



MULTINATIONALS VS. DOMESTIC FIRMS AND CORPORATE TAX AVOIDANCE

Differs the tax burden of multinationals compared to Dutch domestic firms on subsidiary level over time?

Rotterdam, August 3, 2017

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ABSTRACT

This thesis contributes to prior research in comparing the tax burden of Dutch subsidiaries over time divided in two samples, subsidiaries owned by multinational corporations and subsidiaries owned by Dutch domestic firms. Both groups show a small average decrease of 1 percent over the sample period 2007-2015. The average tax burden of subsidiaries owned by multinationals is higher than for those owned by Dutch domestic firms what implicates that multinationals do not benefit from income shifting opportunities in order to avoid taxes. The average ETR for both samples do not deviate from the Dutch corporate statutory tax rate. Therefore this thesis concluded that Dutch subsidiaries as part of multinationals or Dutch domestic firms pay their fair share of corporate taxes.

Keywords: tax avoidance, domestic firms, multinational corporations, ETR, tax burden.

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1. INTRODUCTION

1.1 Background & Motivation

Taxes are used to finance the expenses incurred by governmental organizations to manage their economies. “Tax revenues are the lifeblood of democratic government...” (Christensen & Murphy, 2004). Taxes are a fundamental aspect of the underlying basis of today’s society and economy. Governments are dependable from all sort of taxes which they can fund their expenditures. More than seven percent of the total gainings of the Dutch government in 2017 is originates from the corporate taxes, in the Netherlands the so-called ‘Vennootschapsbelasting’. The Dutch corporate taxes are meant for taxing the profits of private companies (in Dutch ‘besloten vennootschap’) and limited liability companies (in Dutch ‘naamloze vennootschap’). These two jurisdictional bodies included both small regional firms as large international-operating multinationals. These large multinationals are well-known examples in the literature, but also in the media related to the phenomenon’s of tax avoidance and evasion. Multinationals as Google, Amazon and Starbucks are companies that make worldwide tax arrangements with governments in order to reduce their international tax burden and to avoid high-tax regimes.

The purpose of tax avoidance is to influence the tax burden in such a way in order to decrease the final payable tax expenses to the authorities. Tax avoidance is a broadly investigated topic in the academic literature and furthermore a much debated phenomenon in the international business and society. One part of the discussion is about the tax avoidance behavior of multinational corporations (MCN’s) nowadays. The overall perception and attention on tax behavior of multinational corporations is that they are able to shift income from high-tax countries towards low-tax countries to reduce their tax burden and in that way avoid high taxes. (Dharmapala & Riedel, 2013); (Dyreng & Markle, 2016). This in contrast to domestic operating companies only, which are not able to shift income across borders should result in tax benefits for multinationals. However, a study in tax behavior of US firms showed that even domestic-only firms reduce their tax burden domestically during a 25-years period (Dyreng, et al., 2016). In this thesis I want to investigate how these results applies to Dutch firms. More specific, this thesis attempts to answer the following research question:

RQ: *Differs the tax burden of Dutch multinationals compared to Dutch domestic operating companies over time?*

To examine and to compare Dutch multinational corporations with Dutch domestic firms in order to answer the before stated research question, the following sub questions will be used:

1. *What is tax avoidance?*
2. *What are the motivations and incentives for tax avoidance?*
3. *What is earlier researched about tax avoidance?*
4. *What are the hypotheses to be tested and how to test them?*

The Netherlands is a well-known attractive jurisdiction for internationally active corporations.

One of the pillars of the Dutch corporate income tax system is to prevent for international double taxation. In contrast to many other countries, there is under Dutch domestic tax law no withholding tax on outbound ordinary interest or royalty payments (Berg & Huisman, 2013). An answer on this research question is therefore relevant to determine whether multinational corporations have an tax advantage compared to domestic operational companies in terms of tax avoidance. Also I want to try to deliver a contribution to the international debate and concerns that lives nowadays in society about tax avoidance of large multinational corporations as Apple, Amazon and especially Starbucks in the Netherlands. The results of this research are also important for legislative and regulatory bodies which compose and create national and international tax rules. In this thesis I want to extend prior studies that investigated the tax behavior and related the tax avoidance of multinational corporations within the USA, on a national level in the USA and in Europe (Beuselinck, Deloof, & Vanstraelen, 2015) (Dharmapala & Riedel, 2013). (Dyregang et al., 2013).

1.2 Methodology & Results

To examine the differences between the tax burden of Dutch multinational corporations and Dutch domestic firms, I will measure the effective tax rate on the level of comparable subsidiaries of both the multinationals as the domestic firms. To create two specific different groups of firms I will make use of database Orbis to extract the data samples. Using the information of the ultimate ownership of Dutch subsidiaries the classifications will be made for defining subsidiaries as being part of a Dutch multinational corporation on the one hand and subsidiaries as being part of a Dutch domestic firm on the other hand. Measuring the tax burden of the firms I will make use of a broadly used measure in literature about taxes, the Effective Tax Rate (ETR). These will be generally calculated as (current or total) income tax expense over before-tax financial accounting income (Janssen & Buijink, 2000). Furthermore, I will make use

of different regression models related to the hypothesis to measure whether there is a significant decreasing trend visible in the tax burden for subsidiaries of multinational corporations compared to those of domestic firms. Therefore two independent variables will be used; the variable *TIME* which will be used to measure the change in *GAAP ETR* over the sample time period 2007-2015, and the dummy variable *MNC* which assume the value 1 in case of a subsidiaries of a multination corporation. The results of the OLS regression analysis find no evidence that there is a significant difference between the tax burden of subsidiaries owned by multinational corporations and the subsidiaries of domestic firms in the Netherlands. Surprisingly, the mean tax burden, measured by the *GAAP ETR*, is for subsidiaries of multinationals higher compared to the typical Dutch subsidiaries. Except for the subsidiaries of Dutch domestic companies, there is no evidence that the *GAAP ETR* decrease over the sample period 2007-2015. Both the sample including Dutch subsidiaries of multinational corporations as in the entire sample including all Dutch subsidiaries presents a small but insignificant decrease in *ETR* over the period. This means that only hypothesis 2, the hypothesis which stated that the tax burden of Dutch subsidiaries owned by Dutch domestic firms decreased over time, can be accepted.

1.3 Contribution & Implications

This thesis will make an extension of prior research into tax behavior and tax differences between groups of companies. A recent study examine the changes in corporate effective tax rates over a period of 25 years. Main finding was that both for multinational corporations as domestic firms the effective tax rates decreased. An early study focused on the role of the state Delaware as a domestic tax haven in the USA. This research provide evidence that U.S. firms locate their subsidiaries in Delaware to be able to reduce their tax burden between 15% and 24% using the Delaware-based tax strategy (Dyreg, Lindsey, & Thornock, 2013). On an European level research into income shifting by multinational corporations (MCNs), both public as private, in combination with tax enforcement showed that a sample of 8,000 subsidiaries owned by 959 European MCNs shift income out from high to low tax countries and this effect is stronger when local tax enforcement is weak (Beuselinck, Deloof, & Vanstraelen, 2015) (Dharmapala & Riedel, 2013). This thesis makes a contribution through investigating whether macroeconomic- U.S. based results also be applied to multinationals and non-multinationals in the Netherlands. A lot of studies examining tax avoidance behavior of multinational corporations on U.S. and European-based level. The question whether multinational corporations have a tax advantage above Dutch domestic companies is relevant to determine whether there are inequalities and

unfair competition. Therefore the results of this thesis are important for legislative and tax regulators when setting tax rules. Finally, this thesis makes a contribution to the current literature about tax behavior in general and tax avoidance specifically. The findings of this thesis implicate that a main opportunity for multinational corporations in avoiding taxes, cross-border income shifting, is not applicable in the Dutch situation. In contradiction to prior studies on U.S. and European level, the main thought is that multinationals can profit from cross-border income shifting in order to avoid taxes, not a competitive advantage for companies which are subsidiaries of multinational corporations versus companies who do have a Dutch parent company. Furthermore, it has some implications for the governmental authorities. The ETR's of Dutch companies, for both groups of companies, do not differ greatly from the statutory tax rates which companies have to pay. The Dutch tax authorities do not have to create new restrictions or legislative in order to mitigate tax avoiding behavior of the Dutch companies.

Next to the authorities, it is important to recognize the results of this thesis as in the public opinion and social debate. Companies, and especially those who are part of a larger multinational, are topic in public discussions and 'pub talk' of paying (fairly or not) taxes. The results of this thesis show that Dutch companies, regarding their effective tax rates, do not avoid taxes when they pay their fair share of taxes to the responsible authorities.

