Tax inversion describes a transaction in which a company becomes the subsidiary of another company, thus enabling the relocation of the company’s legal domicile (Houlder, Boland, & Politi, 2014). By re-domiciling to a low-tax country, companies are able to reduce their corporate tax burden. A typical example of this process is for US companies to invert into a European company, for example located in Ireland. However, the headquarters, employees and daily operations of the company close to invariably remains located in the pre-inversion domicile.

Figure 3.2: An illustration of the workings of a tax inversion⁵



⁵ The illustration is adapted from Financial Times (2014).

4. The International Tax System

International tax issues have never been higher on the political agenda than they are today (OECD, 2015). The increasingly complex tax issues concerning multinational companies arise from the practical difficulty of determining to which tax jurisdictions they stand accountable, while laws and administrative requirements may differ drastically from country to country (OECD, 2017b). However, efforts are being made to improve international tax co-operation and limit tax avoidance strategies that exploit gaps and mismatches in tax rules.

In this section, we present relevant tax systems and regulations for multinational companies, with a focus on international standards related to transfer pricing and rules against thin capitalization. In addition, we present US-specific rules relevant for multinational companies headquartered in the US.

4.1 International tax systems and transfer pricing

The most commonly used tax allocation system for multinational companies is the Separate Accounting (SA) method, used by the EU countries (Nielsen, Raimondos-Møller, & Schjelderup, 2010). However, EU members are striving to implement a universal European tax system, leading to a switch from SA to Formulary Apportionment (FA) (Ortmann & Pummerer, 2015). FA is an alternative system of corporate taxation, currently used by the US and Canada for tax allocation between sub-national jurisdictions, but is yet to be implemented on international taxation. A presentation of the two tax systems and how they affect transfer pricing follows.

4.1.1 Separate Accounting

Under a SA system, each individual country computes the income generated by firms located within its jurisdiction using arm's length prices on intrafirm transactions, and subsequently applies the national tax rate to it (Nielsen et al., 2010). Thus, the system is based on reported income, which allows multinational companies to account for earnings and costs in each location in which they operate. This generates a large tax incentive to earn income in low-tax countries (Avi-Yonah & Clausing, 2007). In addition, using the arm's length principle

increases multinationals' incentive to engage in tax-motivated transfer pricing. This is because arm's length prices are difficult to establish for many intermediate goods and services, reducing the probability of detection when distorting internal prices (Avi-Yonah & Clausing, 2007). Consequently, pressure is put on the SA system, seeing the limited viability of such tax allocation in a globalized world where the economic importance of multinational companies has grown.

4.1.2 Formulary Apportionment

A significant difference between SA and FA is that they use fundamentally different mechanisms for determining the tax base per entity. The SA system is based on reported income, whereas taxation under the FA system is based on reported activity (Nielsen et al., 2010). Following the FA system, multinational companies consolidate the income of their affiliates, and allocate the tax liabilities among jurisdictions based on factors such as the relative amount of assets, sales or payroll in each affiliate (Avi-Yonah & Clausing, 2007). Since tax liabilities are allocated using reported activity rather than income, FA limits the incentive of distorting internal prices to shift profit. In addition, Nielsen et al. (2010) argue that FA is an attractive tax allocation system, since activities, such as assets and payroll, are much less prone to misreporting compared to profits. On the other hand, FA indirectly introduces taxes on factors of production, which can distort the allocation of resources from high-tax jurisdictions to low-tax jurisdictions (Nielsen et al., 2010).

4.2 International regulations against thin capitalization

The capitalization of a multinational company can have significant impact on the amount of tax it pays. In this subchapter, we will discuss relevant methods designed to limit thin capitalization. According to Ruf and Schindler (2015), the two main approaches to restrict interest deduction related to profit shifting through excessive debt financing are safe harbor rules and earnings stripping rules.⁶ These approaches will be presented before we examine how controlled-foreign-company (CFC) rules limit thin capitalization.

⁶ There are different approaches on how to categorize these methods. Doudara & de la Feria (2008) distinguish between specific and non-specific thin capitalization rules, where safe harbor rules and earnings stripping rules fall under the specific and non-specific categories, respectively. Merlo and Wamsler (2014) call safe harbor rules for fixed debt-to-equity rules.

4.2.1 Safe Harbor Rules

Safe harbor rules focus on debt-to-equity ratios in order to limit thin capitalization, and has been the method of choice for many years (Ruf & Schindler, 2015). These rules deny interest deduction if a company's debt capital exceeds a certain proportion of its equity capital (Merlo & Wamser, 2014). The maximum allowed fixed proportion of debt-to-equity is called the safe harbor, and as long as the firm's debt-to-equity does not exceed the safe harbor, interests remain fully deductible. In applying the safe harbor rules, some countries focus exclusively on internal debt, whereas others use total debt as basis. According to Ruf and Schindler (2015), the majority of countries use internal debt, and the average fixed internal debt-to-equity ratio of EU-countries was 3.4:1 in 2008.⁷

4.2.2 Earnings stripping rules

In recent years, a growing number of countries have introduced earnings stripping rules (ESRs), either in addition to, or often replacing, existing regulation on thin capitalization rules (Merlo & Wamser, 2014). ESRs can restrict the extensive use of external as well as internal debt, by denying deductibility of net interest expenses exceeding a given percentage of taxable income. Germany replaced its traditional safe harbor rules with an ESR in 2008, and operates with a threshold equal to 30 percent of the company's EBITDA, considering both internal and external debt (Ruf & Schindler, 2015). In Finland, Norway and Japan, the ESR limit only internal debt interest deduction, with a threshold equal to 25, 25 and 50 percent of the company's EBITDA, respectively (Deloitte, 2017).

4.2.3 The effect of thin capitalization rules

Focusing on internal debt, Ruf and Schindler (2015) explain how effective thin capitalization rules, whether perfectly binding or still offering some leeway, affect debt-to-asset ratios, debt shifting and tax revenue.

In the case of effective safe harbor rules, implying that there is no way to bend the rules, the internal debt tax shield drops to zero as soon as the safe harbor is exceeded, contrary to the concealment costs that go to infinity. Having in mind equation 2.6, that elaborates on the optimal level of internal debt for a multinational company, we see that the incentive for further

⁷ Calculations based on figures presented by Douarado & de la Feria (2008) in table 1.

thin capitalization disappears. A more realistic view is to assume that the thin capitalization rules offer some leeway, as tax-engineering aiming to find loopholes is being practiced. Thus, the internal debt tax shield remains positive even when the safe harbor is exceeded. However, the benefit comes at a cost. In order to preserve the tax deductibility of debt beyond the safe harbor, additional concealment cost is necessary. With a substantial increase in the concealment cost, debt financing and debt shifting become less profitable.

Therefore, effective thin capitalization rules, both perfectly binding or offering some leeway, reduce debt-to-asset ratios, limit debt shifting and - for a given level of investment - increase tax revenue.

4.2.4 Controlled-Foreign-Company Rules

An alternative to the more traditional abovementioned thin capitalization rules, are Controlled-Foreign-Company⁸ (CFC) rules. CFC rules vary significantly between countries, but they commonly aim to limit multinational companies' artificial deferral of tax using affiliates located in low-tax jurisdictions. In general, CFC rules prevent the application of the tax-exemption principle on passive income (e.g. royalties and interest income on internal debt) earned in affiliates of multinational companies, if certain terms apply. According to OECD's report on designing effective CFC rules (2015), a jurisdiction must consider two questions when considering whether CFC rules apply: (i) whether a foreign entity is of the type that would be considered a CFC and (ii) whether the parent company has sufficient influence or control over the foreign entity for the foreign entity to be a CFC. To exemplify, German CFC rules apply to passive income if (i) this income stems from non-productive activities, (ii) the multinational company (directly or indirectly) holds at least 50 percent of the voting rights of the affiliate under consideration and (iii) the affiliate faces a tax rate below the set threshold rate of 25 percent (Ruf & Schindler, 2015). If the three rules apply, the passive income will be taxed at the German corporate tax rate.

⁸ A Controlled-Foreign-Company is by the IRS defined as; any foreign corporation where US shareholders directly, indirectly or constructively own more than 50% i) of the total combined voting power or ii) of the total value of the stock.

The effect of CFC rules

Effective CFC rules prevent thin capitalization. In subchapter 2.2.1, we show that multinational companies maximize the internal debt tax shield by locating their internal bank in the affiliate located in the country with the lowest effective tax rate. However, if internal banks face binding CFC rules, the tax-exemption principle no longer applies, and they are taxed with the tax rate of its parent's domicile (t_h). Thus, affiliates with a corporate tax rate lower than t_h , will face higher tax payments on shifted interest income in the internal bank than the tax savings from borrowing internal debt (Ruf & Schindler, 2015). Consequently, the internal debt tax shield is negative, and the incentive to use internal debt shifting is gone. Affiliates located in countries with a tax rate higher than t_h will still have positive internal debt tax shields, but the incentives to use internal debt shifting are reduced.

Although Ruf and Weichenrieder (2009) find the German CFC rules to be quite effective in limiting the shifting of passive assets, CFC rules challenge the competitiveness of domestic multinational companies relative to foreign multinational companies. This is because the increased effective capital costs of CFC rules reduce domestic investments from multinational companies (Ruf & Schindler, 2015).

4.3 US corporate taxation and tax codes

The federal statutory corporate tax rate in the US is 35 percent, but can be as high as 38.91 percent when adding an average of the corporate income taxes levied by individual states (Tax Foundation, 2017). This is much higher than the average corporate tax rate in the EU amounting to around 21.5 percent (KPMG, 2017), and in fact the fourth highest statutory corporate income tax rate in the world, according to The Tax Foundation (2017). Given the high corporate tax rate in the US, multinational companies have large incentives not to repatriate offshore profits back to the US. We will in this section present two tax codes relevant for the repatriation of offshore funds, namely Subpart F and APB 23.

4.3.1 Subpart F

Generally, US tax on the income of a foreign corporation is deferred until the income is distributed as a dividend or otherwise repatriated by the foreign corporation to its US shareholders (IRS, 2014). Multinational companies have been able to achieve deferral of US

tax by earning income such as dividends, royalties and internal debt interests through foreign corporations. These foreign corporations are usually located in low-tax jurisdictions, ensuring that the income is taxed at a very low rate while kept away from the US. Subpart F was first enacted in 1962, to prevent multinational companies using such strategies, and is the US equivalent of the CFC rules (IRS, 2014). Thus, Subpart F limits the amount of profits stashed in affiliates outside the US, through the implementation of tax payments on passive income.

However, the effectiveness of the anti-deferral rules of Subpart F has been reduced after the implementation of Check-the-Box regulations made effective in 1997, and the closely related CFC Look-Through Rule enacted in 2004 (Anggraeni, 2015). Check-the-Box regulations allow certain business entities to choose their classification for Federal tax purposes, increasing the simplicity of organizing foreign pass-through entities (Gianni, 1999). A pass-through entity is an entity whose profits are passed directly through the business to the owners and are taxed on the owner's individual income tax returns (Pomerleau, 2015). The CFC Look-Through Rule enables US multinational companies to reinvest active foreign earnings without subjecting the earnings to US taxation under Subpart F. Thus, the regulations have opened a vast array of tax planning opportunities for multinational companies, explicitly making them able to work around the US Subpart F income (Gianni, 1999). A simple structure to disregard US tax on passive income involves a foreign pass-through entity located in a tax haven. By having the foreign pass-through entity receive passive income from a lower-tiered related CFC subsidiary, the US does not recognize the passive income, since the multinational company can choose to have the low-tiered CFC disregarded for federal tax purposes under the Subpart F.

4.3.2 APB 23 Exception: The Indefinite Reversal Criteria within ASC 740

In general, US companies must accrue US taxes on foreign earnings of its CFC subsidiaries, which is roughly equivalent to the difference between the US statutory tax rate and the affiliates' average foreign tax rates (Edwards, Kravet, & Wilson, 2012). The indefinite reversal criteria within ASC 740⁹, the APB 23 exception, is an accounting rule that allows a US multinational to declare its foreign earnings as permanently reinvested earnings, effectively removing its subjection to US taxation. Thus, accounting standard APB 23 simplifies the action of shifting profits to low tax-jurisdictions offshore, and interferes with US taxation of

⁹ ASC 740 is an accounting standard codification of the accounting rules that deal with the disclosure of income tax risks.

Subpart F income. In order to qualify for the indefinite reversal exception, the parent company has to demonstrate that the foreign earnings are to be invested indefinitely, for instance by providing specific reinvestment plans. In addition, the companies are required to disclose the amount of permanently reinvested earnings in their annual 10-K filing to the SEC.

By examining a survey response from nearly 600 executives, Graham, Hanlon and Shevlin (2011) find evidence that the APB 23 is important for multinational companies in their decision to locate operations offshore. This is further confirmed by Blouin, Krull and Robinson (2012), who present an analysis suggesting that permanently reinvested earnings designations are driven by tax, earnings and growth incentives. Furthermore, the \$2.6 trillion in accumulated profits that Fortune 500 companies hold offshore, according to the Offshore Shell Games report (2017), is a strong indication of multinationals taking advantage of the APB 23.

5. Analysis of Relevant Literature

In this chapter, we present empirical studies that investigate multinational companies' use of tax minimization strategies. We will focus on transfer pricing, where we look at studies using both direct and indirect analyses, as well as multinationals' utilization of external and internal debt shifting mechanisms to optimize capital structure.

5.1 Transfer pricing

When analyzing multinational companies' use of transfer pricing to shift income from high-tax jurisdictions to low-tax jurisdictions, direct and indirect methods can be applied (Balsvik, Jensen, Møen, & Tropina, 2009). The direct method compares the internal pricing of goods and services within a multinational company with the corresponding price in a market with independent parties. In other words, the direct method observes whether the internal pricing violates the arm's length principle. The indirect method analyzes observable variables and relationships assumed to be affected by transfer pricing. A common analysis is to examine the relationship between profit margin and corporate tax rate in affiliates operating in different countries.

5.1.1 Direct analysis

The direct method is the most reliable way in which to apply the arm's length principle, given that it is possible to locate comparable uncontrolled transactions (OECD, 2010). However, the limited availability of data on intercompany transactions, and the lack of comparable market prices on intellectual property, justify the small amount of direct analyses being conducted. Nevertheless, improved data logging of international transactions has enabled the use of direct analyses, particularly in the US (Hanssen & Haltbrekken, 2014).

Swenson (2001) studies the reported transfer prices for a set of products imported into the US, using annual US import data from five countries¹⁰ between 1981 and 1988. The author finds a statistically significant relationship between foreign tax rates and intrafirm import prices, indicating that a 5 percent decline in foreign tax rates causes the reported price of affiliated

¹⁰ Canada, France, Germany, Japan and the UK.

firm imports to rise by 0.024 percent. Although the price changes are consistent with firms' incentive to overstate intrafirm import prices when taxes are low, the economic magnitudes remain small.

Research conducted by Clausing (2003), on the other hand, indicates that there is in fact substantial evidence of tax-motivated transfer pricing in US intrafirm trade prices. By analyzing monthly data on US international trade prices between 1997 and 1999, he finds that there is a strong and statistically significant relationship between a country's tax rate and the prices of intrafirm imports and exports traded with that country. More specifically, the estimates indicate that a 1 percent lower tax rate in the country of destination/origin is associated with intrafirm export prices that are 1.8 percent lower, and intrafirm import prices that are 2 percent higher, relative to non-intrafirm goods.

Bernard, Jensen and Schott (2006) examine how transfer prices set by multinational firms vary between arm's length and related-party customers, using data from US international export transactions occurring between 1993 and 2000. They find that prices set by US exporters for their arm's length customers are on average 43 percent higher than the related-party price, while for differentiated goods, the gap is 66.7 percent. The results show that multinational firms make substantial price adjustments to variation in country tax and tariff rates, with the difference between arm's length and related-party prices being negatively correlated with the destination country's corporate tax rates, and positively correlated with the destination country's import tariffs.