1.4 Structure

The remainder of this thesis is structured as follows. In chapter two the phenomenon of tax avoidance will be pointed out. Several definitions of tax avoidance will be provided from the academic literature about taxes in general and more specific tax avoidance. Furthermore, an answer on the second sub question will be given about the motives and incentives for companies to involve in tax avoidance. Different practical reasons and motivations will be discussed, but also the underlying theories of involving in certain tax behavior as tax avoidance by companies and their managers. In chapter three I will discuss the prior research into tax avoidance on the different (geographic) levels. Thereafter, in chapter four the hypotheses development will be described and explained how to test these. Chapter 5 discussed the dependent variable, the independent variable and the control variables. Subsequently the research design will be explained and the data gathering process described. In chapter six the descriptive statistics and the results will be presented, furthermore an analysis of the results will be given. This thesis will end with a conclusion in chapter seven, with a summary as well and an answer on the research question. Furthermore the implications and limitations of this thesis will be also included in the last chapter.

2. WHAT AND WHY TAX AVOIDANCE

2.1 Introduction

Tax avoidance and also tax evasion are well-known discussed topics in literature, but also in the press and media nowadays. This chapter will discuss tax avoidance and differentiate this from tax evasion and other forms of tax behavior. In section 2.2 several definitions and explanations of tax avoidance will be given. Furthermore, in section 2.3 tax avoidance will be discussed in comparison with other forms of tax behavior such as tax evasion. In section 2.4 the motives and incentives for companies in general to involve in tax avoidance will be discussed. Within these section the underlying theories behind certain tax behavior will be described. Theories as the agency theory and the positive accounting theory are applicable in order to explain and guide the motives and incentives for managers to engage in tax avoidance. At the end, in section 2.5 a short summary will be given and some concluding remarks will be made in answering the first two sub questions; “What is tax avoidance?” and “What are the motivations and incentives for tax avoidance?”.

2.2 Definitions & explanations

Tax avoidance is often a topic for discussion among authorities but also lives in society. People believe that companies have an ethical and civic duty to pay proportional and justified taxes to the responsible authorities. Corporate tax avoidance specific, has received much attention in the last 40 years. Typical well-known accounting scandals as Enron, Tyco and WorldCom are mainly driven by tax avoidance activities as part of earnings management. Tax scandals around certain tax agreements between governments and large companies, for instance Ireland and Apple and Starbucks with the Dutch government, are part of a broad discussion in the public opinion. A lot of these ‘agreements’ are within the national legislation but obvious part of companies tax strategies to avoid high-tax regimes in order to reduce their tax burden. These occurrences pointed out that taxes play an important role in corporate decision-making. Managerial actions are motivated by tax consequences and therefore certain tax behavior is intertwined throughout the company.

In order to get a better understanding of the before described issues, the concept ‘tax avoidance’ have to be framed and defined. However, tax avoidance is not easily to define in one way. According to Hanlon & Heitzman (2010) “there are no universally accepted definitions or constructs for tax avoidance”. One of the shortest and probably oldest known definition is “The

art of dodging tax without actually breaking the law” (Wheatcroft, 1955) Another often cited definition is those of Dyreng et al., 2008 who explained tax avoidance as reflecting all transactions that have any downside effect on the firm’s explicit tax liability. Hanlon and Heitzman (2010) argued that these definition of Dyreng et al. (2008) make not a distinction between the real activities related to tax avoidance. They distinguish avoidance activities specifically undertaken to reduce taxes from targeted tax benefits from lobbying activities. They define tax avoidance as representing a continuum of tax planning strategies which included activities that lowers the explicit tax and on the same hand being perfectly legal at one end and at the other end using terms such as “noncompliance,” “evasion,” “aggressiveness,” and “sheltering” (Hanlon and Heitzman, 2010). A more technical explanation of tax avoidance is given by Dyreng, Hanlon and Maydew who measure tax avoidance as “the ability to pay a low amount of cash income taxes (as opposed to GAAP tax expense that one would find on a firm’s income statement) relative to corporate pre-tax earnings.” (Dyreng et al., 2008)

Because it is difficult to define tax avoidance in a straightforward way, G. S. A. Wheatcroft (1955) defined tax avoidance as a transaction which consists of the following four characteristics:

- a) *avoids tax*
- b) *is entered into for the purpose of avoiding tax or adopts some artificial or unusual form for the same purpose*
- c) *is carried out lawfully*
- d) *is not a transaction which the legislature has intended to encourage*

Based on these four characteristics, tax avoidance can be explained as legally, but unethical transactions in order to avoid taxes. Dennis Dixon, PhD student at the University of London, concluded and sum-up in his paper also some basis characteristics of tax avoidance; “*there is an opportunity to achieve a mismeasurement of income which is (a) overlooked in its creation; (b) unjustifiable in its existence; and (c) intolerable to continue.*” (Dixon, 2015) This makes clear that tax avoidance although legally, also unjustifiable and intolerable aspects incorporates. These characteristics sounds also more negative than the earlier characteristics described of Wheatcroft. Following his conclusions tax avoidance seems to be almost illegal.

Stiglitz (1986) distinguishes in his “General theory of tax avoidance” three basic principles of tax avoidance within an income tax:

1. Postponement of taxes; which means that postponement of taxes is cheaper than pay it in the current period.

2. Tax arbitrage across individuals facing different tax brackets; which included ‘tax induced transactions’ in order to reduce the total tax liability within a jurisdiction.
3. Tax arbitrage across income streams facing different tax treatment; which covers the fact that diverse income streams for different reasons fell under different tax regimes.

2.3 Tax avoidance & tax evasion

Next to tax avoidance, there are many other forms of tax behavior that can either be legally or illegally adopted by companies. One of them, tax evasion, is a well-known illegally form of tax behavior. The illegally aspect of tax evasion could be classified as the main distinction between tax evasion and tax behavior. A classic distinction between tax avoidance and tax evasion is defined by Oliver Wendell Holmes who wrote the following about it:

“When the law draws a line, a case is on one side of it or the other, and if on the safe side is none the worse legally that a party has availed himself to the full of what the law permits. When an act is condemned as evasion, what is meant is that it is on the wrong side of the line ...”¹

In practice, the dividing line between the safe ‘side’ en the wrong ‘side’ is not always clear. Some gray areas require particular judgment of responsible authorities. “Tax evasion is an unlawful practice which has the effect of reducing the government revenues needed for the provision of infrastructures, and for public services and public utilities.” (Otusanya, 2011). However, a similarity between tax evasion and tax avoidance is that the last one has the same effect but is not regarded as being unlawful. Both adoptions of tax behavior have a negative impact for the total tax revenues of authorities. Killian & Kowitz (2004) described tax evasion in the following way:

“(.....) an illegal, dishonest activity that entails the evasion of a taxpayer’s existing liability for tax on income, for example, either by the taxpayer not declaring the income or by claiming deductions against income to which he is not entitled. Tax evasion is simply a fraud against the fiscus for which appropriate penalties are usually provided in tax legislation.”

Above stated definition makes clear that tax evasion goes further than tax avoidance in being an unlawful illegal activity that has to be punished in contrast to tax avoidance which is also unjustifiable and intolerable to accept but anyway legally to conduct.

¹ *Bullen v. Wisconsin*, 240 U.S. 625, 630 (1916)

2.4 Motives & incentives for tax avoidance

Companies could have several reasons for engaging in activities in order to avoid taxes. As earlier described, managers make use of tax consequences to based their actions and in their decision-making process. Avoiding taxes results in lower taxes what means that the (current) profit will be higher what is in the favor of the shareholders. According to Slemrod (2004), shareholders expect managers acting on their behalf to focus on profit maximization, which includes seeking opportunities to reduce tax liabilities as long as the expected incremental benefit exceeds the incremental cost. However, according to Hanlon and Heitzman (2010) a great part remains unknown about companies' incentives for tax planning and avoidance. Except for maximizing the profit on behalf of the shareholders there are several other motives and incentives for managers to avoid taxes for different purposes. Before these specific motives and incentives will be discussed, first the underlying theories, which are the basis and background that explain certain tax behavior, will be described.

2.4.1 Positive Accounting Theory

The theory that explains certain tax behavior as tax avoidance can be mainly attributed to the Positive Accounting Theory (PAT). The Positive Accounting Theory is a theory which is developed by Watts & Zimmerman (1978). In this theory they try to explain the reasoning behind managers' choices to choose for the use of certain accounting principles. In addition, these theory try also give a prediction of which accounting method is preferred over other methods. Before the period that the Positive Accounting Theory becomes a preferred theory, normative accounting research was the dominant type of accounting research (Hamayun Kabir, 2010). Main content of the PAT is that it studied the application of accounting methods in view of relations between groups of people. Examples of these relations are managers against owners, managers against investors en de company against the society. Al these different groups of persons, hereafter named stakeholders, have different needs and acting according these different needs. Therefore, managers will choose certain accounting methods which maximized their own needs and desires. In the PAT are three hypotheses developed by Watts and Zimmermann which explain the choice to apply certain accounting methods by managers. These hypotheses are the 'bonus-plan hypothesis', de 'debt covenant hypothesis' en de 'political cost hypothesis'. The predictions which can be made with these three hypotheses are empirically verified in multiple research studies. Hereafter the three hypotheses will be explained:

1. *'Bonus-plan hypothesis'*

The 'bonus-plan' hypothesis proposes that companies who works with rewarding systems for their managers, these managers are more motivated to achieve an to report the highest possible profit for the company. Managers tend to transfer future gains forward in order to manipulate and increase the current profit. The hypothesis predict an increase of the reported profit when managers are rewarded with bonuses. The theory of PAT herein is that the behavior of managers is based on 'self-interest', which means that they rewarded themselves in overstating the current profit. Managers behave in their own interests and do not align with those of the company.

2. *'Debt covenant' hypothesis*

A debt covenant is an agreement between two parties: a lender who makes funds available to the borrower who needs money. These agreement could consist out of a loan or a credit facility in favor of a company. In this agreement are certain limitations included for the borrower of the debt. These limitations gives managers an incentive to bring expected future profits forward in order to maximize the reported profit. These limitations have the purpose that companies are capable are and stays in order to payback their debt and fulfill their obligations during the lending period. In addition, these limitations gives managers incentives to bring forward expected future profits in order to maximize the reported profit. As a result of that, managers are less tied to debt and the corresponding limitations.

The more a manager in his business is restricted by debt covenants, the more a manager tends to increase current profits (artificially). This all to be less dependent of extern debt.

3. *'Political cost' hypothesis*

The 'political cost' hypothesis states that in case of increasing political costs the management tends to postpone and move forward current profits rather than bringing forward expected future profits as be seen in first two stated hypothesis. Well-known, large companies, which have quite a lot influence on society, will receive much more attention of society and social institutions when they generate higher profits. This can lead to higher so-called 'political costs' such as negative publicity, higher taxes, stronger regulating costs, costs related to union requests regarding to higher profit share or higher wages for employees, decreasing grants etc. Above stated forms of political costs can lead to 'income smoothing'; smoothing high profits by shifting it to years wherein lower profits or losses are been achieved. Next to that, managers will choose certain accounting methods in such a way that the company is less noticeable in order to minimize the political costs.

Some of the above stated hypothesis are applicable in explaining the concept tax avoidance in common. First of all, the relations between groups of persons in the setting of tax avoidance is the company against the authorities and more indirect the society a whole. Avoiding taxes benefits the company and their main stakeholders as the shareholders. The first hypothesis, the 'bonus plan' hypothesis is not visible in the relationships in tax avoidance. It is possible that managers receive bonuses when they can reduce the total tax payments, but in most cases it is not really common use. Also the second hypothesis is not present in tax avoidance. Dependence of debt and avoiding taxes are not directly related to each other. However the last hypothesis, the 'political cost' hypothesis is more applicable in the setting of tax avoidance. Main 'political cost' in this situation is over clear taxes in common and specific the risk of higher taxes which reduce profits. The result of 'political costs' in common; 'income smoothing' is visible in the fact that companies want to reduce their profits and 'smooth' them about different identities or shift income to low-tax regimes in order to avoid (higher) taxes.

Next to the different predictions that PAT make in the way of three stated hypothesis, distinguished the theory also two different perspectives wherein certain behavior be explained and described. These are the so-called 'efficiency perspective' and the 'opportunistic perspective'. The three described hypotheses are forthcoming from the opportunistic perspective. The opportunistic perspective implies that managers and owners operates in their own interest in order to maximize their own utility. The efficiency perspective goes about minimalizing the costs between groups of person with different interests. This perspective acts about the common needs and desires for the company and her stakeholders. The efficiency perspective is also seen as an ex ante perspective; something that is happened on beforehand. In the choice for certain accountings method within a company is established in advance that these methods will be in the interest of the company. This goes about appointments between managers, directors and the owners c.q. shareholders of the company in order to guarantee the interests of the company and their shareholders. However, within certain contractual agreements, the managers has a certain space and freedom to act in his own interest respecting the agreements. This is why the opportunistic perspective often be seen as the post-ante perspective.

The two perspectives can also be found in tax avoidance. Mainly the ex-ante perspective is visible in deciding how companies are structured their activities, in which countries they distributed their income in order to maximize profit and therewith their firm value. The ex-post perspective can be found in the setting that companies without breaking the tax rules, can avoid taxes in a legally

way. Main relationship in tax avoidance is not the standard setting with the manager against the owners/shareholders but the company itself against the authorities. Another theory which explain behavior in tax avoidance and discuss the different interest in relations is the agency theory. Hereafter these theory will be discussed.

2.4.2 Agency theory

Another theory that explain behavior of different related groups of persons in tax avoidance is the well-known agency theory. The agency theory is one of the theories that fall under the positive accounting theory. The agency theory is developed by Jensen & Meckling (1976) who introduces the concept of agency costs which arise when companies have to deal with the separation between ownership and control. This will take place when companies becomes too large for owners and shareholders to control the company themselves. Jensen & Meckling (1976) explain the existence of a principal-agent relationship between different sort of people with different interests. They define an agency relationship as “a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (Jensen & Meckling, 1976). Eisenhardt (1989) describes that the agency theory is concerned with resolving two problems that can occur in agency relationships. Main one is the conflicting interests of the principal and the agent. The standard division of the ‘principal’ and the ‘agent’ is within a company, respectively the owners of the company and the manager who works for them. However in the case of tax avoidance, the relationships are not within a company but between the company and the responsible governmental bodies. The ‘principal’ in case of tax avoidance can be seen as the responsible governmental authorities and the agent as the company in a whole. The agent, the company, has the desire to minimize tax expenses and one way to reach that is avoiding taxes. On the other hand, the responsible tax authority as being the principal, want to have a proper and lawful share of the total net income in the form of taxes. However, there is also reasons to assume that there is a principal-agent problem in the traditional relationship, between the manager en the owner of the company, this because shareholders benefits from avoiding taxes and managers themselves in essence not. It depends on the incentives of managers if they are aligned with those of the shareholders in terms of engaging in tax avoidance by the managers (Desai & Dharmapala, 2009).

Two aspects of undesirable and unobservable behavior that are included and are the result of the agency problem are ‘moral hazard’ and ‘adverse selection. Moral hazard means that a lack of

effort of the agent which is unknown and invisible for the principal due to imperfect, asymmetric information between the agent and the principal. Holmstrom (1979) said that the source of moral hazard is an asymmetry of information among individuals that results because individual actions cannot be observed and hence contracted upon. The agent is shirking, being negligent towards the principal. Relating moral hazard to the concept of tax avoidance, the tax authorities are unable to know in many circumstances how companies structured their tax structures. Within the companies, managers have the incentive to avoid taxes in favor of the shareholders but in contrary to the tax authorities.

The second undesirable, in the light of the principal, and unobservable behavior due to the agency problem is adverse selection. “Adverse selection refers to the misrepresentation of ability by the agent.” (Eisenhardt, 1989). Adverse selection is about the imperfect, asymmetric information between the principal and agent regarding the skills and experience of the agent (Akerlof, 1970). Before a certain agreement between two parties is made, the principal is unknown about the abilities of the agent. Adverse selection arises because the principal cannot completely verify the skills on beforehand. Furthermore, the principal is due to the information asymmetry unknown about the actions by the agent, if they are in line with the desires of the principal. The adverse selection problem is also visible in the relationship between the company and the tax authorities. Tax authorities have minimal insights in the way companies structured their income and pay a fair share of taxes. So there is information asymmetry about the composition of the tax burden between the tax authorities and the company which have to pay a fair proportion of their earned income to the tax authorities.

2.4.3 Expected Utility theory & Prospect theory

Last theories to mention which can explain specific behavior as tax avoidance and tax evasion are the expected utility theory and the prospect theory. The Prospect Theory (PT), also known as the ‘loss-aversion’ theory assumes that people value gains and losses differently. This theory, formulated by Kahneman and Tversky in 1979, described behavior of people who have to choose between two alternatives which are presented in a different way, but actually are the same. Loss aversion is based on the idea that losses are more salient than gains (Dhimi & al-Nowaihi, 2007). Kahneman and Tversky empirically tested that the one that is presented in terms of potential gains will be chosen above the negative stated alternative. Therefore the utility function is concave in the domain of gains and convex in the domain of losses. The Expected Utility Theory (EUT) states that under uncertainty the weighted average of all possible outcomes and

utility levels will best represent the utility at any given moment. Difference between these two related theories is that under the prospect theory utility is measured relative to a reference point, where under the expected utility theory the final levels of wealth. Alm, J., McClelland, G.H., Schulze, W.D., 1992. Why do people pay taxes? *Journal of Public Economics* 48, 21–38.