5.1.2 Indirect analysis

Since multinational companies manipulate intrafirm pricing to minimize taxes paid, the most common proxy variable used in indirect analyses is taxable profit (Balsvik et al, 2009). Other proxies used to gain indirect evidence of income shifting are reported income, tax payments and intrafirm exports (Swenson, 2001). A typical indication of internal mispricing of goods or services is a significant and negative relationship between profit margin and tax rate for a multinational company's affiliates. An obvious weakness of the indirect analysis is the limited possibility of drawing causal relationships, due to the many unobserved variables.

Grubert & Mutti (1991) conduct an empirical analysis of the relationship between profit margins and tax rates to see whether income is shifted to low-tax locations. Using data from 1982 on a cross-section of 33 countries, their analysis indicates that taxes and tariffs have a strong impact on the operations of multinational companies. They show that a country with a 40 percent tax rate will report a profit margin of 5.6 percent, compared to 12.6 percent in a country with a tax rate of 20 percent. Dischinger (2007) has supporting findings in his analysis, using panel regressions for the years 1995-2005 on a large micro database of European subsidiaries of multinational companies. The analysis shows that the unconsolidated pre-tax profits of an affiliated company decrease with approximately 7 percent if the difference in the statutory corporate tax rate of this affiliate to its parent increases by 10 percentage points.

Weichenrieder (2009) studies profit shifting behavior using data on German inbound and outbound foreign direct investments. Looking at the correlation between the home country tax rate of a parent, and the net of tax profitability of its German affiliate, Weichenrieder finds behavior compatible with profit shifting. The evidence suggests that a 10 percentage point increase in the parent's home country tax rate leads to approximately half a percentage point increase in the profitability of the German affiliate.

There has also been conducted indirect analyses of transfer pricing in Norway. One of the most recent studies is performed by Bakke, Hopland and Møen (2016) on a dataset consisting of Norwegian companies that went from being national to becoming multinational in the period 1993 to 2012. They find that multinational companies have taxable profits averaging 24 percent lower than the taxable profit of comparable national companies in Norway. The difference in taxable profits is partly driven by increased cost of sales, reduced revenue and increased costs related to internal debt. This is consistent with what is expected from multinationals performing tax-motivated manipulation of transfer pricing (Bakke et al., 2016).

5.2 Optimization of capital structure

In chapter 2.2.1, we present the tax-efficient capital structure of a multinational company, showing how multinational companies want to maximize their worldwide profits with respect to external and internal debt levels. In this section, we investigate to what extent it is proven

that multinational companies take advantage of their opportunity to perform external and internal debt shifting.

5.2.1 External debt shifting

Research with explicit focus on external debt shifting is limited (Hanssen & Haltbrekken, 2014). Huizinga, Laeven and Nicodème (2007) study how differences in national tax systems affect multinational companies' use of external debt, by analyzing 32 European countries in the period between 1993 and 2003 using the Amadeus database. By ignoring the external debt shifting arising from differences in national tax rates, they find that the impact of national taxes on debt policies is understated by about 25 percent. Thus, they conclude that external debt shifting is a key element in a multinational company's choice of capital structure.

5.2.2 Internal debt shifting

Møen et al. (2011) emphasize that internal debt has been the topic of focus for research related to international debt shifting. Desai, Foley and Hines (2004) analyze the capital structure of US owned foreign affiliates, and the internal capital markets of multinational companies. Using data from three benchmark surveys collected by the Bureau of Economic Analysis in 1982, 1989 and 1994, they find that 10 percent higher local tax rates are associated with 2.8 percent higher debt-to-asset ratios. Furthermore, the research indicates that internal borrowing is particularly sensitive to taxes, having an elasticity of 0.35, compared to 0.19 for external debt. This is consistent with the hypothesis of multinational companies adjusting their intrafirm borrowings to avoid taxes. The results also suggest that internal capital markets give multinational companies a significant advantage over local firms where credit markets are poorly developed, due to the increased access to capital. Blouin, Huizinga, Laeven and Nicodème (2013) extend the analysis of Desai et al. (2004) by adding the benchmark years of 1999 and 2004, with consistent findings.

Egger et al. (2010) also model debt shifting using internal debt. Using data from 32,067 European firms, they find that multinationals have a significantly higher debt-to-asset ratio compared to domestic firms, with the former averaging 1.7 percentage points higher. They also find the gap to be larger in high-tax countries, where an increase of the statutory corporate tax rate by 1 percentage point leads to an increase in the debt-to-asset ratio by about 0.7 percentage points. Using data on German multinationals, Buettner and Wamser (2013) study

the importance of internal debt for shifting profits to low-tax countries. They support the findings of Egger et al. (2010), by showing that internal debt is more widely used by multinationals with affiliates in low-tax countries, and that the amount increases with the spread between the host-country tax rate and the lowest tax rate among all affiliates. However, the tax effects are small, indicating that internal debt shifting is of less importance for German firms. Buettner and Wamser (2013) reason that this is partly due to stricter tax regulations in Germany.

5.2.3 External and internal debt shifting

Taking into consideration that multinationals can utilize both external and internal debt shifting mechanisms, Møen et al. (2011) model the joint allocation of external and internal debt in a multinational company. They show that the optimal debt shifting strategy is to always use both types of debt, and that in the case of international debt shifting, external and internal debt is of equal importance. More specifically, using a large panel of German multinationals, Møen et al. (2011) find that if the affiliate located in the country with the highest tax rate experiences a 10 percentage point tax increase, the debt-to-asset ratio will fall by 1.4 percentage points in the low-tax country and increase by 4.6 percentage points in the high-tax country. About 40 percent of the increase in debt is due to the standard debt tax shield, whereas 60 percent is due to international debt shifting.

6. Case Study: Pfizer Inc.

In the second part of this report, we perform an analysis of the pharmaceutical company Pfizer Inc., in order to show how a multinational company can reduce its tax liability. By making use of a real company, we are able to analyze how the tax minimization strategies from chapter 3 are applied in practice, and how they may affect a company's business structure. First, an introduction of Pfizer's operations is presented, before we move on to examine their financial reports in an attempt to reveal indications of tax avoidance. Next, we make use of publicly available information to analyze whether Pfizer utilizes known methods of tax minimization. We choose to focus solely on one company, as we deem an in-depth approach to yield the most insightful analysis.

When aggressive tax planning and tax avoidance receive media coverage, it is usually the technological giants in the likes of Apple, Google and Microsoft that act as the recipients of attention. Nevertheless, Pfizer is not a novice in the game of tax reduction compared to the aforementioned tech companies. According to the Offshore Shell Games report (2017), Pfizer holds \$198.9 billion in profits offshore for tax purposes, the second highest amount among the Fortune 500 companies. Moreover, the global drugmaker controls as many as 157 subsidiaries in known tax havens.

In November 2015, Pfizer stole the tax planning spotlight, when they announced that they would merge with Allergan, an Irish pharmaceutical company best known for being the manufacturer of Botox (Smith & Groden, 2015). The merger would have made the combined company the world's largest pharmaceutical company by sales, but the deal received massive media attention primarily because the deal rationale was built on significant tax savings, which we will elaborate on in chapter 6.6. Although this merger was eventually cancelled, it underlines the level of current relevance, and thus motivated us to conduct further research on how Pfizer strives to minimize their tax liability.

6.1 Company introduction

Pfizer Inc. is one of the world's largest biopharmaceutical companies (Jurney, 2016). It was founded in New York in 1849 by cousins Charles Pfizer and Charles Erhart, then as a fine-chemicals business (Pfizer, 2017a). Today, the company discovers, develops and manufactures medicines and vaccines, in addition to consumer health care products (Pfizer, 2017b). Pfizer's top grossing products treat illnesses like epilepsy and pneumonia, but the pharma giant is best known for being the manufacturer of Viagra, a treatment for erectile dysfunction (Pfizer, 2016a).

In 2016, Pfizer reported revenues of \$52.8 billion, ranking them 54th on the Fortune 500 list. Out of these revenues, the US and Japan accounted for 50% and 8% respectively, being the two largest national markets. Net profits for the same year amounted to \$7.2 billion at a global level, where the corporation employs approximately 96,500 employees. Pfizer is listed on the New York Stock Exchange under the ticker "PFE", where their market capitalization of \$221.74 billion is the 12th biggest on the exchange¹¹ (Nasdaq, 2017).

Pfizer's commercial operations are divided into two business segments: Innovative Health and Essential Health. The former segment focuses on value-creating medicines and vaccines, in addition to consumer health care products. Essential Health includes brands for which patents are beyond or close to expiration, meaning that Pfizer does not longer have market exclusivity.

6.2 Global overview

6.2.1 Introduction

The global structure of Pfizer is a complex network consisting of R&D organizations, regional manufacturing and supply divisions, national distribution branches and a wide range of inter-related holding companies (Pfizer, 2016a). In total, the intricate web of entities weakens transparency, making it difficult to ascertain the hierarchical structure of Pfizer's business operations. Nevertheless, we will make use of company filings and previously conducted

¹¹ As of December 15, 2017.

research with the aim of facilitating a comprehension of the pharmaceutical giant's global presence.

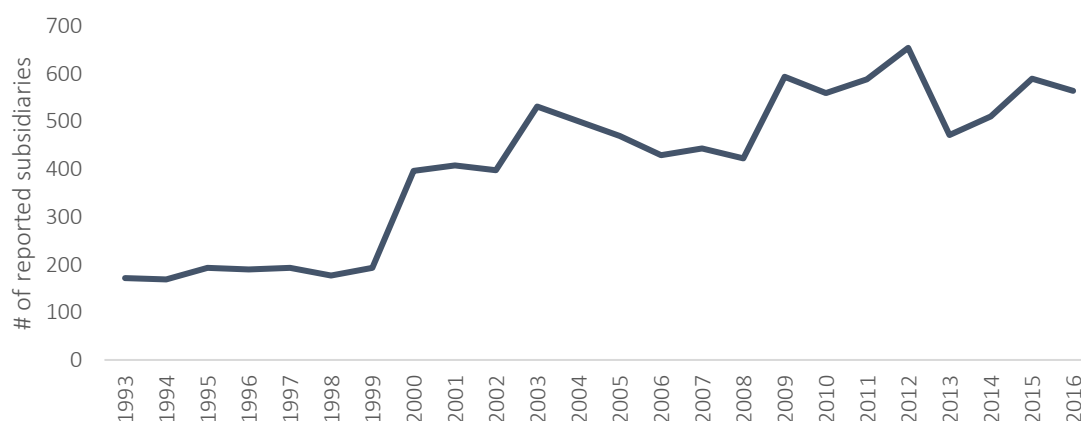
6.2.2 Key locations

The corporate headquarters of Pfizer are located in New York City, the company's city of origin (Pfizer, 2016b). Apart from being the home of the corporation's administrative center, the US plays a key role in Pfizer's R&D and manufacturing activities. The company's 17 US manufacturing facilities employ 12,000 people and produce 60% of all products sold in the US, while a significant share of total R&D is performed at labs in North America (Lund-Jurgensen, 2017). Apart from the US, Ireland plays a particularly important role for Pfizer's business operations. The corporation has operated in the country since 1969, and today, Ireland acts as a leading manufacturing base with global exports (Pfizer, 2017c). Several of the group's most profitable patents are also held by entities in Ireland.

6.2.3 Subsidiaries

As of the end of 2016, Pfizer reported a total number of 565 subsidiaries to be part of the company (Pfizer, 2016b). This number has increased dramatically during the last 20 years, as can be seen in figure 6.1. What can also be observed in this graph is that the number of subsidiaries is volatile. The explanation behind this fluctuation is most likely the aggregate outcome of several factors. First of all, it is fair to assume that Pfizer's scope of operations and structural complexity result in continuous establishment and dissolution of affiliates. Second, the list of subsidiaries reported annually to the SEC is only comprised of entities which Pfizer deems to be "significant subsidiaries". Therefore, alterations to what is considered "significant" could impact the subsidiary overview.

Figure 6.1: Development of Pfizer's reported subsidiaries 1993-2016



6.2.4 Use of tax havens

Even though the aggregate number of subsidiaries might provide some insight, the share of these affiliates located in tax havens will likely prove a more informative measure of Pfizer's tax avoidance efforts. For the delimitation of this subgroup, we utilize the 50 tax havens as defined by the Offshore Shell Games (2017). Filtering the 565 subsidiaries reported in 2016 using this criterion results in a total of 157 tax haven subsidiaries. The geographical dispersion of these is shown in table 6.1.

Table 6.1: A geographical dispersion of Pfizer's reported subsidiaries in 2016

Tax Haven Subsidiaries	
<i>Jurisdiction</i>	<i>Number of subsidiaries</i>
The Netherlands	64
Luxembourg	28
Ireland	27
Singapore	10
Bahamas	8
Hong Kong	6
Costa Rica	3
Panama	3
Switzerland	3
Cayman Islands	2
Channel Islands	2
Bermuda	1

6.3 Tax payments

Even though Pfizer is reputed to be among the most aggressive tax planners in the US, we should seek to make an independent assessment of the company's tax payments in order to justify further analysis of their plausible use of tax minimization strategies. In this section, we therefore scrutinize Pfizer's financial reports in an attempt to estimate the scope of potential tax avoidance by calculating the group's true effective tax rate.

6.3.1 Reported effective tax rate

In 2016, the Pfizer Group reported a consolidated provision for taxes on income equal to \$1.123 billion. Seen in conjunction with the pre-tax income base of \$8.351 billion, this yields an effective tax rate (ETR) of 13.45%, as shown in table 6.2. This is significantly lower than the US corporate income tax rate of 35%. However, the fact that the ETR of Pfizer's consolidated operations deviates from the US rate is not an incriminating feature by itself, as the multinational profile of the company entails that earnings stem from a mixture of tax jurisdictions. Taking into consideration that the US has the highest statutory corporate income tax rate in the industrialized world, it is therefore not surprising that a multinational company headquartered in the US is able to achieve an effective tax below 35% (OECD, 2017d). Nevertheless, Pfizer's reported rate of 13.5% is considerably lower than the average tax rate of the OECD countries, which is 22.3%. And even more important, as we will strive to show in the subsequent chapter of this report, Pfizer's reported numbers fail to accurately and rightfully present the company's true tax position.

Table 6.2: A Condensed statement of income showing Pfizer's ETR in 2016

Condensed Statement of Income 2016	
<i>\$ million</i>	
Revenues	52,824
Operating costs	44,473
Income before taxes	8,351
Provision for taxes	1,123
Net income	7,229
<i>Effective tax rate</i>	<i>13.45 %</i>

Even though it appears evident that Pfizer's effective rate is noticeably lower than those of various jurisdictions, it should also be considered how they fare compared to other large corporations. In the bottom part of table 6.3, the average reported ETRs for a range of sector composites are listed. By examining the members of the Dow Jones Industrial Average, an index containing 30 large publicly traded US-based companies, we observe that their average ETR of 24% is considerably lower than the US tax rate. Close to all of these corporations are multinationals well-known to consumers all over the world, examples being Coca Cola, Nike, Apple and McDonald's. This supports the general conception that tax planning is a tool used by many of the US multinationals. Interestingly, the average ETR of the constituents of the Euro Stoxx 50, an index made up of 50 of the largest and most liquid stocks in the Eurozone, is far closer to the synthetic European tax rate in the table below. Although this is likely to be the result of several factors, a possible explanation might be that the considerably lower tax rates in the Eurozone reduce incentives for aggressive tax planning.