Different studies focused on the application of prospect theory. Alm et al. (1992) suggest in some experimental studies that one possible explanation for why people pay taxes and do not evade (avoid) taxes might potentially be based on prospect theory. Taxpayers might be using a non-linear transformation of probabilities to overweight the probability of a tax audit. A tax audit is an obvious deterrent to tax evasion and tax avoiding activities. People weight the utilities of paying taxes versus avoiding or evading taxes in order to make their decision. Other studies focused on the role of advance tax payments in deterring tax evasion (Yaniv, 1999); (Elffers & Hessing, 1997). Dhimi and al-Nowaihi (2007) examine in their study the relation between different contradicting empirical findings on the EUT related to tax evasion. Prospect theory has also been used in order to explain 'a range in puzzle in economics' such as the disposition effect, asymmetric price elasticities, elasticities of labour supply that are inconsistent with standard models of labour supply, and the excess sensitivity of consumption to income; (Camerer, 2000).

2.5 Concluding remarks

In this chapter the concepts 'tax avoidance' and 'tax evasion' are discussed and defined. First of all, tax avoidance has been explained by examining different definitions from the literature. There are no universally accepted definitions of tax avoidance. Main aspects of tax avoidance are summarized in 'dodging tax without actually breaking the law'. Tax avoidance included activities that lowers the tax burden but which are legally in the end. The illegally opponent of tax avoidance is tax evasion. Tax evasion have the same effect as tax avoidance, large difference between them is that tax evasion is an unlawful practice and can be simply seen as a fraud against the tax authorities. Different theoretical theories can be used in order to explain certain behavior of tax avoidance. The Positive Accounting Theory and the Agency theory focused on the utility driven behavior of managers and companies to avoid taxes in order to benefit themselves. In addition, the Expected Utility theory and the Prospect theory explain paying taxes or don't pay them as an outcome of expected utility and the risk aversion of being punished in case of evade taxes.

3. PRIOR RESEARCH INTO TAX AVOIDANCE

3.1 Introduction

As already have been discussed, tax avoidance in common and more broader tax evasion, are topics of a lot of tax-related studies. In this chapter these studies will be discussed to get an overview of prior research into tax avoidance and tax planning in order to avoid taxes. In this chapter different sort of studies will be discussed. First of all some studies into tax avoidance of multinationals in the U.S., were a lot of research have been done into changing ETR's over time and income shifting into and out of the U.S. Secondly this discussion will be extended by discuss the same sort of studies applied to European multinationals. In the fourth subparagraph in which studies will be discussed about measures of tax avoidance, tax planning, tax shelters and the incentives for tax planning. In one but last subparagraph a short overview of all the discussed studies will be given. I will end this chapter with a short summary of the main and most important studies for my thesis.

3.2 Tax avoidance studies U.S.

Dyreng et al., (2016) investigated in their research the changes in corporate effective tax rates over the past 25 years in the U.S. While statutory tax rates have remained constant during the period of 1988-2012 they found that the effective tax is declined over the period. In addition, they found that this last effect not only existed for multinational firms but also is visible for domestic firms. They make use of 54,028 U.S. firm years of 4,643 unique firms while measuring the decline with the cash effective tax rate over the years. In order to test the premise that multinational firms have a cost advantage because they are able to shift income from high-tax jurisdictions to low-tax jurisdictions, the authors compare the decline in effective tax rates between multinational firms and domestic firms. From out the results appears that there is a same decrease between these two groups of firms. This suggested that purely domestic firms do not appear to be disadvantaged relative to multinational firms in terms of tax avoidance.

Upper stated is more or less related to the paper of Olhoffs Rego. Sonja Olhoffs Rego (2003) investigated whether larger, more profitable, multinational corporations engage more in tax avoidance than other smaller firms, but ultimately resulting in higher effective tax rates. Comparing the ETRs of U.S. multinational corporations with the ETRs of U.S. domestic-only companies during the period 1990-1997 and controlling for different facts results in finding that larger firms have larger ETRs, mainly due political costs. The study found a negative relation

between effective tax rates and pre-tax income, suggesting that firms with greater pre-tax income having more incentives and resources to engage in tax avoidance. Furthermore she found that multinational corporations in general with more extensive foreign operations have lower worldwide, U.S. and foreign ETR's than other firms. Finally found is that multinationals with large amounts of foreign income have higher corporate tax burdens. So in on the one hand, higher pre-tax income face higher political costs but on the other hand companies having higher pre-tax income have more resources for tax planning strategies and tax avoidance strategies.

Klassen and Laplante (2012) also studied income shifting of multinational corporations with the focus on U.S. firms. They showed that U.S. firms have become more active at shifting income out of the United States when regulatory costs of income shifting changed. Their main conclusion is that multinational corporations taking advantage of decreasing regulatory costs of income shifting in the last few decades. They found that in a sample of 380 U.S. firms shift more income out of the U.S. to countries with lower tax rates during the period 2005-2009 compared to the beginning period of the sample, 1988-1992 due to varying changing regulatory costs. In much older studies the opposite direction was visible. Klassen et al. (1993) investigated the income shifting by 191 U.S. multinational corporations during the period 1984-1986. In response of changing tax rates in Canada en European countries U.S. firms shifts their income from Canada into the U.S. and out of the U.S. to European countries. Harris (1993) showed the response of changing tax laws. In addition, they investigated also the reaction of investment activities before and after the Tax Reform Act of 1986 (TRA). They found that next to income shifting into the U.S. as response to decreased U.S. tax rates as part of TRA companies have larger investment activities in foreign jurisdictions. However these activities are not at the expense of domestic investment activities in the U.S. Concluding the three last cited studies it seems obvious that U.S. multinational corporations reacts strongly on changed tax rates, both in the U.S. as in foreign countries. In both directions, U.S. multinationals shift their income. They shift income out of the U.S. when foreign countries decrease their tax rates relative to U.S. tax rates and shift income into the U.S. when U.S. domestic tax rates decrease relative to foreign tax rates.

On more detail level, Dyreng, Lindsey and Thornock (2013) focused on the state Delaware as being a domestic tax haven in the U.S. They found that locating subsidiaries of U.S. firms in Delaware, as part of a Delaware-based state tax avoidance strategy, lowers effective tax rates by 0.7-1.1% on average. To evaluate the claims of public allegations about Delaware's role as a tax haven, the authors review the fundamentals of state income tax laws in the U.S. and describe a

Delaware-based tax strategy that involves shifting income between subsidiaries of the same firm. The sample period begins in 1995 and ends in 2009. They make use of the dependent variable 'state ETR' to measure the effective tax rate. They found that tax factors are influence firm's decisions to locate a subsidiary in Delaware. Furthermore they showed that Delaware subsidiaries play significant role in corporate state tax avoidance. Firms with having a Delaware-based tax strategy are able to reduce their state income tax burden between 15% and 24% when compared to other firms.

3.3 Tax avoidance by multinationals in Europe

Another paper investigate the issue of income shifting between high-tax countries and low-tax countries. Beuselinck, Deloof and Vanstraelen (2015) examines the impact of tax enforcement and whether firms are public listed on income shifting by multinational corporations. The authors conducted their research using a European-based sample of more than 8,000 subsidiaries of 959 multinational corporations in the period between 1998 and 2009. They focused on the EU setting because of the variable tax regulatory between the different members despite the harmonizing initiatives of the European Commission. In their regression model they used independent variables for weak tax enforcement and the applicable statutory tax rate and a dependent variable for return on sales to check whether these independent variables have an effect on income. They found strong evidence of tax avoidance behavior in the form of income shifting from high tax countries to low tax countries and that income is shifted more out of high-tax countries when local tax enforcement is weak. Furthermore, they found that private multinational corporations with weaker tax enforcement shift more income to lower tax countries compared with public multinationals. Moreover European multinationals, Huizinga and Laeven (2008), provided evidence that significant international tax rate differences provide incentives to reallocate profit over the affiliated subsidiaries over the countries. They found that profit shifting is dependable on the international structure and tax regimes it faces in the countries where they are active. From their results they got evidence that both profit shifting among foreign subsidiaries as shifting income between any foreign subsidiary and the parent firm take place. Furthermore, they estimated the tax revenue implications of profit shifting into and out of specific countries and find that most EU countries gain from profit shifting. So both the Beuselinck et. al. paper and the study of Huizinga and Laeven show that avoid taxes through shifting and reallocating income over different entities in European countries is beneficial for companies.

Another study into behavior of European multinationals is those of Dharmapala and Riedel (2013). Existing other studies use changes in corporate tax rates of different countries as identifier to explore tax-motivated income shifting within multinational corporations. This study developed a new approach by exploiting exogenous earnings shocks at the parent firm and investigates how these shocks propagate across low-tax and high-tax multinational subsidiaries. The expectation is that if a multinational engages in tax-motivated income shifting in order to reduce the total tax burden, they shift a fraction of their parent earnings to low-tax subsidiaries. In order to measure these income shifting, a control group is used with within the multinational's high-tax affiliates to absorb any other channels through which parent earnings eventually may affect subsidiaries. To conduct this research they make use of a large sample of European multinational firms and affiliates over the period 1995-2005. Main result is positive earnings shocks by the parent are associated with a significantly positive increase in pretax profits at low-tax affiliates, relative to the effect on the pretax profits of high-tax affiliates. In contribution of older existing research, Dharmapala and Riedel concentrated them in this research on the comparison of earnings shifting of parents to so-called low-tax subsidiaries versus high-tax subsidiaries.