Table 6.3: Average corporate tax rates 2016

Corporate tax rates	
<i>Official rates (%)</i>	
United States	35 %
Europe	24 %
Ireland	12.50 %
<i>Effective tax rates (%)</i>	
Dow Jones constituents	24 %
Euro Stoxx 50 constituents	27 %
Top 20 pharmaceuticals (by revenue)	23 %
Pfizer	13.45 %

In table 6.4, an overview of Pfizer's ETR for the previous 7 years is provided. From this, we observe that there are large fluctuations in the reported ETR from year to year, making it hard to conclude on the company's true tax burden. What we can infer, however, is that Pfizer's reported ETR appears to have been somewhat higher in the years preceding 2016.

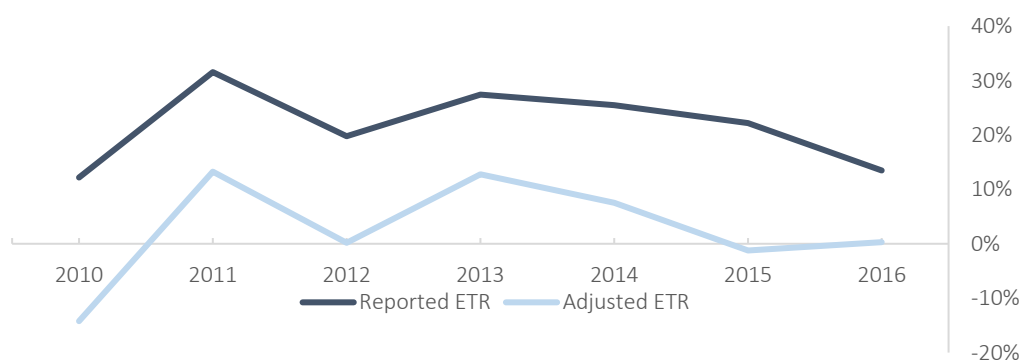
Table 6.4: Pfizer's Reported ETR 2010-2016

Effective Tax Rate as Reported						
2016	2015	2014	2013	2012	2011	2010
13.45 %	22.20 %	25.49 %	27.40 %	19.76 %	31.54 %	12.17 %

6.3.2 Adjusted effective tax rate

Pfizer is reporting an artificially high ETR, accomplished through the booking of US deferred income tax on funds earned outside the US that will not be indefinitely reinvested overseas. These are taxes the company must pay if they ever choose to repatriate their foreign earnings not defined as permanently reinvested. In 2016, close to all of Pfizer's tax expenses, \$1.100 billion out of \$1.123 billion, were comprised of taxes that the company will not pay unless they repatriate their offshore profits. Thus, Pfizer's reported ETR is much higher than what would be the case if this speculative deferred tax liability is ignored. Adjusting Pfizer's yearly ETR with respect to the US deferred income tax on offshore profits in 2016, leaves Pfizer with an adjusted ETR of 0.28%, compared to the reported 13.45%. The gap is significant, and comparing the average reported ETR with the average adjusted ETR in the 2010-2016 period, gives an average of 21.71% and 2.65%, respectively. Even though it may appear dubious that Pfizer inflates its ETR, it could in fact be considered good, conservative accounting. However, an adjusted ETR as low as in this case, causes suspicion of aggressive tax planning. Figure 6.2 shows the difference between the yearly reported and adjusted ETR in the 2010-2016 period.

Figure 6.2: Pfizer's Reported ETR compared to the Adjusted ETR 2010-2016



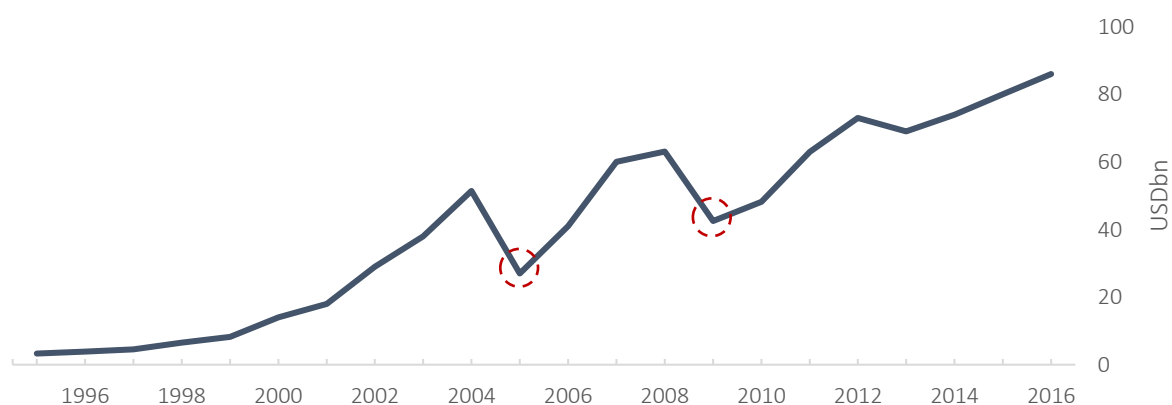
6.4 Offshore cash

A common trait among multinationals known for avoiding US taxes, is that they hold large amounts of cash overseas. By doing so, they are able to defer tax payments until they repatriate these earnings. The time horizon of deferral, however, is oftentimes undefined, which means that such funds could in practice be held offshore indefinitely. In this subchapter, we estimate Pfizer's total offshore cash reserve, and examine how this has developed historically.

6.4.1 Reported permanently reinvested earnings

Companies are required to report the amount of permanently reinvested earnings (PRE) held offshore in their annual 10-K SEC filing. By assessing the historical filings of Pfizer, we retrieve the development of Pfizer's reported PRE in the period 1995 to 2016. This is illustrated in Figure 6.3, which shows the increasing trend of Pfizer's reported earnings that are intended to be indefinitely reinvested overseas. Starting with \$3.3 billion in reported PRE in 1995, the amount has increased dramatically over the 21-year period. In their latest SEC filings as of December 31, 2016, Pfizer reports \$86 billion of unremitted earnings from their international subsidiaries. Also noticeable from figure 6.3, is the two significant dips in reported PRE in 2005 and 2009.

Figure 6.3: Reported PRE 1995-2016



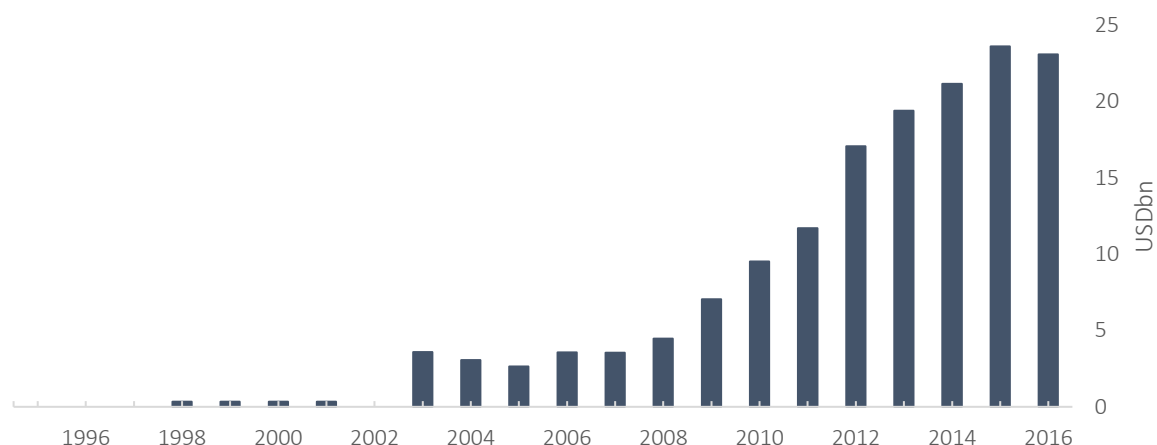
The first dip represents the US repatriation tax holiday which became effective in October of 2004. The tax break was included in the larger legislation of *The American Jobs Creating Act of 2004*, with the intention of incentivizing multinational companies to repatriate offshore profits, in order to increase US investments and spur job growth. During the tax holiday, multinational companies could repatriate offshore earnings at a tax rate of 5.25%, rather than the 35% existing corporate tax rate (Sullivan, 2011). Pfizer, along with many other US multinationals, took advantage of this opportunity and repatriated \$37 billion of foreign earnings (NY Times, 2008).

After having been given a strong incentive to repatriate offshore profits in late 2004, Pfizer's reported PRE increased steadily until the next dip in 2009, where Pfizer repatriated \$34 billion of foreign earnings to finance the acquisition of Wyeth, a \$68 billion deal (Sullivan, 2013). Even though the repatriation of foreign earnings triggered a deferred tax liability of \$25 billion and a \$10 billion tax obligation, Pfizer managed to limit the tax payment's impact on its publicly reported profits. This was done using a legal accounting quirk that allowed Pfizer to draw down \$10 billion of its new deferred liability through its income statement, which would offset the tax obligation (Bloomberg, 2010). Since then, Pfizer's reported PRE have more than doubled.

6.4.2 Adjusted permanently reinvested earnings

Pfizer also reports a deferred tax liability named *unremitted earnings* in their 10-K SEC filings. This balance sheet item reflects a deferred US tax liability on offshore profits that Pfizer would eventually pay upon repatriation of the foreign profits not defined as PRE. In effect, Pfizer has a second PRE account, that we call the "Stealth PRE". As of December 31, 2016, Pfizer has accumulated \$23.108 billion in deferred US tax liability on the Stealth PRE, but has yet to pay any actual US taxes on the foreign earnings. Figure 6.4 shows the development of the deferred US taxes on unremitted earnings in the 1995-2016 period.

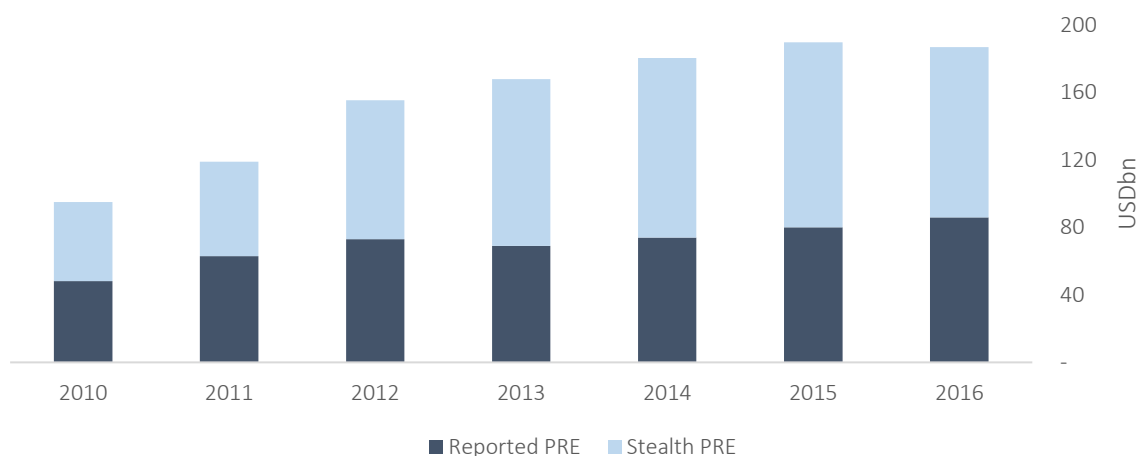
Figure 6.4: Deferred US taxes on unremitted earnings 1995-2016



Knowing that the cumulated deferred US tax liability on offshore profits is a liability for US taxes having to be paid upon repatriation, we can estimate the second Stealth PRE account. Since: $Stealth\ PRE * Tax\ upon\ repatriation = Deferred\ US\ taxes\ on\ unremitted\ earnings$, we know that $Stealth\ PRE = \frac{Deferred\ US\ taxes\ on\ unremitted\ earnings}{Tax\ upon\ Repatriation}$. Tax upon repatriation is given by the difference between the statutory US tax rate of 35% and the tax rate already paid on the offshore profits. Thus, the actual size of the Stealth PRE depends on how much Pfizer has already paid in foreign taxes. We use a 5-year moving average on Pfizer's ETR on international operations to estimate the tax rate paid on offshore profits. With a 5-year average ETR on international operations of 12.06% in 2016, Pfizer has an additional Stealth PRE of \$100.745 billion¹². Pfizer's offshore cash therefore amounts to an adjusted PRE of \$186.745 billion in 2016. The adjusted PRE is apportioned between a reported PRE of \$86 billion, profits never to be repatriated back to the US, and \$100.745 billion of Stealth PRE, profits Pfizer should repatriate back to the US. Figure 6.5 shows Pfizer's adjusted PRE in the period 2010-2016, and how it is distributed between reported and Stealth PRE.

¹² $\$23.108bn * (35\% - 12.06\%) = \$100.745bn$.

Figure 6.5: The composition of Adjusted PRE 2010-2016



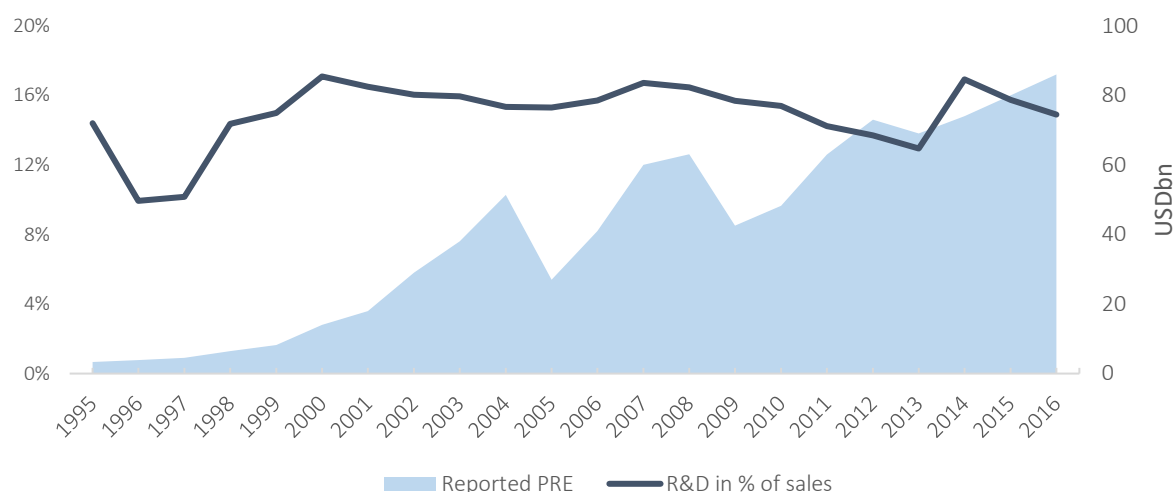
The Offshore Shell Games report (2017) that assesses the use of tax havens by Fortune 500 companies, also estimates the profits held offshore by the Fortune 500 companies. In 2016, The Offshore Shell Games estimates Pfizer's offshore profits to be \$198.9 billion, the second highest amount held offshore, only beaten by Apple who holds an estimated \$246 billion. Our estimate of Pfizer's adjusted PRE is conservative compared to Offshore Shell Games, where the difference most likely stems from different assumptions made regarding the calculation of the tax upon repatriation. Nevertheless, Pfizer has huge amounts of foreign earnings being held offshore, effectively utilizing the accounting standard APB 23. Pfizer does not disclose information on how and where their offshore profits are invested. According to The Offshore Shell Games (2017) report, offshore profits are often housed in banks or invested in assets situated in the US through foreign subsidiaries. American corporations thus benefit from the stability of the US financial system, without paying taxes on their profits apparently invested offshore.

Increased R&D: A weak rationale for holding profits offshore

A company spokeswoman for Pfizer commented on their stashing of offshore profits by stating that their aim is to level the playing field with foreign competitors, and to have more resources to accomplish their purpose of bringing more innovative therapies to patients (Wall Street Journal, 2015). A critical component for a pharmaceutical company to be able to produce innovative therapies and discover new medicines, is research and development (R&D). However, taking a look at the historical R&D expenses of Pfizer, there are no signs of Pfizer's offshore earnings being invested in R&D. Evident from Figure 6.6 is the relatively flat R&D

spending measured in percentage of total revenue, compared to the dramatically increasing offshore earnings (only including the reported PRE).

Figure 6.6: R&D in % of sales vs. Reported PRE 1995-2016



Looking at Pfizer's development of reported PRE, there are no indications of Pfizer being willing to repatriate their offshore profits, unless they are given incentives similar to the 2004 repatriation tax break and the 2009 acquisition of Wyeth.

Estimation of taxes owed on offshore profits

An accurate measure of Pfizer's offshore profits is necessary in order to estimate the taxes owed on these earnings. We have already disclosed that Pfizer's offshore profits is comprised of two parts; the publicly reported PRE, and the Stealth PRE obtained from Pfizer's SEC filings. Table 6.7 presents an estimate of Pfizer's total tax liability on offshore earnings. We use a 5-year average foreign tax rate to find the estimated repatriation tax rate of 22.9% in 2016. This yields \$19.726 billion in US taxes owed on their reported PRE. In addition, Pfizer has already disclosed \$23.108 billion in deferred tax on unremitted earnings. The total estimated tax owed on offshore profits is therefore \$42.834 billion.

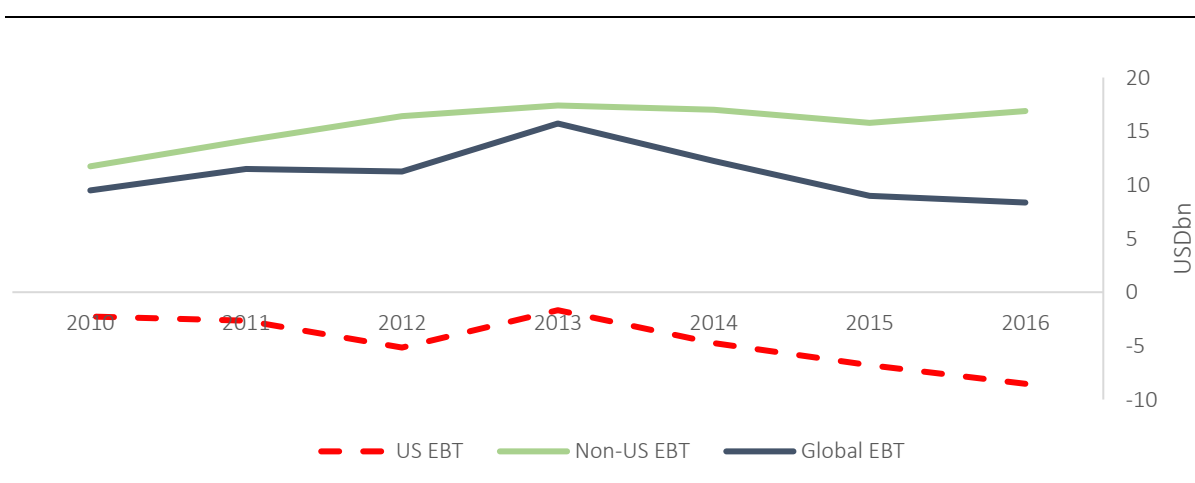
Table 6.7: An estimation of taxes owed by Pfizer on their offshore profits

Estimated Tax Owed on Offshore Profits	
\$ million	
Reported PRE, 2016	86,000
5-year Average Foreign Tax Rate	12.1 %
US corporate tax rate	35.0 %
Repatriation tax	22.9 %
Estimated tax owed on PRE (22.9%)	19,726
Deferred tax on unremitted earnings	23,108
Total estimated tax owed on offshore profits	42,834

6.5 A comparison of domestic and foreign operations

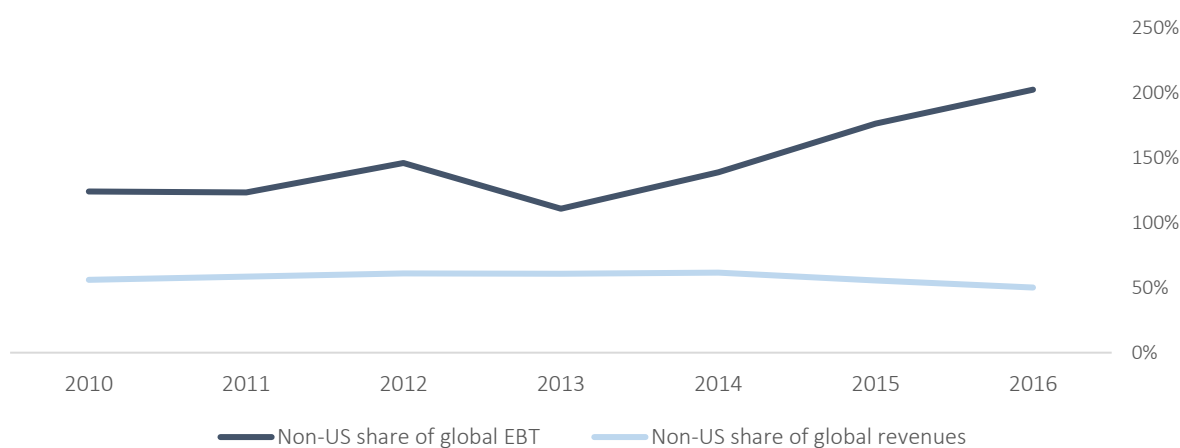
In 2016, Pfizer reported Earnings Before Taxes (EBT) of \$8.352 billion for the group as a whole. However, looking at EBT segmented between US and non-US operations, there are large differences in terms of contribution to the global EBT. In 2016, US contributed with an EBT of -\$8.534 billion, whereas non-US operations contributed \$16.886 billion. The US operations have had a negative contribution to the global EBT every year for the period in focus, 2010-2016, while non-US operations have more than offset the negative EBT in the US each year. Figure 6.7 shows the clear difference in terms of EBT-contribution between US and non-US operations in the 2010-2016 period.

Figure 6.7: US vs. non-US EBT 2010-2016



These clear differences are remarkable taking into consideration Pfizer's geographical distribution of revenues and assets¹³. In 2016, Pfizer's US revenues constituted 49.9% of total revenues and US PP&E amounted to 49.9% of total PP&E.¹⁴ Figure 6.8 illustrates that Pfizer's EBT is disproportionately concentrated outside the US relative to sales. In 2016, for instance, non-US operations contributed with 202% of Pfizer's total EBT, while only generating 50.1% of total revenues.

Figure 6.8: Non-US EBT and revenue in % of totals 2010-2016



The observed asymmetrical allocation of earnings and real economic activity is a feature often attributable to profit shifting. In the case of Pfizer, questions certainly arise on how they can generate 49.9% of sales in the US in 2016, but has yet to report a positive EBT for seven consecutive years. The suspicion surrounding profit shifting is strengthened further by looking at the US pharmaceutical industry. It is one of the most important and competitive sectors in the US economy, being large, diversified and global (ITA, 2016). In addition, the US pharmaceutical market is the largest continental pharmaceutical market in the world, contributing to over 45% of the worldwide sales in 2016 (Statista, 2016). Despite this, Pfizer does not manage to produce positive earnings in the US.

One explanation for the large differences in terms of profitability between domestic and foreign operations, is the cost allocation between US and non-US operations. Pfizer does not provide a segmentation of their R&D costs, nor SG&A costs, but they do state that their R&D

¹³ Measured in PP&E.

¹⁴ See appendix A for the historical segmentation of revenues and PP&E for the 2010-2016 period.

organizations are heavily concentrated in North America. While Pfizer conducts R&D domestically, they transfer the rights to the drugs developed in the US to non-US countries, with Ireland being the main patent holder. The patent holders produce the drugs and sell them back to the US affiliates, charging higher prices (Reuters, 2015). We examine Pfizer's strategic location of patents in more detail under section 6.7.1.

According to Pfizer, their intercompany transactions are fair and follow the arm's length principle. However, the pricing of intellectual property, such as patents, involves significant uncertainty due to the lack of comparable market prices. The reported losses in the US, however, are a strong indication of the patent-pricing being far from fair. The US affiliates are responsible for the costs of developing Pfizer's products, but have to pay foreign subsidiaries for the rights to sell these products, leaving Pfizer's US operations with large losses. As a result, profits are shifted from the US, a high-tax jurisdiction, to subsidiaries located in low-tax jurisdictions offshore.

6.6 Attempted tax inversions

In chapter 3.4.3, we explained how companies can reduce their tax bill by merging with a rival in a country with more lenient tax regulations, and make this other country the domicile of the merged company. This manoeuvre is known as tax inversion, and has primarily been utilized by US multinationals looking to escape their country's demanding corporate tax regime. Pfizer has been in active pursuit of the execution of this strategy for several years, but has seen their attempts fail for various reasons. Technically speaking, tax inversion is therefore not a mean of tax avoidance that Pfizer has made successful use of, unlike the other methods discussed in this paper. Nonetheless, given the obvious efforts, extensive media attention and likelihood of future attempts, we choose to devote this subject coverage.

6.6.1 AstraZeneca | 2014

In 2014, Pfizer launched a £69 billion bid to acquire the Anglo-Swedish drug maker AstraZeneca, in a move that would have created the world's largest pharmaceutical business (Rankin, 2014). Perhaps more importantly, the merger would have enabled Pfizer to re-domicile its tax base to the UK. The US multinational's CEO, Ian Read, made no attempt to deny the fact that tax savings were a substantial part of the deal's rationale. This caused dismay

on both sides of the Atlantic; from the US government because they would miss out on taxes, and from the UK as the merger would entail job cuts and reduced R&D spending. Ultimately, the deal broke down when the AstraZeneca board refused to enter formal discussions, as they believed that the £55 per share offer undervalued their business.

6.6.2 Allergan | 2015

One year after the failed AstraZeneca inversion, Pfizer made another attempt at relocating their tax residence. This time, the Irish pharmaceutical company Allergan was the target in a \$160 billion merger that would have been the largest tax inversion deal of all time (Davies & Rushe, 2015). Unlike the AstraZeneca pursuit, which broke down because the parties failed to reach an agreement, Allergan was eager for the proposed transaction to be completed. This time, however, the completion of the deal was obstructed by new regulations imposed by the US Department of Treasury. Although the new rules did not mention Pfizer and Allergan by name, certain elements appeared to have been designed specifically to bring their ongoing process to a halt. The old regulations contained a constraint for inversions, stating that the US company set to re-domicile could only hold up to 60% of the combined company in order to reap the full benefits of an inversion. For this reason, the Pfizer-Allergan deal was structured such that Pfizer shareholders would own 56% of the combined company, thus remaining below the threshold (Houder, 2016). The new regulations, however, altered the method for which the sizes of the merging companies were calculated. More specifically, when calculating the size of a foreign acquirer, any assets acquired from US companies in the preceding three years would have to be ignored. As Allergan has a history of being a serial acquirer, these new rules would result in Pfizer gaining approximately 80% of the ownership in the combined entity, and thereby breaching the threshold of 60% (Financial Times, 2016). This ultimately led Pfizer's board to abandon the deal.

In order for Pfizer to be willing to execute a \$160 billion merger which was primarily driven by tax incentives, expected savings were likely to have been of significant magnitude. In the initial press release announcing the definitive merger agreement, Pfizer wrote that they anticipated the combined company to have an effective tax rate of 17-18% by the first full year of joint operation, which would likely have been in 2017 (Pfizer, 2015). However, as we strived to show in chapter 6.3.2, Pfizer's adjusted ETR is in fact much lower due to the large amount of overseas earnings. In our opinion, the most accurate approach to estimating the

potential tax savings inherent in the Pfizer-Allergan inversion is therefore by considering what Pfizer would save by never having to repatriate earnings. Conveniently, we calculated this in table 6.7 under chapter 6.4.2, where we present figures for both deferred tax on unremitted earnings, as well as an estimate on the tax owed on permanently reinvested earnings. The former amount, namely the deferred US taxes on unremitted earnings, is given by Pfizer's financial reports, and equalled \$23.1 billion in 2016. The tax owed on permanently reinvested earnings, which is contingent on our estimated repatriation tax rate, amounts to \$19.7 billion according to our calculations. It can of course be discussed whether this latter number should be included, as their status as being permanently reinvested should entail that they will never be repatriated. Nevertheless, as the tax inversion would have granted Pfizer access to these funds, we find it purposeful to include it, resulting in expected tax savings of \$42.8 billion for Pfizer in their attempted tax inversion with Allergan. To put this number in perspective, Pfizer anticipated the merger to deliver \$2 billion in operational synergies over the first three years of combined operations (Pfizer, 2015). This underlines the pivotal role of taxes in this deal, and helps explain why Pfizer ultimately chose to abandon the inversion when the US Treasury imposed new rules.

6.7 Transfer pricing

In chapter 3.2, we discussed the concept of transfer pricing, and how multinationals may exploit this as a tool for shifting income from high-tax to low-tax jurisdictions. In this section, we will examine whether Pfizer appears to be conducting abusive transfer pricing, and if so, to what extent they do it. We will first look at the pharmaceutical company's management of patents and their adherent royalties, before we move on to an indirect analysis as described in chapter 5.1.2, in which we scrutinize the relationship between profit margin and tax rate for a selection of affiliates.

6.7.1 Patents

Intellectual property, especially patents, plays a central role in Pfizer's business model. This is to some extent illustrated by the fact that intangible assets, including goodwill, accounted for as much as 80% of Pfizer's reported fixed assets as of year-end 2016 (Pfizer, 2016b). In chapter 3.2.3, we discussed the concept of royalty payments, and how multinationals may exploit this mechanism in order to reduce their own tax liability. The upcoming section will

build on this by examining Pfizer's patent management, and discuss whether the pharmaceutical company's royalty structure is designed to avoid taxation.

The role of patents

Patents are of major importance to pharmaceutical companies. One of the primary explanations for this lies in the somewhat special cost structure of drugs and vaccines. For products like clothes, cars and food, a large proportion of each item's cost relates to the input factors and manufacturing process required for that specific item. For pharmaceutical products, on the other hand, a majority of the costs are incurred in the R&D stage, while the marginal cost of producing the drug in the form of a pill or a liquid often is minuscule (Schweitzer, 2007). Patents are thus a way of incentivizing drug research by providing a promise of exclusive product rights for a given period of time. Gaining an accurate overview of the number of patents held by Pfizer has proven difficult, but they hold several thousand regulatory exclusivities, and there are many new filings and expirations each year.

Tactical patent location

On the outskirts of Ringaskiddy, a village in County Cork, Ireland, Pfizer Ireland Pharmaceuticals is located (Pfizer, 2017d). This is an operating subsidiary of Pfizer Inc., which manufactures and exports bulk pharmaceuticals to affiliate plants around the world. This particular Pfizer entity is well-known for being the patent holder for some of the pharmaceutical corporation's most profitable products. While there is nothing illegal about the location itself, the motive and method behind the rich patent inventory have been labelled devious. This is because several of the products that are manufactured and exported from Ringaskiddy were discovered and developed at facilities in the US. When developed, however, Pfizer is able to transfer the patents through the use of intra-group transactions. In simplified terms, Pfizer's US affiliates are therefore paying for the imports of products developed in their own nation.

According to the 2015 annual report of C.P. Pharmaceuticals International CV, a Dutch holding company for Pfizer's non-US operations, total royalty expenses of overseas subsidiaries amounted to \$2.95 billion. However, it is fair to assume that the opposite cash flow, which is the price paid by US affiliates upon their import of products, is substantially higher. This assumption is derived from the fact that Pfizer's US operations have incurred losses in each of the last six years, with the largest loss being \$8.53 billion in 2016. In the

same year, the US accounted for as much as 49.9% of the multinational's total revenues, while having stronger patent exclusivity than the overseas markets of for instance Europe and Japan. In comparison, C.P. Pharmaceuticals International CV reported profit margins of 40% and 38% in 2015 and 2014, respectively.