A study of Kevin Markle (2014) extended the prior cited literature about tax-motivated income shifting across different jurisdictions. He tested the differences in behavior of multinationals who shift, tax-motivated, income subject to different tax systems. He distinguished multinationals facing a territorial regime from multinationals which are subject of a worldwide tax regime. Difference between the tax regimes is that a territorial tax regime exempt foreign income from home country taxes. A worldwide tax regime means that the home country allow credits for the foreign tax paid by the multinational on the total income taxes paid to the home country. Their main investigation is to examine the difference in response to tax incentives and opportunities to shift income. Their main findings where that both groups of multinationals engage in tax-motivated income shifting but that on average territorial firms shift more income than worldwide firms. Furthermore found is that income shifting among foreign affiliates is not different between the two groups and that shifting of worldwide firms to affiliates, in which the profits are reinvested, is sensitive to tax incentives, while that of territorial firms is not.

More commonly, Markle & Shackelford (2012) did also research into corporate tax rate comparing across different countries. They focused on whether the domicile of multinationals and their affiliated subsidiaries have impact on the corporate taxes, specifically the worldwide

effective tax rate. In order to compute the effective tax rate, they make use of cash taxes paid, current and total income expenses of thousands companies all over the world. The results give enough evidence to conclude that the domicile of multinationals, and to a lesser extent subsidiaries, have impact on the global tax burden. Any main results are that Japanese and American multinationals face the highest ETRs. In addition, they found that there is no difference between the ETRs of multinationals and domestic-only firms. For their research they make use of a sample of 11,602 public corporations from 82 countries from 1988 until 2009. According to Markle and Shackelford, ETRs declined over the last two decades both for multinational corporations as for domestic-only firms. This is in line with the research of Dyreng et al. (2016) who found also a decline of ETRs both for multinationals as domestic-only firms over a comparable period, 1988-2012. In contrast to Dyreng et al. (2016) who focused them only on American multinationals, the research of Markle and Shackelford extended these results by using a sample of multinationals coming from all over the world.

3.4 Measuring tax avoidance and tax planning strategies

In a study of Dyreng, Hanlon and Maydew (2008) extended the prior cited literature about tax avoidance and income shifting by multinationals in order to measure firms' ability to avoid income taxes over a longer time period. They develop a long-run cash effective tax rate measure to examine the ability of firms to avoid taxes over a period of ten years and to measure the predictability of one-year tax rates for long-run tax avoidance. A significant part of the 2,077 firms appear to be able to avoid large portions of the corporate income tax over sustained periods of time. By examining the relation between annual cash effective tax rates and long-run cash effective tax rates, the results suggest that one-year cash effective tax rates are poor predictors of long-run cash effective tax rates. Furthermore, they found that the persistence of low effective tax rates is much more than those of high effective tax rates.

Janssen and Buijink (2000) focused them on the determinants of variability of corporate ETRs and specific conduct their research into Dutch companies. They examine whether there is an association between the variation of ETRs among Dutch companies and certain company characteristics. They tried to deliver a contribution about the 'fairness' of the corporate income tax system in the Netherlands. To conduct their research they make use of seven company characteristics including firm size, capital intensity, extent of foreign operations, firm performance, leverage, being a public company and being a listed company. Furthermore, they including five control variables in their model in order to get robust results. These are net

operating loss status, negative tax expense status, interaction between net operating loss status and negative tax expense status, interaction between net operating loss status and firm size and interaction between negative tax expense status and firm size. According the authors: “Our empirical results confirm that the Dutch corporate income tax system provides significant amounts of tax subsidies to companies, but that the tax system is also fairly neutral, i.e. company ETRs can on average not be related to company characteristics.”

Salihu, Obid and Annuar (2014) did research to the link between government ownership and corporate tax avoidance in Malaysia. They investigate the influence of substantial government ownership on corporate tax avoidance in 100 Malaysian companies. More related to this thesis, they summarized several measures for tax avoidance which already have been used in prior studies. They divided these measures, based on estimates from the financial statements, categorically into three groups; proportional amount of tax to business income; the multitude of the gap between accounting and taxable income and a group they called ‘others’. The most widely used measure is the proportion of tax liability to accounting income, well-known as ETR. The effective tax rate helps to estimate the effectiveness in companies’ tax planning activities (Mills et al., 1998; Philips, 2003). Salihu, Obid and Annuar (2014) sum up three different measures of ETRs in their research:

- Accounting ETR: This ETR is computed as the total tax expenses divided by the accounting income before tax. So it reflects the aggregate proportion of the accounting income payable as taxes. According to the authors, accounting ETR measures tax avoidance relative to accounting earnings.
- Current ETR: Current ETR is calculated as the current-year tax expense to the total accounting income before tax. It shows the tax deferral strategies of a firm by making use of the current income tax against the total tax expense, hence, its advantage over the accounting ETR.
- Long-Run Cash ETR: This ETR stands for the proportion of cash taxes paid to the accounting income before tax. Instead of using total tax expense, the use of cash amount of tax paid helps to minimize the likely effects of items such as valuation allowance and tax cushions (Dyreng et al., 2008). Another advantage of the long-run cash ETR is that this measure uses the tax information for multiple years (3-10 years) which helps to eliminate the volatility in the year level measures. According to Salihu, Obid and Annuar (2014), the volatility in tax avoidance measurement is mostly caused by the timing differences between accounting

treatments of certain items under financial and tax accounting (also known as temporary difference). By using multiple years this volatility will be disappeared and tax avoidance can be measured.

Next to the ETRs, there are other possible compositions in order to measure tax avoidance. These measures include the operating cash flow instead of accounting income. One of them is the proportion of income tax expense to operating cash flow. According to Zimmerman (1983), these have been identified as the better measure of tax burden. Substitute accounting earnings with operating cash flows helps to reflect the actual tax burden of a firm as “it excludes the effects of accrual accounting procedures”. While this measure overcomes the problem of using accrual accounting in the denominator, still the income tax expense as accrual accounting is included. Therefore Hanlon & Heitzman (2010) proposed the ratio of cash taxes paid to operating cash flow which measures tax avoidance in a way which is not relative to accrual accounting. The second group of measures included those which focus on the multitude of the gap between accounting and taxable income, also known as the book-tax gap. Although the causes for these gap mostly could be explained by permanent and temporary differences, the size of the gap suggests the presence of tax avoidance practices (Kim et al., 2011). There are two widely used measures of the book-tax gap to capture tax avoidance; these are total book-tax gap and residual book-tax gap. Manzon and Plesko (2002) developed a model for measuring total book-tax gap and Desai and Dharmapala (2006) created a measure which capture the unexplained portion (residual) of the total book-tax gap. Another form of book-tax gap is the measure tax-effect book-tax gap which is developed by Tang & Firth (2011). This measure is based on the difference between income tax expense and current tax expenses, this may be relevant in a business setting where firms are subjected to different tax rates.

Lastly Salihu, Obid and Annuar (2014) mentioned measures for so-called ‘tax shelters’; a financial arrangement made to avoid or minimize taxes. This could be in the form of a tax haven or in certain tax deals with responsible governments. The US Congress (Joint Committee on Taxation, 1999) defines a tax shelter as an endeavor principally designed to avoid taxation without exposure to economic risk or loss. According to Wilson (2009), prior research suggests that corporate tax shelters becoming more and more important instruments to reduce the tax burden. He developed a model in order to determining tax sheltering firms. In his model he makes use of variables predicted to be either affected by or associated with tax sheltering. Main finding of his research is that firms which actively engaged in tax sheltering have larger ex post book-tax differences and

having more aggressive financial reporting practices. “The measure has been a useful guide in estimating tax avoidance practices.” (Salihu, Obid and Annuar, 2014)

Graham and Tucker (2006) investigated the magnitude of tax shelter activities of a sample within 44 tax shelter cases of 43 firms in the period from 1975 to 2000. Tax savings in these tax shelter cases were much larger than interest tax deductions for comparable firms which they do not identified as being or using a tax shelter. They found that the average annual deduction produced by the tax shelters is approximately nine percent of asset value. They contributed to the common belief and results of other studies that tax sheltering activity is economically important.

Armstrong et. al. (2012) investigated in their research the incentives for tax planning. Thereby they have linked the executive compensation to a company’s effective tax rate, the book-tax gap and other measures of tax aggressiveness. This association is directly related to the agency theory, more specific the bonus-plan hypothesis. They examined whether an increase in executive compensation, in this case tax directors, impacted different items related to tax planning. Their sample consist of a proprietary set of data included large human resources consulting firms and covering the fiscal years from 2002 to 2006. Overall, they found little evidence that the firms in their sample incentivize their tax function to undertake measures to lower their cash tax burden, regarding the variables for the book-tax gap, the cash effective tax rate and other measures of tax aggressiveness. However, they found in addition that tax executive compensation is negatively associated with the GAAP ETR. This could be explained in the light of the agency theory; when tax directors receive bonuses if they reduce the tax burden in order to maximize profits.

3.5 Overview of prior studies

In this chapter are a lot of prior studies about tax avoidance, changing ETRs, income shifting of multinationals, changing tax rates, measures of tax avoidance and studies about tax planning incentives. The chapter is divided in more or less logical sub paragraphs within the different sort of discussed studies. Dyreng et al. (2008) focused on the changed (decreased) ETRs in the U.S. of multinationals versus domestic firms over a time period of 25 years. Dyreng et al. (2013) zoomed in on the state Delaware and found that the premise of Delaware as being a domestic tax haven empirically can be proved. Klassen and Laplante (2012) studied the income shifting behavior of U.S. multinational corporations and found that these firms shift income out of the U.S. caused by decreasing regulatory costs. Older U.S. studies showed that multinational

corporations shift income out and into the U.S as the response on changing tax laws (Klassen et al. (1993); Harris (1993)).

The next sub paragraph included the studies investigating tax avoidance behavior of European multinational corporations. Beuselinck et al. (2015) focused on the impact of tax enforcement of the different members of the EU and the difference for public versus private companies in income shifting behavior. Huizinga and Laeven (2008) attributed to prior cited research in providing evidence of reallocating profit of multinationals due to international tax rate differences. Dharmapala and Riedel (2013) examined another measure of tax avoidance in exploiting exogenous earnings shocks at the parent firm and how these shocks influenced subsidiaries in high-tax jurisdictions and low-tax jurisdictions. Kevin Markle (2014) extended the literature by investigating the difference in income shifting by multinationals facing a territorial tax regime with a exempt for foreign income versus facing a worldwide tax regime. All multinationals engaged in tax-motivated income shifting, independent to the tax regimes they faced, but on average territorial firms shift more income than worldwide firms. A few years before Markle and Shackelford (2012) did a study into corporate tax rate comparing across different countries. They found that the domicile of multinationals affected the global tax burden and to a lesser extent their subsidiaries.

The last category of studies is those which included other certain studies of measuring tax avoidance, studies about tax planning and tax shelters. Dyreng et al. (2008) developed a long-run cash effective tax rate measure to examine the ability of firms to avoid taxes over a period of ten years and to measure the predictability of one-year tax rates for long-run tax avoidance. As expected, one year measures are poor predictors to measure tax avoidance. Janssen and Buijnk (2000) investigated the determinants of variability of corporate ETRs and specific conduct their research into Dutch companies. They examined the association between the variation of ETRs among Dutch companies and certain company characteristics. In the end they found that company ETRs on average not relate to company characteristics. Salihu et al. (2014) investigated the influence of substantial government ownership on corporate tax avoidance in Malaysian companies. In their study they summarized several measures for corporate tax avoidance and focused them on measures of ETRs; accounting ETR, Current ETR and Long-Run Cash ETR. Other measures of tax avoidance included using the operating cash flow and the book-tax gap or the residual book-tax gap. The book-tax gap may be useful in firms which are subjected to different tax rates. Wilson (2009) introduced the phenomenon of tax shelters, a manner to avoid

taxes, and developed a model to measure these tax shelters. He concluded that firms which engaged in tax sheltering have larger ex post book-tax differences and having more aggressive financial reporting practices. Graham and Tucker (2006) investigated the effectiveness of these tax shelters and found that tax savings of firms using tax shelters are much larger than interest tax deductions for comparable firms non-tax shelter firms. Armstrong, Blouin and Larcker (2012) investigated the incentives for tax planning and link the executive compensation to different sort of tax measures. They found that tax executive compensation is negatively associated with the GAAP ETR. However, overall they could not find evidence that firms incentivize their tax function in order to lower the tax burden.

3.6 Concluding remarks

This chapter included recent research in the field of tax avoidance through income shifting, resulting in decreasing ETRs over the years. U.S. and European multinational corporations structured and reallocate their income in such a way to minimize their total global tax burden and reacts on changing tax laws and regimes. There are different manners to measure tax avoidance, most used measure in prior research is the ETR.

4. HYPOTHESIS DEVELOPMENT

4.1 Introduction

Based on the previous chapters, the described theory and the cited prior literature, in this chapter the hypotheses will be developed and described why and how these will be tested. Prior research focused mostly on tax avoidance in changing ETRs of U.S. or European multinationals and to a lesser extent domestic firms which cannot shift and reallocate income to foreign subsidiaries. In this thesis the developing of ETRs over a time period from 2006-2016. Based on the literature review and the theory certain expectations about the developing of the ETRs over the years and the difference between Dutch multinational corporations and Dutch domestic firms will be given.

4.2 Multinational corporations

In a study into ETRs of U.S. multinationals of Dyreng et al. in 2016 became clear that in the period from 1998-2012 the effective tax declined over throughout the years. Also multiple studies into corporate tax avoidance of European multinational corporations provided evidence that these large companies structured their income and divided and reallocate their profits to different affiliated (foreign) subsidiaries in order to reduce the global tax burden (Huizinga and Laeven (2008); Markle and Shackelford (2012)). Furthermore, theories explain different reasons for companies to engage in tax avoidance activities in order to maximize profits and related the stakeholder value. According the agency theory, tax executives acts in their own interest to maximize their own bonuses when they achieve certain goals. On the other hand shareholders expect managers acting on their behalf to focus on profit maximization, which includes seeking opportunities to reduce the global tax burden (Slemrod, 2004). This thesis extended prior research by examining the trend of the effective tax rate for multinational corporations in the Netherlands. I assume that developments in the U.S. and on European base can be applied to Dutch multinationals. This leads to the following first hypothesis:

Hypothesis 1: The tax burden of Dutch subsidiaries owned by multinational corporations changed (decreased) significantly over time.

The above hypothesis is well-formed in a manner that the expectation is that the ETR anyway changed and more specific, careful expected in a negative (lower) way. The corresponding null hypothesis is that there is no significant developing visible in a long-time period of ten years. I expect a decreasing trend of ETRs comparable to the results of prior research of studies into tax

avoidance and ETRs of U.S. multinational corporations and multinationals located in Europe. I will measure the tax burden by using the effective tax rate (ETR) which is composed as the paid taxation divided by pre-tax accounting income.

4.3 Dutch domestic firms

Under Dutch law are corporate taxes created to tax so-called bodies, these bodies included i.g. private limited liability company (B.V. in Dutch) and public limited liability company (N.V. in Dutch). Corporate (income) taxes are specific for limited liability companies instead of the personal income taxes that are used to tax humans. To create maximum value creation for their stakeholders, companies make use of tax incentives which are provided by, among other governments to reduce the effective tax burden of companies (Janssen, 2005). “Large companies in particular have been the target of allegations that they do not pay their fair share of the tax burden” (Janssen & Buijink, 2000). Political action groups voiced these allegations to put pressure on governments. Large multinational corporations would be able to shift their income from high-tax jurisdictions to low-tax jurisdictions using transfer pricing, intercompany debt, cost-sharing agreements and other tactics. (Hines & Rice, 1994). Purely domestic firms cannot take advantage of cross-border income shifting in order to reduce their effective tax burden. However, because of changing tax laws throughout the past decade and the premise of the Netherlands as being an European tax haven, there is under Dutch domestic tax law no withholding tax on outbound ordinary interest or royalty payments (Berg & Huisman, 2013), I will expect that the tax burden of Dutch domestic firms also decreased over time. This thesis will attributed to the paper of Janssen & Buijink (2000). They examine the determinants that influenced the ETR for Dutch companies. Furthermore, they provided evidence that the ETRs were substantially below the statutory rates from the period 1994-1998. These results indicates a substantial amount of tax preferences provided to companies. Therefore based on these theories and prior research the following hypothesis will be tested:

Hypothesis 2: The tax burden of Dutch subsidiaries owned by Dutch domestic firms changed (decreased) significantly over time

Needless to say that the above hypothesis is formed in the alternative way. The corresponding null hypothesis is that there is no decline of the ETRs visible or that the above formed hypothesis will be insignificant. Based on the research of Janssen & Buijink and on other international studies I will expect that the tax burden significantly will decrease over the to be

tested time period. The second hypothesis will be tested in the same manner as described in sub paragraph 4.2.

4.4 Multinational corporations vs. Dutch domestic firms

Main difference between the two groups of companies is the cross-border opportunity for multinational corporations to shift income and profits to subsidiaries outside the country or vice versa, shift income and profits into the country. As already have been proven in other studies, multinationals make use of their different located subsidiaries to reallocate income in order to minimize the total (global) tax burden Beuselinck, et al., (2015), Klassen and Laplante (2012), Huizinga and Laeven (2008), Kevin Markle (2014). In this thesis, I will extend these studies by examining whether Dutch multinational corporations have an advantage above Dutch domestic firms who have only subsidiaries located in the Netherlands. Therefore, combining H1 with H2 and compare the different trends in the ETRs, the third hypothesis will be:

Hypothesis 3: The tax burden of Dutch subsidiaries owned by multinational corporations changed (decreased) relatively more over time compared to those of Dutch domestic firms.