Example: The Viagra patent

In order to illustrate Pfizer's active management of patent locations, we will now present the patent history for sildenafil citrate, commonly known as Viagra. Being a famous treatment against erectile dysfunction, this medication has been one of Pfizer's main profit sources for more than a decade. Despite having lost regulatory exclusivity in Europe and Japan in 2013 and 2014, respectively, the product accounted for \$1.22 billion in revenues in 2016. For comparison, Viagra sales reached its summit in 2012, when it generated sales of \$2.10 billion as Pfizer's 6th highest grossing product.

Pfizer patented sildenafil citrate in the US in 1996, and after the drug was granted approval by the US Food and Drug Administration in 1998, it quickly took the market by storm (Wilson, 2013). In 1999, the year following Viagra's market launch, the patent for sildenafil was transferred from the US to Pfizer Research and Development Company NV/SA, a hybrid structure based in Belgium and Ireland (Google Patents, 1997). Although it is hard to ascertain whether this relocation was motivated by tax concerns, Belgium has a history of offering generous tax deductions on royalty income stemming from intellectual property. Then, in 2003, the patent for sildenafil was transferred yet again, to previously discussed Pfizer Ireland Pharmaceuticals in Ringaskiddy, where it has remained since. Serving as a hub for Viagra, this manufacturing plant has produced tonnes of the blue pill and exported it to affiliates around the world.

This example illustrates how Pfizer appears to be actively locating patents for intellectual property in jurisdictions where royalties are taxed at a low rate. In addition to Viagra, this method of patent shifting has been conducted for other high-grossing Pfizer products, such as the cholesterol medicine Lipitor, and the epilepsy drug Lyrica.

6.7.2 Indirect analysis

To examine whether Pfizer shifts profits using abusive transfer pricing, we conduct an indirect analysis of transfer pricing, by analyzing the profit margin of Pfizer's subsidiaries in relation to the statutory corporate tax rate of the country in which they operate. If Pfizer shifts profits from high-tax jurisdictions to low-tax jurisdictions, one should expect to see higher profit margins in low-tax jurisdictions. Using the ORBIS database, we have derived five years (2012-2016) of historical operating revenue and net income for Pfizer's affiliates. The statutory corporate tax rate for relevant countries are collected for the same period, taken from KPMG's 2017 corporate tax rate tables. Table 6.6 shows the 5-year average profit margin and the corresponding 5-year average statutory corporate tax rate for 37 different subsidiaries of Pfizer, including the tax-jurisdiction in which they operate. An average of the statutory corporate tax rate is used, as some countries have experienced a change in their corporate tax rate over the period.

Table 6.6: 5-year average profit margin and tax rate for Pfizer subsidiaries 2012-2016

Company	Country	Profit margin ¹⁵	Tax rate
PFIZER INNOVATIVE SUPPLY POINT INT.	Belgium	37.09 %	33.99 %
PFIZER HEALTH AB	Sweden	33.95 %	22.86 %
PFIZER CONSUMER HEALTHCARE AB	Sweden	24.23 %	22.86 %
PFIZER INDIA LIMITED	India	20.54 %	33.93 %
PFIZER PHARMACEUTICAL (Wuxi) CO., LTD.	China	18.59 %	25.00 %
PFIZER PHARMACEUTICALS LIMITED	China	16.35 %	25.00 %
PFIZER PGRD	France	12.63 %	33.33 %
PFIZER UKRAINE LTD.	Ukraine	10.62 %	18.80 %
PFIZER HOLDING FRANCE	France	10.33 %	33.33 %
PFIZER POLSKA SP. Z O.O.	Poland	9.46 %	19.00 %
PFIZER (THAILAND) LTD.	Thailand	9.23 %	20.60 %
PFIZER UK LIMITED	United Kingdom	5.74 %	21.60 %
PFIZER ROMANIA SRL	Romania	5.01 %	16.00 %
PFIZER BH D.O.O. SARAJEVO	Bosnia and Herzegovina	4.75 %	10.00 %
PFIZER AS	Norway	4.63 %	27.00 %
PFIZER LEASING UK LIMITED	United Kingdom	4.54 %	21.60 %

¹⁵ Profit margin = $\frac{\text{Net Income}}{\text{Operating Revenue}}$

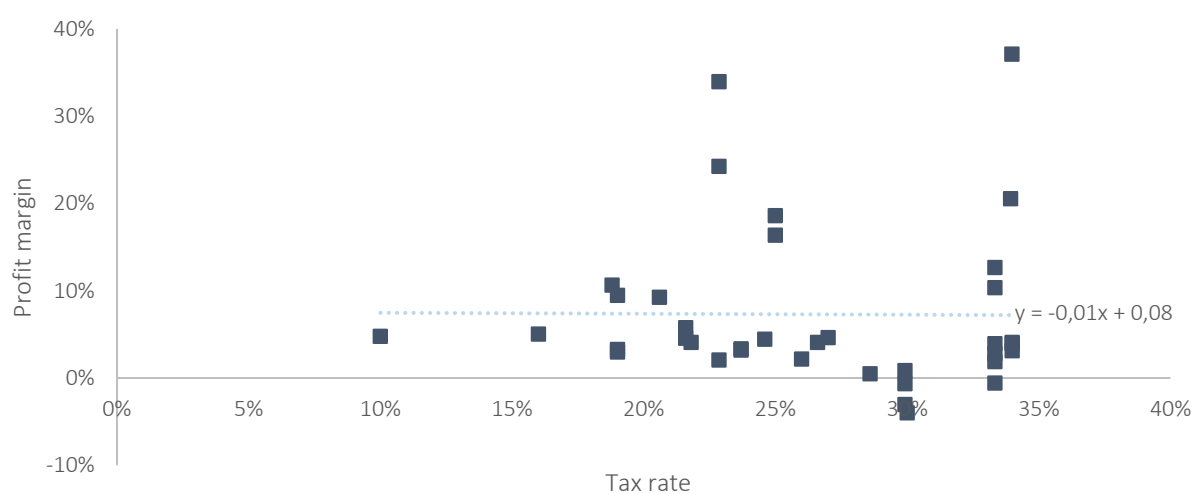
PFIZER (MALAYSIA) SDN BHD	Malaysia	4.43 %	24.60 %
PFIZER S A S	Colombia	4.06 %	26.60 %
PFIZER OY	Finland	4.05 %	21.80 %
PFIZER MANUFACTURING BELGIUM	Belgium	4.05 %	33.99 %
PFIZER INTERNATIONAL OPERATIONS	France	3.90 %	33.33 %
PFIZER BELGIUM	Belgium	3.90 %	33.99 %
PFIZER APS	Denmark	3.32 %	23.70 %
PFIZER PFE, S.R.O.	Czech Republic	3.27 %	19.00 %
PFIZER PFE APS	Denmark	3.18 %	23.70 %
PFIZER SERVICE COMPANY	Belgium	3.10 %	33.99 %
PFIZER TRADING POLSKA SP. Z O.O.	Poland	2.95 %	19.00 %
PFIZER FRANCE	France	2.78 %	33.33 %
PFIZER GREECE A.E.	Greece	2.16 %	26.00 %
PFIZER AKTIEBOLAG	Sweden	2.05 %	22.86 %
PFIZER SANTE FAMILIALE	France	1.87 %	33.33 %
PFIZER ITALIA S.R.L.	Italy	0.85 %	29.92 %
PFIZER SL	Spain	0.47 %	28.60 %
PFIZER PGM	France	-0.60 %	33.33 %
PFIZER S.R.L.	Italy	-0.66 %	29.92 %
PFIZER CONSUMER MANUF. ITALY S.R.L.	Italy	-3.05 %	29.92 %
PFIZER AUSTRALIA HOLDINGS PTY LTD.	Australia	-3.99 %	30.00 %

Pfizer Innovative Supply Point International BVBA (PISPI) and Pfizer Health AB report the highest average profit margins, well above the other subsidiaries. PISPI is a Belgian subsidiary, which during 2016 had activities transferred from other Pfizer subsidiaries due to a reorganization of the Pfizer Group. Made effective in the second quarter of 2016, Pfizer's segments were reorganized into the two segments discussed in section 6.1, Innovative Health (IH) and Essential Health (EH). As a result, PISPI was made the global supplier of Pfizer's IH products, increasing their revenues from \$400,000 in 2015 to \$12 billion in 2016. PISPI averaged 46.35% in profit margin before the reorganization (2012-2015), and had a drastically lower profit margin post-reorganization at 0.03%. The implementation of additional activities to make PISPI a global supply point, or their artificial high profit margin pre-reorganization, could be explanations for the major drop in profit margin. Pfizer Health AB, a Swedish subsidiary, produce semi-manufactured goods to other subsidiaries in Europe (mainly Belgium), where the products are further processed. They have, compared to PISPI, reported a more stable profit margin over the five-year period. Both companies are examples of

subsidiaries being exposed to transfer pricing, as they are performing intercompany trades on a global scale.

The subsidiaries are ranked by descending profit margin in table 6.6. If Pfizer conducts abusive transfer pricing to shift profits, one should expect to see an increasing profit margin as tax rate decreases. Figure 6.9 presents a simple linear regression, showing how corporate tax rate affects the reported profit margin of subsidiaries in the Pfizer Group. As observable from the figure, there is a slightly negative trend between the tax rate and reported profit margin, indicating the use of transfer pricing to shift profits. However, from a statistical perspective, this is far from a significant relationship due to the low sample size. Thus, we cannot draw a conclusion of Pfizer misusing transfer pricing to shift profits to low-tax jurisdictions based on these results.

Figure 6.9: Linear regression of average corporate tax rate and profit margin 2012-2016



In addition to having a low sample size, one could also argue that the sample is biased. Only 37 of Pfizer's 565 reported subsidiaries have disclosed the financial information necessary to make them suitable for the sample size. We do, for instance, not have any financial information regarding Pfizer's 157 subsidiaries located in tax havens, such as the Irish companies that hold valuable patents and receive large sums of royalties. Therefore, only the subsidiaries that disclose their financial information is included in the sample. The restricted access of financial information limits the opportunity to discover the extent of Pfizer's profit shifting. At the same

time, it emphasizes their complex company structure, locating subsidiaries in tax havens with low transparency and high secrecy with regards to information sharing. Comparing the average 5-year profit margin of the sample size at 7.29% with the corresponding profit margin of Pfizer Inc. at 23.13%, it is evident that the sample represents the lower layer of profitable subsidiaries.

Even though we cannot conclude upon a significant negative relationship between tax rate and the profit margin of subsidiaries in the Pfizer Group, the analysis indicates that irregularities in the transfer pricing do exist. Moreover, we experience how Pfizer's complex company structure and low transparency limit the accessibility to conduct analyses of their transfer pricing.

6.8 Dutch CV/BV

In this section, we present the findings of an in-depth study of Pfizer's company structure, and reveal that a Dutch CV/BV structure helps the company avoid US taxes on offshore profits. More precisely, we present C.P. Pharmaceuticals International CV, a Dutch partnership being at the forefront of Pfizer's tax minimizing company structure. Moreover, we describe the key parts of Pfizer's CV/BV structure and its effect on Pfizer's tax payments.

6.8.1 C.P. Pharmaceuticals International CV

C.P. Pharmaceuticals International CV (CPPI CV) was founded in 1997 and is based in Rotterdam, the Netherlands. The Dutch company is a partnership (Commanditaire Vennootschap) operating as a holding function for Pfizer's overseas operations. According to CPPI CV's 2015 financial report¹⁶, they also carry out the business of manufacturing pharmaceutical and consumer health care products. However, looking at their segmentation of net profit for the period, \$14.5 billion out of \$15.6 billion in net profit was contributed by its subsidiaries, which is evidence that the holding function is of most importance. The Dutch company had 421 subsidiary companies in 77 different jurisdictions in 2015, which constitute a large proportion of the 590 subsidiaries counted in the Pfizer Group that year. Also worth noting is that the number of subsidiaries held by CPPI CV is subject to large changes from

¹⁶ CPPI CV's financial report for the year 2015 is included in the 2015 financial report of Pfizer Norge AS obtained from Brønnøysundregisteret. We have not been able to find other financial information regarding CPPI CV.

year to year. To exemplify, 110 of the 421 owned subsidiaries were new in the consolidation of 2015, and 44 companies were sold, dissolved, merged or restructured. Thus, it is evident that the company structure of CPPI CV is complex and in constant change.

CPPI CV reported total revenues of \$39.258 billion in 2015, which equal 80% of Pfizer's total revenues that year. In the 2015 SEC-filings of Pfizer, total revenues are divided 44/56 between US and offshore operations, respectively. Therefore, in addition to being the holding company of Pfizer's overseas operations, CPPI CV also supplies the US market. For instance, Pfizer Innovative Supply Point International BVBA, a subsidiary of CPPI CV, has 57% of their \$12.366 billion revenues stemming from the US.¹⁷

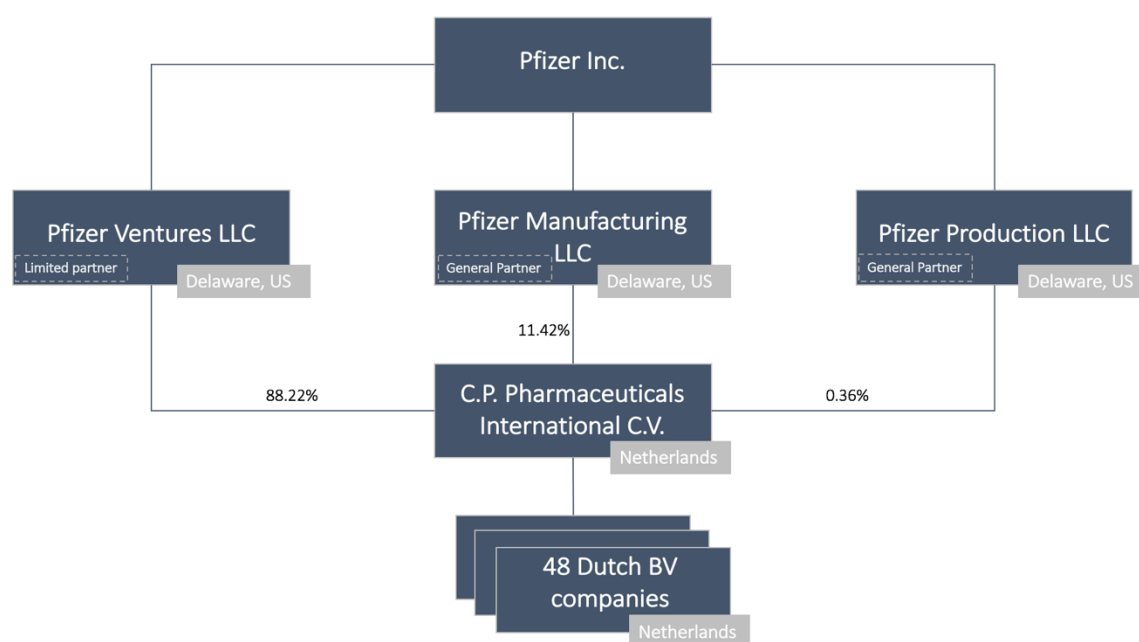
An important discovery about the company's tax situation is found in its 2015 financial report. Here, it is stated that CPPI CV is considered transparent for Dutch tax purposes, and as such is not subject to Dutch corporate income tax or dividend withholding tax. In other words, Pfizer has carefully structured its offshore operations so most of its profits are attributed to a closed Dutch limited partnership. Thus, Pfizer's overseas arm is well suited to be the foundation of a CV/BV structure.