The corresponding null hypothesis is that there is no significant difference between the expected decline in the ETRs in the two groups of Dutch companies. In that case the tax burden of multinational corporations and Dutch domestic firms are not actually and significantly different.

4.5 Concluding remarks

In this chapter the hypotheses are developed and described why and how these hypotheses will be tested and attributed to prior research. The first hypothesis suggests that Dutch multinational corporations have decreasing ETRs over a time period of ten years. After that, the second hypothesis suggests the same direction of ETRs of Dutch domestic firms. Lastly, the third hypothesis suggests a relatively larger decrease in ETRs for Dutch multinationals compared to Dutch domestic firms. This mainly based on the cross-border opportunity of income shifting for multinational corporations.

5. METHODOLOGY

5.1 Introduction

This chapter consist the methodology that will be used for the empirical research in this thesis. In section 5.2 a description of all kind of variables will be provided in order of describing the dependent variable, the independent variables and the control variables. Subsequently, I will discuss the research design in paragraph 5.3. After that the sample selection procedure will be included in section 5.4 together with the sample selection criteria. I will end this chapter with some concluding remarks in paragraph 5.5. Refer to appendix A for a complete variable description.

5.2 Variables

In this section the three different variables will be discussed in succession. I will start with describing the dependent variable, than the independent variable and lastly the control variables

5.2.1 Dependent Variable

The theoretical construct of interest is corporate tax avoidance. As already discussed in chapter 2 it is difficult to define corporate tax avoidance and therefore it will be difficult to measure this concept. I will follow the well-known operationalization of this tax avoidance by using the effective tax rate of companies as measure for corporate tax avoidance. Dyreng et al. (2008) composed a measure of ETR specific for a longer period called CASH ETR, which described by Salihu et al. (2014) as the Long-Run Cash ETR. This ETR is composed by dividing the cash amount of taxes paid by pretax accounting income. This ETR is among others used in the paper of Dyreng et al. (2016) and has the advantage of eliminating the volatility (McGill & Outslay, 2004) in the year level measures. These volatility is mainly caused by temporary difference as a result of using different accounting treatments under financial and tax accounting. However, due to a lack of availability in the used database Orbis, which will be described later on in the sample selection section, this measure of ETR could not be used in this thesis because of the Dutch sample of companies what limited the use of data sources by using Orbis. Hanlon (2003) and McGill and Outslay (2004) appointed this issue of a lack of disclosures in financial statements about taxable income and actual cash taxes paid or taxes have to be paid on current year's earnings. Because of this limitation, I will use the GAAP ETR which is defined as the total income tax expense divided by pre-tax accounting income. Both the nominator and the denominator in this calculated composition are publicly available and therefore useable for

research purposes. Main difference between GAAP ETR and CASH ETR is capturing the accounting accruals. According Hanlon and Heitzman (2010), GAAP ETR captures tax planning strategies using accounting accruals and affects accounting earnings. CASH ETR is not affected by accounting accruals, but has the advantage that it show strategies to defer taxes. Main benefit of using the effective tax rate is the simplicity of computing ETR as measure of corporate tax avoidance. For example, another more complex way of examining corporate tax avoidance is whether companies are using tax shelters. Wilson (2009) developed a model to determine tax shelter firms, but this model is difficult to calculate and include large estimations. Furthermore, the GAAP ETR is visible for the public and also more easier to engage in academic research, because of the availability of the data. Lastly, the effective tax rate as measure for corporate tax avoidance is most often used in prior research, on the one hand due to her simplicity and on the other hand as a result of a clear and common accepted definition of corporate tax avoidance.

5.2.2 Independent Variables

The independent variable of interest in this empirical research is whether a company can be classified as being a multinational corporation or not. According to Donohoe et al., (2012), the classification of firms as being a strictly multinational corporation or a purely domestic firm is more complex than it seems to be. Dyreng et al. (2016) classified companies as being a multinational if they have a pretax foreign income greater than zero or the absolute value of foreign tax expense is greater than zero. Because of the complexity, they included six alternative variables as measure for being a multinational or not; “(1) an indicator variable for whether or not the firm records foreign sales in its geographic segment data; (2) an indicator variable for whether or not the firm discloses at least one subsidiary in a foreign country in Exhibit 21 of Form 10-K; (3) the ratio of foreign sales disclosed in the geographic segment data to total sales; (4) the ratio of pretax foreign income to total pretax income; (5) the ratio of the absolute value of pretax foreign income to sales; (6) the log of the total number of foreign countries in which a firm discloses a significant subsidiary in Exhibit 21 of its 10-K.” (Dyreng et al., 2016).

In this thesis where the emphasis is on income shifting behavior of multinationals, I create a more simpler classification of indicating a company as a multinational corporation. To determine whether a company can be designate as being a multinational, I will focus on subsidiary level of the two groups of companies. When a subsidiary is part of an organization who have foreign global ultimate owner I assign it to the group of multinationals. On the other hand, Dutch subsidiaries of a Dutch company who has also a Dutch global ultimate owner, I classify them as

being Dutch domestic firms. In order to operationalize this classification I will use a dummy variable *MNC* for being a multinational, where *MNC* indicates whether the firm is a multinational ($MNC=1$) or a purely domestic firm ($MNC=0$).

The second independent variable which will be used is the variable *TIME*. The variable *TIME* stands for the fiscal year and is needed for measuring the time trend analysis in hypothesis 1 and 2, furthermore it will be used in the third hypothesis when this variable together with the variable *MNC* will form the independent variables in the regression model of hypothesis 3. *TIME* is calculated as the fiscal year for a given firm-year observation less the number 2007, which is the first year in the dataset. So, the coefficient on the variable *TIME* captures the linear time trend in *GAAP ETR* over the sample period 2007-2015 used in this thesis. In addition, when testing hypothesis 3 the interaction term *MNC_TIME* will be added to check whether the interaction between *MNC* and *TIME* affects *GAAP ETR*.

5.2.3 Control Variables

To address for endogeneity concerns regarding the relation between being a multinational as a company and the effective tax rate over time, I will use some control variables in my regression analysis to prevent for possible omitted correlated variables. Endogeneity concerns arise when variables are correlated with the dependent variable, with the independent variables and/or with both of them. This leads to biased results and could result in making wrong conclusions. Furthermore, control variables help in enlarging the explanatory power of the model what contributed to make substantiated answers on the stated hypotheses and the research question. The control variables that will be used in this thesis are certain firm characteristics and fixed effects. For more detailed information and a description of all variables refer to appendix A.

The firm characteristics consist of common control variables which are also used in previous tax literature and are proven to influence the level of corporate tax avoidance. These control variables are often time-varying aspects within a company and could explain variation in effective tax rates. Dyreng et. al. (2016) used certain firm characteristics which consist of among others, the natural log of assets, R&D expenses, PP&E, intangible assets, the leverage, capital- and advertising expenditures and special items. Janssen & Buijink (2000) make use of other determinants which could affect variations in effective tax rates among which are capital- and investment intensity, return on assets and whether a company is a public and/or listed company is. In this thesis a less number of control variables will be used because of a limited public

available amount of financial data. This is mainly the result of using nonconsolidated data of Dutch subsidiaries, including small and middle-large companies. By limiting the number of control variables take care of that there are still enough firms left in both of the samples. Following Janssen & Buijink (2000), I include control variables for firm size (*F SIZE*) measured by a company's total assets, profitability, measured by return on assets (*ROA*) and a variable for the leverage or solvency of the company measured by the solvency rate (*SR*). As fourth I add the control variable sales (*SAL*) measured by total sales in order to control for firm growth what has an increasing effect, together with an increasing profitability to four, I of the company, on the effective tax rate. Firm size has to be controlled for because of the simple reason that larger companies have more resources to avoid taxes due to economies of scale. On the other hand, larger and more profitable companies are mostly obliged to pay more taxes which could negatively influenced the effective tax rate. Lastly the solvency rate is taken into account because companies which are financed with more debt and interest costs can profit from tax reductions due to the debt costs.

To control for fixed effects, I add dummy variables for the different industries over the given time period. The year dummies controls for aggregate trends over the years. For example, variables could just increase due to inflation. The industry dummies control for possible differences across industries regarding the difference between the subsidiaries of being part of a multinational corporation or on the other hand being part of a domestic firm and for the level of corporate tax avoidance. Some industries are relatively more present on multinational bases and others are relatively more present in domestic firms. The industry classification is based on the major sectors of Bureau Van Dijk (BVD), the publisher of the database Orbis, and consists of 18 different industry classifications. For more detail information about this industry classifications refer to table 3 in section 5.4.