6.8.2 Ownership structure

CPPI CV is owned by three US-based partners. Pfizer Manufacturing LLC and Pfizer Production LLC are general partners for CPPI CV. In total they have a 11.78% ownership stake in the Dutch company. Pfizer Ventures LLC is a limited partner that holds the remaining 88.22% of the company shares. As such, the ownership structure is in line with the typical CV/BV structure described by Vleggeert (2016) in section 3.4.1. The general and limited partners are indirect wholly-owned subsidiaries of Pfizer, making Pfizer Inc. the Partnership's ultimate parent company. As already mentioned, CPPI CV owned 421 subsidiaries in 2015. Of these, 48 subsidiaries are Dutch BV companies with potential to complete the Dutch CV/BV structure. The ownership structure of CPPI CV is illustrated in figure 6.10.

¹⁷ Based on their 2016 figures.

Figure 6.10: An illustration of CPPI CV's ownership structure



6.8.3 Dutch BV companies

The Dutch BV companies are used to channel earnings from the offshore operations into CPPI CV by the distribution of dividends, interest payments and/or royalties. In section 3.4.1, we explain how Dutch BV companies usually act as holding companies for the non-US subsidiaries of the multinational company. There are as many as 48 wholly-owned Dutch BV subsidiaries of CPPI CV, of which none publicly disclose their financial information. According to CPPI CV's 2015 annual accounts, the Dutch subsidiaries are exempt from filing their own financial accounts, because a statement of responsibility (403)¹⁸ is filed. As such, it is difficult to identify and analyze the last piece in Pfizer's CV/BV structure. A similar relation is explicitly stated in CPPI CV's 2015 annual accounts regarding the Irish subsidiaries. The Partnership has guaranteed the liabilities of the Irish subsidiaries in order to allow them to avail of the exemption from filing their individual financial statements in 2015.

What is evident from CPPI CV's BV subsidiaries, however, is that Pfizer has separate BV companies for the different countries in which Pfizer has offshore operations. To exemplify, the BV companies take names such as: Pfizer PFE Ireland BV, Pfizer Germany Partner BV

¹⁸ The 403 statement of responsibility refers to Section 403 in Volume 2 of the Dutch Civil Code. Subsidiaries are exempted from publishing and arranging their annual accounts upon filing of the 403 declaration. This is dependent upon the parent company assuming joint and several liability for the debts of the relevant subsidiary (Kennedy Van der Laan, 2009).

and Pfizer PFE Spain BV.¹⁹ Taking a closer look at the Dutch BV companies, we find that close to all are registered at the same address in the Netherlands: Rivium Westlaan 142, Capelle aan den IJssel. This is the address of Pfizer's Dutch headquarters, where a total of 70 Pfizer companies are registered²⁰. With the exception of Pfizer BV being a producer and distributor of pharmaceutical goods, the majority of the Dutch BV companies are registered as holding companies or providers of financial services. The Dutch BV companies are the last piece in Pfizer's CV/BV structure, and it seems reasonable to assume that more than one Dutch BV company is central in Pfizer's CV/BV structure.

6.8.4 The workings of Pfizer's CV/BV structure

With the 2015 annual accounts of CPPI CV as the only source of information on Pfizer's central overseas arm, and no financial information regarding the Dutch BV companies, it is difficult to identify the financial flow between the BV companies to CPPI CV. However, based on the 2015 annual accounts and other acquired information regarding Pfizer's operations, we can assess the method for how Pfizer is using CPPI CV to take advantage of hybrid mismatches²¹.

CPPI CV has an average profit margin as high as 38.73% in the 2014-2015 period. In comparison, Pfizer Inc. and peer companies²² have an average profit margin of 19.04% and 20.94% for the same period, respectively. Our sample subsidiaries used in the transfer pricing analysis have an average 2014-2015 profit margin of 8.28%. Clearly, CPPI CV is one of the better performing companies in the Pfizer Group. We have no foundation to state that CPPI CV use abusive transfer pricing to achieve an abnormally high profit margin, other than the proven indication that irregularities in the transfer pricing do exist within the Pfizer Group (see section 6.7.2). We do, however, know from the annual accounts of CPPI CV, that the CV in its normal course of business engages in large intercompany transactions with its affiliated companies and participations. In 2015, CPPI CV had a net amount of intercompany service and goods transactions of -\$4.034 billion and \$15.330 billion, respectively. In addition, they had a total of \$61.506 billion in accounts receivable from affiliated companies and participations. As such, the magnitude of intercompany transactions is substantial and may be

¹⁹ See appendix B for a complete list of CPPI CV's Dutch BV companies as of 2015.

²⁰ Information gathered from the www.drimble.nl, a Dutch search engine with an overview of Dutch company registrations.

²¹ The phenomenon where companies exploit the fact that US and Dutch governments do not share the same view of a Dutch CV: The Dutch government sees a company with US owners, subject to US taxation. Whereas in the US, the company can decide where to pay their taxes (Der Bund, 2017).

²² See appendix D for the list of peer companies.

a tool used by Pfizer to optimize the profit margin of CPPI CV, as the company is in a favorable tax position.

The annual accounts of the Partnership show an equity ratio (E/V) of 100%²³, where the equity amounts to \$115.278 billion. We also observe that the Partnership operates as a considerable source of financing for the group's subsidiaries. In 2015, CPPI CV had \$24.934 billion in outstanding long-term debt to subsidiaries, with interest rates ranging from 0-4.68%. There is no information regarding what subsidiaries are on the receiving end, only a brief overview of loan size and interest rate. Nonetheless, the issuance of intercompany loans could be a method for CPPI CV to lend surplus cash back to the group companies.

The financial flow from the Dutch BVs to CPPI CV is an important part of the CV/BV structure, but as we have already mentioned, it is difficult to identify due to the limited financial information on CPPI CV's Dutch BV companies. Looking at the financial flow out of CPPI CV, they disclose royalty expenses of the consolidated group amounting to \$3.649 and \$2.955 billion in 2014 and 2015, respectively. This is most likely royalties paid to Pfizer companies outside the CPPI CV group or related third parties not included in the consolidated CPPI CV group. Also, the Partnership has distributed \$15.614 billion in dividends to its partners over two years. Clearly, Pfizer's overseas operations are highly profitable.

There are no records of incoming royalties in the CPPI CV annual accounts. We know, however, that CPPI CV has 20 Irish subsidiaries registered in 2015. Among these is Pfizer Ireland Pharmaceuticals, a company we know is the patent holder for some of Pfizer's most profitable products. Thus, there is no doubt that large amounts of royalty payments are floating within the CPPI CV group. CPPI CV received \$1.437 billion in dividends from its subsidiaries and \$3.274 billion in interest income²⁴ in 2015. However, this is the aggregate amount for all of CPPI CV's subsidiaries, and we can therefore not isolate the effect of dividends and interests coming from the Dutch BV companies.

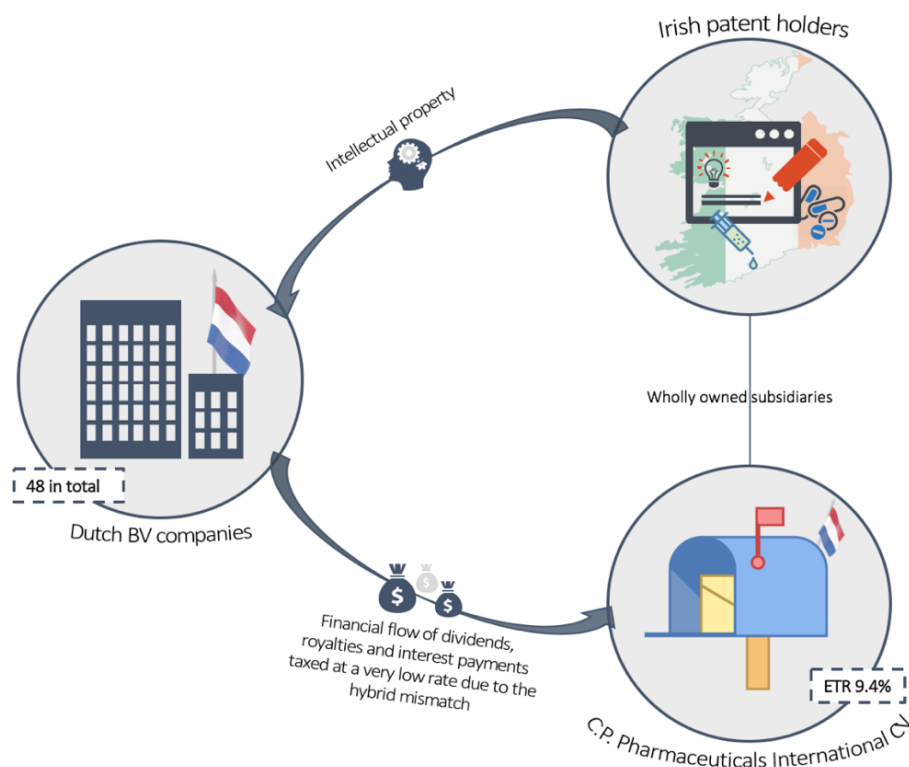
Figure 6.11 illustrates the potential workings of Pfizer's Dutch CV/BV structure. CPPI CV holds patents indirectly through Irish subsidiaries and receives royalty payments from Dutch BV companies for their use of patents located in Ireland. The magnitude of this financial flow

²³ Assuming debt is comprised of interest-bearing debt only.

²⁴ Not including \$1.110 billion in accrued interest from affiliated companies.

is unknown, but it is most likely a substantial amount. In addition, dividends and interests on intercompany loans are floating from the Dutch BV companies to CPPI CV. The earnings will remain in CPPI CV, where it is taxed at a very low rate due to the hybrid mismatch, in addition to being tax deductible at the level of paying company. In 2015, the consolidated group CPPI CV reported an ETR of 9.4%, well below the Dutch corporate income tax of 25%.

Figure 6.11: The workings of Pfizer's CV/BV structure.



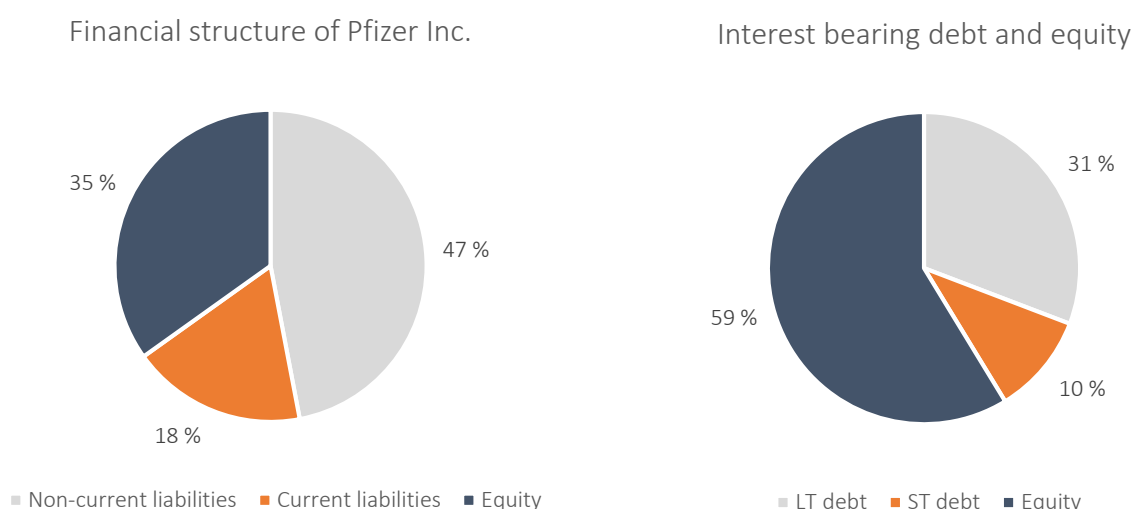
6.9 Thin capitalization

As discussed under chapter 3.3.3, a multinational company can utilize external and internal debt shifting, in addition to the standard debt tax shield, to minimize their tax burden. In this section, we first present Pfizer's global financial structure before examining to what extent Pfizer makes use of external debt shifting to reduce their overall tax liability. Lastly, we localize Pfizer's internal bank and discuss their use of internal debt.

6.9.1 The financial structure of Pfizer Inc.

In 2016, Pfizer Inc. reported total liabilities and equity amounting to \$171.615 billion, of which current liabilities, non-current liabilities and equity amount to \$80.660, \$31.115 and \$59.840 billion, respectively. The financial structure is presented in figure 6.12. Focusing on Pfizer's interest-bearing debt, the non-current liabilities are constituted of \$31.398 billion in long-term debt, whereas the current liabilities contain \$10.688 in short-term debt. With a total interest-bearing debt of \$42.086 billion at the parent level, Pfizer Inc.'s total debt to total assets ratio (D/V) equals 24.52% in 2016. With a 5-year average D/V of 22.04%, Pfizer Inc. is aligned with the 5-year average D/V of its peers at 24.41%.

Figure 6.12: An overview of the financial structure of Pfizer Inc. 2016



However, comparing the amount of debt held by the company as a whole with the debt borne by Pfizer's overseas arm, CPPI CV, is much more insightful. Only \$1.55 billion of the \$42.086 billion in total debt (4% of the total debt) is borne by CPPI CV. It is therefore natural to assume that a large amount of the remaining \$40.535 billion in debt is located in the US. Having in mind the distribution of revenues and assets between US and non-US operations, presented in section 6.5, the large borrowings in the US could be yet another way for Pfizer to shift profits abroad. According to Reuters (2015), Pfizer has stated that the practice of borrowing in the US reflects lender preferences rather than an attempt to shift profits. Nonetheless, having the

majority of the company's debt located in the US helps Pfizer to reduce US profits, while offshore profits are increased as a result of a lower debt burden.

6.9.2 External debt shifting

A multinational company can utilize the external debt shifting mechanism by increasing external debt in high-tax jurisdictions and correspondingly reduce external debt in low-tax jurisdictions. In that way, the external debt tax shields are increased while restraining the group's overall bankruptcy costs.

We examine Pfizer's use of external debt shifting by analyzing the debt-ratio of Pfizer's subsidiaries in relation to the statutory corporate tax rate of the country in which they operate. If Pfizer uses external debt shifting as an instrument in their tax planning, one should expect that subsidiaries located in high-tax jurisdictions have a high D/V, and similarly opposite for subsidiaries located in low-tax jurisdictions. The ORBIS database is used to derive five years (2012-2016) of historical data on debt for Pfizer's affiliates. Since ORBIS does not distinguish between external and internal debt, total debt is used as a measure of external debt. Table 6.7 shows the 5-year average total debt to total assets ratio (D/V) and the corresponding 5-year average statutory corporate tax rate (KPMG, 2017) for 46 subsidiaries of Pfizer, including the tax-jurisdiction in which they operate.

Table 6.7: 5-year average D/V-ratio and tax rate for Pfizer subsidiaries 2012-2016

Company	Country	D/V ²⁵	Tax rate
PFIZER INNOVATIVE SUPPLY POINT INTERNATIONAL	Belgium	89.74 %	33.99 %
PFIZER HOLDING FRANCE	France	86.94 %	33.33 %
PFIZER FRANCE	France	86.84 %	33.33 %
PFIZER ROMANIA SRL	Romania	80.52 %	16.00 %
PFIZER TRADING POLSKA SP. Z O.O.	Poland	78.91 %	19.00 %
PFIZER LIMITED	United Kingdom	78.30 %	21.60 %
PFIZER LEASING UK LIMITED	United Kingdom	78.26 %	21.60 %
PFIZER CONSUMER HEALTHCARE LIMITED	United Kingdom	77.41 %	21.60 %
PFIZER INTERNATIONAL OPERATIONS	France	76.18 %	33.33 %
PFIZER SANTE FAMILIALE	France	72.33 %	33.33 %

²⁵ Total debt to total assets.

LABORATÓRIOS PFIZER, LDA	Portugal	71.73 %	23.00 %
PFIZER PGRD	France	65.91 %	33.33 %
PFIZER PGM	France	61.11 %	33.33 %
PFIZER OY	Finland	59.87 %	21.80 %
PFIZER FRANCE INTERNATIONAL INVESTMENTS	France	56.95 %	33.33 %
PFIZER SERVICE COMPANY	Belgium	56.82 %	33.99 %
PFIZER AS	Norway	53.53 %	27.00 %
PFIZER S A S	Colombia	52.45 %	26.60 %
PFIZER PHARMACEUTICALS LTD.	China	52.13 %	25.00 %
PFIZER UKRAINE LIMITED	Ukraine	49.43 %	18.80 %
PFIZER ITALIA S.R.L.	Italy	49.12 %	29.92 %
PFIZER SL	Spain	47.63 %	28.60 %
PFIZER CONSUMER HEALTHCARE AB	Sweden	46.35 %	22.86 %
PFIZER THAILAND LIMITED	Thailand	41.47 %	20.60 %
PFIZER, S.R.O.	Czech Republic	40.42 %	19.00 %
PFIZER S.R.L.	Italy	39.19 %	29.92 %
PFIZER AKTIEBOLAG	Sweden	38.63 %	22.86 %
PFIZER AUSTRALIA HOLDINGS PTY LIMITED	Australia	37.86 %	30.00 %
PFIZER BELGIUM	Belgium	37.20 %	33.99 %
PFIZER POLSKA SP. Z O.O.	Poland	36.67 %	19.00 %
PFIZER INNOVATIONS AB	Sweden	35.29 %	22.86 %
PFIZER GREECE SA	Greece	33.57 %	26.00 %
PFIZER APS	Denmark	32.77 %	23.70 %
PFIZER PFE, S.R.O.	Czech Republic	32.47 %	19.00 %
PFIZER SGPS, LDA	Portugal	27.38 %	23.00 %
PFIZER INDIA LIMITED	India	25.18 %	33.93 %
PFIZER PFE APS	Denmark	24.57 %	23.70 %
PFIZER CROATIA D.O.O.	Croatia	17.79 %	20.00 %
PFIZER MANUFACTURING BELGIUM	Belgium	17.43 %	33.99 %
PFIZER HEALTH AB	Sweden	16.66 %	22.86 %
PFIZER CONSUMER MANUFACTURING ITALY S.R.L.	Italy	12.57 %	29.92 %
PFIZER MEDICAL TECHNOLOGY GROUP	Belgium	0.13 %	33.99 %
PHARMACIA HOLDING AKTIEBOLAG	Sweden	0.01 %	22.86 %
PFIZER FINANCIAL SERVICES	Belgium	0.00 %	33.99 %

Three subsidiaries report a 5-year average D/V of approximately 0%. Pfizer Financial Services (Belgium) and Pharmacia Holding Aktiebolag (Sweden) are both defined as holding companies. Pfizer Financial Services has no revenues, and basically all its assets (€764.7 million of €765.8 million) consist of an investment in a wholly-owned subsidiary in Ireland, Pfizer Holding Venture BO. Pharmacia Holding Aktiebolag also reports zero revenues, as it functions as the holding company of Pfizer's Swedish operations. Pfizer Medical Technology Group (Belgium), however, is defined as a wholesaler of pharmaceutical products in their financial statements. With no registered revenues and total assets of €2.7 million, the company is not central in Pfizer's operations in Belgium. See appendix C for Pfizer's Belgian and Swedish company structure.

Table 6.7 ranks the subsidiaries by descending D/V-ratio. Based only on the distribution presented in the table, it is hard to see a clear trend that supports the hypothesis of external debt shifting. A simple regression is performed on the data sample to better examine the relationship between tax rate and D/V-ratio for Pfizer's subsidiaries. The regression is presented in figure 6.13.

Figure 6.13: Linear regression of average corporate tax rate and D/V-ratio 2012-2016



Evident from the regression, is the positive relationship between tax rate and D/V-ratio, meaning that an increase in the tax rate implies an increased D/V-ratio for Pfizer's subsidiaries. Although the relationship is far from statistically significant due to the high uncertainties caused by limited information on Pfizer's subsidiaries, it is an indication that Pfizer makes use of external debt shifting to shift profits from high-tax jurisdictions to low-tax jurisdictions.

Optimally, these findings should be investigated further with more complete information on Pfizer's subsidiaries in addition to more detailed data on external and internal debt.

6.9.3 Internal debt

To examine Pfizer's use of internal debt as a source to finance its affiliated companies, we strive to identify their internal bank. Pfizer does not disclose any information regarding their use of intercompany debt, nor the location of their internal bank, in their SEC-filings. However, information about Pfizer's internal bank can be found in the notes of Pfizer Innovative Supply Point International's 2016 financial accounts. Here, The Dublin Treasury Center (DTC) is referred to as the internal bank of the Pfizer Group. This is confirmed by Pfizer Ireland's own website (2017), where DTC is described as Pfizer's global treasury center outside the US, and the provider of in-house banking and corporate treasury services to all of Pfizer's international affiliates, including intercompany loans and deposits.

As such, Pfizer operates their internal bank from Ireland, a low-tax jurisdiction with a corporate income tax of only 12.5%, well below the European average²⁶. This is in line with previously presented theory²⁷, stating that a multinational should locate its internal bank in the country with the lowest effective tax rate in order to maximize the internal debt tax shield. There is no financial information available for DTC, or any of Pfizer's Irish subsidiaries, making it difficult to investigate Pfizer's use of internal debt in detail. Nonetheless, there is no doubt that Pfizer has large incentives to perform intercompany debt activities from their internal bank, given the low tax rate present in Ireland. According to Reuters (2015), DTC is a central part in managing Pfizer's offshore profits, which we estimated to approximately \$187 billion in 2016.

²⁶ See table 6.3.

²⁷ See section 2.2.1.

6.10 Conclusive remarks on Pfizer's tax planning

In this chapter, we have strived to identify the tax minimization strategies used by Pfizer in their effort to reduce their tax liability. First, we establish that Pfizer's yearly ETR in 2016 is 0.28%, well below the reported ETR of 13.45%. In addition, we estimate their profits stashed offshore to total \$187 billion, consisting of reported and stealth PRE. Comparing Pfizer's US and offshore operations, we see a clear misallocation of profits and real economic activity. Thus, our preliminary analysis indicates that Pfizer utilizes tax minimization strategies in order to reduce overall tax liability.

In terms of transfer pricing, we find evidence that Pfizer actively locates patents for their most profitable drugs, e.g. Viagra, Lipitor and Lyrica, in jurisdictions where royalties are taxed at a low rate. In addition, we conduct an indirect analysis of transfer pricing on 37 Pfizer subsidiaries, by analyzing their profit margin in relation to the statutory corporate tax rate of the country in which they operate. Even though the analysis fails to show significant signs of abusive transfer pricing, a marginally negative trend between the tax rate and reported profit could indicate the use of transfer pricing to shift profits.

Moreover, we reveal that the majority of Pfizer's offshore operations is part of a Dutch CV/BV structure. The foundation of the structure, C.P. Pharmaceuticals International CV, acts as a holding entity for Pfizer's overseas operations, while being considered completely transparent for Dutch tax purposes. Due to hybrid mismatches, all offshore earnings are exempt from taxation, both in the Netherlands and the US. Furthermore, we examine Pfizer's use of external debt shifting as a tax planning tool, and find indications of strategic profit shifting. Lastly, we reveal that as much as 96% of Pfizer's total debt appears to be borne by the multinational's US entities, yielding large tax deductions on interest expenses.

Overall, it proved a challenging task to analyze Pfizer's tax planning strategies due to the non-transparency caused by the company's intricate company structure. Despite this, we identified the use of several classical tax avoidance methods, and thereby conclude that Pfizer makes use of aggressive tax planning in order to reduce overall tax liability.

7. Future Tax Regulations

The flaws of the international tax systems have never been more heavily discussed than it is today, as it is evident that regulations currently in place are not adequate to tackle the integrated corporate structures of a globalized world. With a widespread consensus among the world's nations that action must be taken to combat tax discrepancies, several legislations and frameworks have been initiated in recent years. These measures' common aim is to limit tax avoidance and artificial shifting of profits between jurisdictions, thus targeting tax-privileged multinationals. In this section, we will review some of these tax regulations, of which some are currently being implemented, while others are under consideration.

7.1 Base erosion and profit shifting

Base erosion and profit shifting (BEPS) refers to tax avoidance strategies that exploit mismatches in tax rules in order to artificially shift profits to low or no-tax jurisdictions (OECD, 2017e). In 2012, the Organization for Economic Co-Operation and Development (OECD) and the G20 countries initiated a project to address these gaps by constructing a comprehensive action plan, which was eventually completed in 2015 (OECD, 2015). The result is the so-called BEPS Package, which contains a total of 15 actions that are designed to equip collaborative nations with tools to combat tax avoidance. At the time of writing, 108 countries and jurisdictions have agreed to collaborate on the implementation of the BEPS measures, with Trinidad and Tobago being the latest to join (OECD, 2017c).

7.1.1 Action plan

The 15 actions are to be incorporated in each participant's domestic laws and regulations, but also rely on changes in cross-border tax treaties. Overall, the project can be said to consist of three pillars: (i) facilitation of consistency in domestic tax rules that affect cross-border activity, (ii) strengthening of currently existing requirements to substance and (iii) improvement of certainty and transparency (European Parliament, 2017). Implementation is already underway in a number of jurisdictions, but as the goal of the project is to address root causes instead of symptoms, follow-up and stabilization is likely to be a lengthy process.

7.1.2 Anti-Tax Avoidance Package

The Anti-Tax Avoidance Package (ATAP) is a proposal developed and fronted by the EU Commission, and is part of an agenda for fairer, simpler and more effective corporate taxation in the EU region (European Commission, 2016). The package serves as a tool box for the EU member states in their quest to prevent aggressive tax planning and improve transparency, and is meant to complement and reinforce the OECD's BEPS project.

7.2 Common Consolidated Corporate Tax Base

In section 4.1, we looked at different tax allocation methods, and briefly discussed the concept of Formulary Apportionment (FA) as an alternative to the present system of Separate Accounting. The Common Consolidated Corporate Tax Base (CCCTB) is an FA system that will regard multinational companies as a single taxable unit within the EU zone, which will determine the tax liability of a company's affiliates based on their real economic substance instead of their reported income (European Parliament, 2017). Companies that operate across the EU will therefore no longer have to deal with 28 different domestic tax laws when computing taxes.

7.2.1 Implementation strategy

The CCCTB was first tabled by the EU in 2011, but failed to be agreed upon due to strong opposition from various member countries (European Commission, 2016). Among several shortcomings of the original proposal was the idea that CCCTB should be voluntary for the corporations, which therefore become subject to one of the key changes when the program was re-launched in October 2016. In addition to making the FA system mandatory for groups beyond a certain size, the EU Commission has decided to launch the revised reform in two steps. In the first stage, a Common Corporate Tax Base (CCTB) will be introduced, which will entail mutual tax regulations across all EU countries. The FA for large corporations will first be implemented in the second stage, when the actual consolidation element of the CCCTB is launched. This apportionment will be determined by the use of a three-piece distribution key, where the factors of labour, assets and sales by destination will be equally weighted. The labour factor will consist of both payroll and number of employees.

7.3 Allowance for Corporate Equity and Comprehensive Business Income Tax

Allowance for Corporate Equity (ACE) and Corporate Business Income Tax (CBIT) are two favored options for a reform of the traditional corporate tax system. These systems address the discrepancy in current regulations, in which debt has a tax advantage over equity due to the deductibility of interest expenses. Implementation of ACE would entail a conciliation between the two sources of financing, by maintaining the tax deductibility of interest payments, but also allowing for a notional deduction of the risk-free return on equity (Ruf & Schindler, 2015). A CBIT, on the other hand, makes corporate taxation neutral towards financing by invalidating the current system of tax exemption for interest payments.

7.3.1 Considerations

As both of the abovementioned options would entail neutrality in the debt-equity choice, the rationale for thin capitalization would be eradicated, as this relies on the tax advantage of debt. However, other effects will need to be considered for jurisdictions contemplating the use of one of these systems. For instance, the implementation of ACE would reduce the corporate tax base, which will require an increase of the corporate tax rate or other taxes in general in order for government budgets to balance after the reform (Ruf & Schindler, 2015). The opposite will be the case if opting for CBIT, as non-deductibility of interest expenses will result in a wider tax base. Another key difference between the two systems is that CBIT distorts marginal investment compared to ACE, which is why the latter reform option is favoured by many economists. However, if the wider tax base of CBIT is adjusted for by lowering the corporate tax rate, this may increase the host country's appeal for multinational companies, investments and repatriation of profits, and thus make CBIT more attractive than ACE despite the investment distortion.

7.3.2 Examples from the real world

Whereas CBIT has yet to be tested in the real world, there is some practical experience with the ACE system. Varieties of a notional deduction for corporate equity are in place in Belgium and Italy, and has also been tested by Brazil, Croatia, Austria and Latvia (European Commission, 2009). After Belgium implemented ACE in 2006, the system was effective in

reducing corporations' leverage, in addition to attracting foreign direct investment (European Commission, 2014). On the other hand, the reduced tax base resulted in foregone budgetary revenues, making the system somewhat costly. The exact effects thus prove hard to isolate due to the contrary mechanisms. In Italy, a variant of ACE was implemented in 2011, and according to research conducted by Panteghini, Parisi and Pighetti (2012), these measures were successful in reducing Italian corporations' leverage.

7.4 Proposed US Tax Reform of 2017

At the time of writing, the United States is facing one of the largest potential tax reforms in the country's history. The "Tax Cuts and Jobs Act of 2017" is a US Congress bill introduced by the Republican Party, which is meant to simplify the existing Internal Revenue Code of 1986 and boost economic growth (Reilly, 2017). By altering the tax rate for both individuals and businesses, the new legislation would effectively affect every American household and business. The Act was first introduced to the House of Representatives on November 2, where it was passed two weeks later, on November 16 (Long, 2017). On December 2, a revised version of the bill was passed in the Senate, marking a big victory for its advocates. However, the differing House and Senate bills will now have to be reconciled by a working committee before both chambers of Congress will vote once again on the final piece of legislation (Kaplan, Rappeport, & Tankersley, 2017).

7.4.1 Main elements

Overall, large corporations are proclaimed to be the biggest winners if this reform is passed. This is also some of the underlying intention of the bill, as the Republicans seek to make US companies more competitive globally, while giving them greater incentives to be domiciled in the US. One of the most notable elements included in the bill is the plan to cut the top corporate income tax rate from 35% to 20%, which would make it the biggest single drop in the business tax rate ever (Long, 2017). Moreover, companies will be able to deduct all costs related to the purchase of new equipment. The legislation proposal also contains an element which is particularly interesting for multinational companies: Businesses holding cash overseas in low-tax jurisdictions like Ireland, will be able to repatriate this money at a tax rate of 12%, as opposed to the 35% that would normally apply. In total, a non-partisan joint committee on

taxation has estimated the reform to add \$1 trillion to the federal deficit over the next 10 years (Gambino & Siddiqui, 2017).

7.4.2 Implications for Pfizer

If the amended bill is passed by both chambers and signed by President Trump, the fundamental overhaul of the US tax system is likely to affect Pfizer's future tax planning. Although it is difficult to predict the changes due to the uncertain nature of the final tax legislation, we find it interesting to discuss some of the potential effects.

First of all, a top corporate income tax rate of 20% would make the US one of the most tax friendly jurisdictions in the industrialized world (OECD, 2017d). One should expect this to reduce multinational companies' general incentive for actively exempting US profits from taxation, as the savings achieved by shifting profits overseas decrease. Second, if Pfizer were to repatriate offshore earnings at the proposed one-time rate of 12%, they could achieve tax savings of approximately \$20.4 billion²⁸, a number based on various estimates previously presented in this paper.

With this being said, both the new corporate tax rate of 20%, as well as the repatriation rate of 12%, is considerably higher than the effective tax rate Pfizer currently achieves through aggressive tax planning. Hence, the multinational might choose to effectively ignore the US reform. Another argument for why the pharmaceutical group could opt for continuing their current tax arrangements, is that offshore cash may be used in acquisitions overseas. For instance, it should not be deemed unlikely that Pfizer will make another tax inversion attempt if regulations allow for it. However, all of these speculations are further complicated by the uncertainty surrounding how the potential US tax bill will harmonize with European regulations, such as the BEPS project.

7.5 Closing the Double Irish

In section 3.4.2, we explained the tax avoidance strategy which is commonly known as the Double Irish structure. In May 2013, Apple received widespread criticism after a US Senate Committee revealed that they had made use of these intricate Irish structures to be exempt

²⁸ Assuming that Pfizer repatriates \$186.7 billion at the one-time rate of 12%, and that their total tax liability on offshore profits amounts to \$42.8 billion (shown in table 6.7). $Tax\ savings = \$42.8bn - \$186.7bn * 12\% = \$20.4bn$.

from vast amounts of taxes (Homeland Security & Governmental Affairs, 2013). The Double Irish had by no means been a secret until then, nor had the fact that US multinationals had made use of it (Drucker & Bowers, 2017). However, the scrutiny following the Committee's report also caused a public uproar in Ireland, which led the Irish Finance Minister Michael Noonan to abolish the Double Irish in the Budget Statement for 2015 (Campbell, 2014). It became clear that any companies incorporated in Ireland before the end of 2014, but which are in fact operated from tax havens, will have until December 31, 2020, to end these arrangements.

8. Conclusion

This thesis has examined various tax minimization strategies that are available to multinational companies, and investigated the practical use of these through an empirical case study. The methods discussed include, inter alia, transfer pricing, thin capitalization, tax inversion and complex company structures used for conduit and deferral purposes.

The case study focused on the pharmaceutical company Pfizer Inc., a US multinational which is infamous for its aggressive tax planning. According to our analysis, Pfizer held approximately \$187 billion in offshore cash at the end of 2016, of which it is fair to assume that none will be repatriated under current US tax regulations. Adjusting for the permanently deferred taxes on these offshore funds results in an effective tax rate of 0.28% in 2016, compared to the 13.45% reported by Pfizer. This large gap between reported and adjusted tax liability is also present historically, which supports the presumption that the company conducts systematic tax avoidance.

In the subsequent part of the paper, we strived to identify the tax minimization strategies used by Pfizer in their effort to reduce tax liabilities. This was a challenging task due to the non-transparency caused by the company's intricate company structure, but we still identified the use of several classical tax avoidance methods. In terms of transfer pricing, we found evidence that Pfizer actively locates patents for intellectual property in jurisdictions where royalties are taxed at a low rate. This is the case for some of the drug maker's most profitable drugs, e.g. Viagra, Lipitor and Lyrica. Next, an analysis of the leverage in Pfizer's affiliates failed to show significant signs of thin capitalization among overseas subsidiaries, but perhaps more importantly, revealed that as much as 96% of Pfizer's total debt appears to be borne by the multinational's US entities.

Among the most interesting and important finds in our case study is Pfizer's use of a Dutch CV/BV structure. The company C.P. Pharmaceuticals International CV, located in Rotterdam, acts as a holding entity for Pfizer's overseas operations by being the intermediate parent for a significant amount of the group's subsidiaries. This entity is considered completely transparent for Dutch tax purposes, and due to hybrid mismatches, all offshore earnings are exempt from taxation both in the Netherlands and the US.

In the last section of the thesis, we discussed recent developments in tax regulations that are likely to impact the operations and tax planning of multinationals, especially those based in the US. The comprehensive BEPS measures, initiated by the OECD, currently have broad support and is being implemented in a majority of the world's developed nations. Moreover, at the time of writing, the US Congress is in the process of passing a tax reform that could see the US corporate income lowered substantially, thus reducing tax avoidance incentives.

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10. Appendix

A: Historical segmentation of PP&E and revenues

Figure A.1: A segmentation of revenues between US and non-US operations 2010-2016

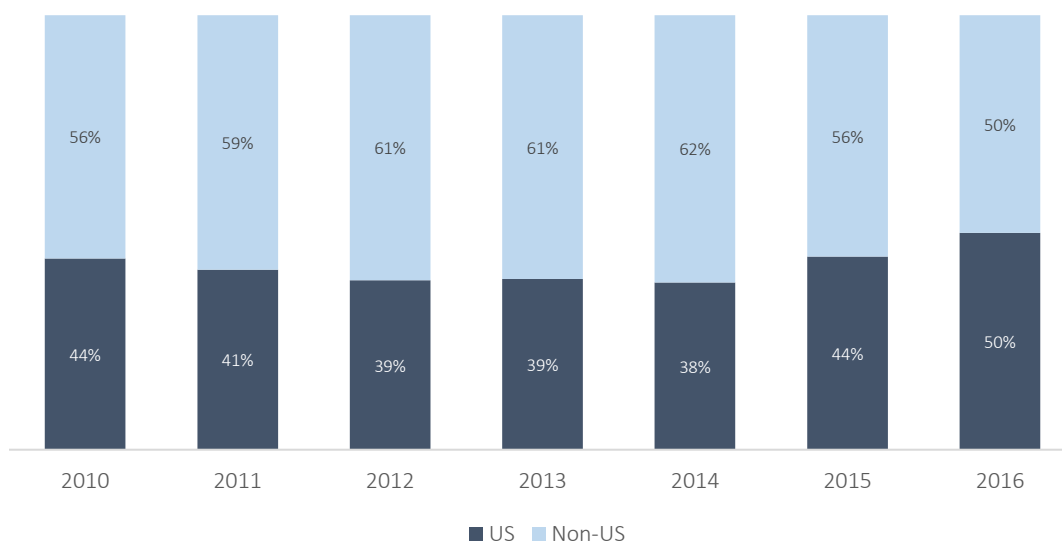
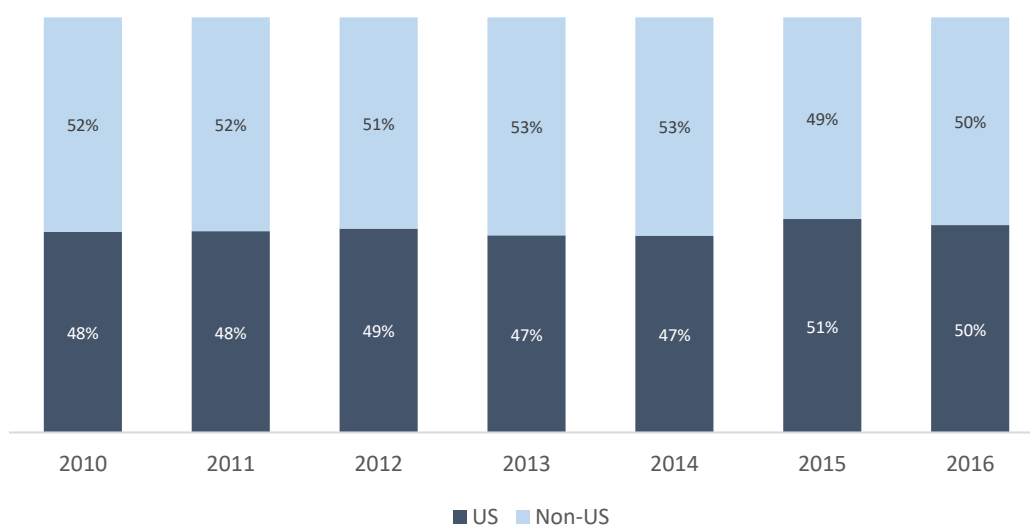


Figure A.2: A segmentation of PP&E between US and non-US operations 2010-2016



B: A list of CPPI CV's Dutch BV companies as of 2015

Table B.1: An overview of CPPI CV's Dutch BV companies as of 2015

Company	Related Jurisdiction*	Adress
Pfizer PFE UK Holding 3 B.V.	United Kingdom	Rivium Westlaan 142
AHP Manufacturing BV		Rivium Westlaan 142
Hospira Healthcare B.V.		Randstad 22-11
AHP Holdings BV		Rivium Westlaan 142
Pfizer Australia Holdings BV	Australia	Rivium Westlaan 142
Pfizer Baltic Holdings BV	Baltic States	Rivium Westlaan 142
Pfizer BV		Rivium Westlaan 142
Pfizer East India BV	India	Rivium Westlaan 142
Pfizer Eastern Investments BV		Rivium Westlaan 142
Pfizer Enterprise Holdings B.V.		Rivium Westlaan 142
Pfizer Europe Finance B.V.		Rivium Westlaan 142
Pfizer Germany Partner B.V.	Germany	N/A
Pfizer Global Holdings B.V.		Rivium Westlaan 142
Pfizer Holdings Netherlands B.V.	Netherlands	N/A
Pfizer Holland Holdings BV	Netherlands	Rivium Westlaan 142
Pfizer Investments Netherlands B.V.	Netherlands	Rivium Westlaan 142
Pfizer OTC B.V.		Rivium Westlaan 142
Pfizer PFE Argentina Holding 2 B.V.	Argentina	Rivium Westlaan 142
Pfizer PFE Argentina Holding B.V.	Argentina	Rivium Westlaan 142
Pfizer PFE AsiaPac Holding B.V.		Rivium Westlaan 142
Pfizer PFE Australia Holding B.V.	Australia	Rivium Westlaan 142
Pfizer PFE Baltic Holdings B.V.	Baltic States	Rivium Westlaan 142
Pfizer PFE BV		Rivium Westlaan 142
Pfizer PFE Eastern Investments B.V.		Rivium Westlaan 142
Pfizer PFE Global Holdings B.V.		Rivium Westlaan 142
Pfizer PFE Ireland 1 B.V.	Ireland	Rivium Westlaan 142
Pfizer PFE Ireland 2 B.V.	Ireland	Rivium Westlaan 142
Pfizer PFE Korea Holding 1 B.V.	Korea	Rivium Westlaan 142
Pfizer PFE Korea Holding 2 B.V.	Korea	Rivium Westlaan 142
Pfizer PFE Mexico Holding 1 B.V.	Mexico	Rivium Westlaan 142
Pfizer PFE Mexico Holding 2 B.V.	Mexico	Rivium Westlaan 142
Pfizer PFE New Zealand Holding B.V.	New Zealand	Rivium Westlaan 142
Pfizer PFE Pharmaceuticals Holding B.V.		Rivium Westlaan 142
Pfizer PFE Croatia Holding B.V.	Croatia	Rivium Westlaan 142
Pfizer PFE PHIL UAE Holding 2 B.V.		Rivium Westlaan 142
Pfizer PFE PHIL UAE Holding 3 B.V.		Rivium Westlaan 142
Pfizer PFE PHIL UAE Holding 4 B.V.		Rivium Westlaan 142
Pfizer PFE Philippines Holding 1 B.V.	Philippines	Rivium Westlaan 142

Pfizer PFE Philippines Holding 2 B.V.	Philippines	Rivium Westlaan 142
Pfizer PFE Poland Holding B.V.	Poland	Rivium Westlaan 142
Pfizer PFE South Africa Holding B.V.	South Africa	Rivium Westlaan 142
Pfizer PFE Spain B.V.	Spain	Rivium Westlaan 142
Pfizer PFE Turkey Holding 1 B.V.	Turkey	Rivium Westlaan 142
Pfizer PFE Turkey Holding 2 B.V.	Turkey	Rivium Westlaan 142
Pfizer PFE UK Holding 1 B.V.	United Kingdom	Rivium Westlaan 142
Pfizer Pharmaceuticals B.V.		Rivium Westlaan 142
Pfizer Sweden Holding B.V.	Sweden	Rivium Westlaan 142
Pharmacia International BV		Rivium Westlaan 142

* An assumption based on company name. All companies are Dutch BV companies and thus included in the Dutch jurisdiction.

C: The Belgian and Swedish company structure

Table C.1: The Belgian company structure as of 31.12.16.

Company	Ownership share	Function*	Country
1. Pharmacia International B.V.**	100 %	N/A	Netherlands
A. Pfizer Manufacturing Belgium	100 %	O	Belgium
I. Pfizer Financial Services	98.11 %	F	Belgium
a. Pfizer Holding Venture BO	100 %	H	Ireland
2. Pfizer International Market Coöperatief U.A.	100 %	H	Netherlands
A. Pfizer SA Belgium	100 %	O	Belgium
I. Pfizer Medical Technology Group	0.08 %	O	Belgium
II. Wyeth Lederle Vaccines SA	0.04 %	O	Belgium
B. Pfizer PFE Belgium SPRL	100 %	O	Belgium
I. Hospira Benelux BVBA	100 %	O	Belgium
3. Pfizer Service Company Holding Coöperatief U.A.	100 %	H	Netherlands
A. Pfizer Innovative Supply Point International BVBA	100 %	O	Belgium
B. Pfizer Service Company BVBA	100 %	O	Belgium

* H = Holding function, F = Financial services, O = Operating company

** Indirect wholly-owned subsidiary of CPPI CV. Only available information regarding direct ownership is Wyeth AB holding a 81% ownership share.

Table C.2: The Swedish company structure as of 31.12.16.

Company	Ownership Stake	Function*	Country
1. Pfizer International Holding SARL**	100 %	H	Luxembourg
A. Pharmacia Holding Aktiebolag	100 %	H	Sweden
I. Wyeth AB	100 %	H	Sweden
a. Pfizer Aktiebolag	100 %	O	Sweden
i. Hospira Nordic AB	100 %	O	Sweden
b. Pfizer ApS	100 %	O	Denmark
c. Pfizer Health AB	100 %	O	Sweden
d. Pfizer Innovations AB	100 %	O	Sweden
i. Pfizer Consumer Healthcare AB	100 %	O	Sweden
e. Pfizer PFE ApS	100 %	O	Denmark
f. Pharmacia International BV	81 %	N/A	Luxembourg

* H = Holding function, F = Financial services, O = Operating company

** Indirect wholly-owned subsidiary of CPPI CV. Latest information regarding direct ownership is given 30.11.11: Pfizer Luxco Holdings SARL (67.76%), Pfizer Pharmaceuticals B.V. (29.39%) and PHIVCO Holdco SARL (2.82%).

D: List of peer companies

Table D.1: The pharmaceutical companies used as peer companies

Company	Market Capitalization (USD '000)	2016 Revenue (USD '000)	Domicile
Johnson & Johnson	376,140	71,890	US
Novartis	217,283	48,518	CH
Roche	168,666	51,356	CH
AbbVie	150,448	25,638	US
Merck & Co.	149,217	39,807	US
Amgen	126,279	22,991	US
Sanofi	108,581	37,434	FR
Bayer	101,815	51,765	DE
Bristol-Myers Squibb	101,214	19,427	US
Novo Nordisk	100,228	16,617	DK
Abbott Laboratories	95,193	20,853	US
Gilead Sciences	94,992	30,390	US
Eli Lilly & Co	94,551	21,222	US
GlaxoSmithKline	84,439	37,800	GB
AstraZeneca	80,196	23,002	GB
Biogen	67,582	11,449	US
Shire	43,942	11,397	US

Teva Pharmaceuticals Industries	15,225	21,903	IL
Merck Group	13,470	16,629	DE