5.3 Research Design

Measuring the tax burdens by measuring the ETR of Dutch multinational corporations and Dutch domestic firms and comparing these two groups with each other, are presented in a predictive validity framework, the so-called "Libby Boxes", in appendix B. The framework shows the operationalization of the theoretical constructs including the relation and the effect of being a multinational on the (global) tax burden. This thesis will focus only on the comparison in tax burden between multinationals and purely domestic operating firms in the Netherlands. To measure the tax burden of the two different groups and thereby testing the third hypothesis, I

will make use Ordinary Least Squares regression (OLS) to run the following regression of the model based on those of Dyreng et al. (2016):

$$GAAP\ ETR_{i,t} = \alpha_0 + \beta_1 TIME_t + \beta_2 MNC + \beta_3 TIME * MNC + \beta_4 \sum CONTROL_{i,t} + \varepsilon_{i,t}$$

In this regression is *GAAP ETR* the dependent variable of interest which measures the total tax burden computing by dividing total income tax expense by pre-tax accounting income. The dependent variable *GAAP ETR*, effective tax rate, measures the theoretical construct of tax avoidance. The independent variables consist of the variables *TIME* and *MNC*. *TIME* stands for the fiscal year, with the value 1 for 2006 and so on. In accordance with prior research, I expect that an increase in *TIME* will lead to a decrease of *GAAP ETR*, which means that the coefficient of *TIME* will assume a negative value. The independent variable *MNC* is a dummy variable which assume the value 1 when the subsidiary is classified as being a multinational and on the other hand the value 0 when the subsidiary is classified as being a Dutch domestic firm. I expect that the coefficient of the variable *MNC* will assume a negative value which means that being a multinational has a decreasing effect on the *GAAP ETR*. The item *CONTROL* in the upper stated regression includes all the control variables that will be used in this regression model. For a complete description and explanation of these variables refer to appendix A.

With the above stated regression I will test the third hypothesis which is the main and last hypothesis that will be tested in this thesis. Before that I will perform a time trend analysis in testing the hypotheses 1 and 2. Thereby, I make use of the following regression:

$$GAAP\ ETR_{i,t} = \alpha_0 + \alpha_1 TIME_t + \varepsilon_{i,t}$$

This regression will be run for both groups of firms. The first hypothesis for the Dutch multinational corporations and the second hypothesis for the group of Dutch domestic firms. The variable *TIME* is the same as above described and also included in the regression model for hypothesis 3. For both tests I expect a negative slope trend of *TIME* as effect on the dependent variable *GAAP ETR*, which is the same variable as described in the beginning of this paragraph.

5.4 Sample selection

The different samples are derived from the Dutch database Orbis. This database contains (financial) data of more than 200 million companies worldwide, within

3.6 million² Dutch companies which are in the interest of this thesis. Orbis contains financial data from the last ten years, in this case from 2007-2016. I downloaded first all the active companies with Dutch subsidiaries, located in the Netherlands and owning between 0 and 100 percent, with financial accounts for the period 2007-2015. I selected the period 2007-2015 because this contains the most recent nine years for which is enough data available, furthermore a recent sample period give the latest and most reliable insights about the current situation and for making implications regarding the future research. Next I split the group of companies in two samples, one sample containing companies located outside the Netherlands and/or companies having a foreign Global Ultimate Owner (GUO). The other sample contains only Dutch companies and with a GUO located in the Netherlands. The companies in the first sample are classified as being a Dutch multinational corporation and the companies in the other sample are classified as being Dutch domestic companies. Thereafter, I uploaded the BVD (Bureau Van Dijk; owner Orbis) ID numbers of the companies in Orbis in order to obtain the BVD ID numbers of the Dutch subsidiaries of the individual companies. Finally, I uploaded again ID numbers and now of the Dutch subsidiaries to add the financial data to the samples of individual Dutch subsidiaries. Next I eliminated in both samples the subsidiaries with a unknown GUO, subsidiaries with non- or limited financial data and the duplicates within the two samples from the sample.

Before I merge the two samples in Stata, I create a dummy variable *MNC* (being a multinational) which separate the subsidiaries classified as being a Dutch domestic firm from the subsidiaries which been classified as a Dutch multinational corporation. After merging the two different samples, I dropped the duplicate firms and exclude the observations which having missing financial data. Ultimately I end with a total sample of 3,985 companies, consisting of 2,545 domestic firms and 1,440 multinational corporations. For an overview of the sample selection process refer to table 1 for the selection process of the Dutch subsidiaries of domestic firms and refer to table 2 for the selection process of the Dutch subsidiaries owned by multinational corporations.

5.5 Concluding remarks

In this chapter the different sort of variables are discussed and described. First of all, the dependent variable is the effective tax rate, *GAAP ETR*, which is composed as the tax expenses divided by pre-tax accounting income. The independent variables are the dummy *MNC* which stands for being a multinational corporation and a time-dummy which assume the value 1-9 for

² <https://www.bvdinfo.com/nl-nl/our-products/company-information/national-products/reach>

the period 2007-2015. The control variables which are included in the research design are firm size (*FSIZE*), return on assets (*ROA*), the solvency rate (*SR*) and total sales (*SAL*). After describing the variables I discussed the research design which will be used for the testing the multiple hypotheses. Finally the sample selection process is described with two tables in which this is explained in detail.

Table 1
Sample selection process Dutch subsidiaries (2007-2015)
Multinational corporations

	No. of Firms-Years	No. of Firm
Initial sample of companies owning Dutch subsidiaries		147,167
<u>Dutch multinational corporations:</u>		
Individual companies		11,634
Dutch subsidiaries		20,434
<u>Eliminating:</u>		
Unknown GUO		(1,271)
Non-/limited financial data Orbis		(3,637)
Duplicates		<u>(3)</u>
		15,523
Times 9 firm-years	139,707	15,523
Non-available ETR	(112,770)	(9,782)
Drop ETR if <=0	(9,723)	(1,699)
Drop ETR if >=1	(611)	(63)
Non-available FSIZE	(3)	(1)
Non-available ROA	(213)	(47)
Non-available SR	(7,932)	(1,493)
Non-available SAL	(3,762)	(998)
Total sample	4,693	1,440

Table 2
Sample selection process Dutch subsidiaries (2007-2015)
Dutch domestic firms

	No. of Firms-Years	No. of Firm
Initial sample of companies owning Dutch subsidiaries		147,167
<u>Dutch domestic firms:</u>		
Individual companies		135,533
Dutch subsidiaries		209,388
<u>Eliminating:</u>		
Unknown GUO		(2,352)
Non-/limited financial data Orbis		(19,246)
Duplicates		<u>(775)</u>
		187,015
Times 9 firm-years	1,683,135	187,015
Non-available ETR	(1,639,295)	(175,341)
Drop ETR if <=0	(13,452)	(3,656)
Drop ETR if >=1	(890)	(124)
Non-available FSIZE	(3)	(3)
Non-available ROA	(398)	(124)
Non-available SR	(10,145)	(2,226)
Non-available SAL	(12,435)	(2,996)
Total sample	6,517	2,545

6. ANALYSIS & RESULTS

6.1 Introduction

In this chapter the final results of the regressions will be discussed. In section 5.2 the descriptive statistics will be provided, including the correlations and a test for multicollinearity. Subsequently, in section 5.3 the results will be provided and related to the hypotheses. Finally in the last section a short summary is made and a some concluding remarks will be given.

6.2 Descriptive statistics

To control for differences across industries I include industry fixed effects in the research model. Below in table 3 are the 18 different industries summed up. For both the multinational sample, as the domestic sample the number of observations per industry and the relative part of the industries in the sample are taken into account. Most observations in both samples descend from the industry “Other Services” (38.84% for domestic and 34.26% for multinational) which can be seen as logical because this industry includes the big group of remainder companies. A big difference between the two samples is the relative large presence of the “Construction” industry in the domestic sample (11.48%) compared to the multinational sample (1.98%), what suggests that the construction industry a typical Dutch industry is. Furthermore is striking that the industries “Other services” and “Wholesale & retail trade” together includes more than half of the sample, respectively 61.09% in the domestic sample and 61.68% in the multinational sample. Because of the unequal distribution of industries in both samples one should be careful generalizing and externalizing the results for specific industries.

Table 4 presents the descriptive statistics in the panels A, B and C for the total sample, the domestic sample and the multinational sample, respectively. These descriptive statistics cover the entire sample period from 2007-2015. Furthermore, all the continuous variables are windsorized at the 1st and 99th percent level. The entire sample contains 3.985 companies with in total 11210 observations. These entire sample in split in a domestic sample with 2.545 companies and 6.517 observations, next to a multinational sample with 1,440 companies and 4.693 observations. For the entire sample, the mean (median) value is 0.252 (0.249) for the GAAP Effective Tax Rate (ETR). In panel B, these values are 0.247 for both the mean and the median. For the multinational sample, panel C, the mean is 0.260 and the median 0.250. The *GAAP ETR* shows a great dispersity across the different firm-years and across industries. The ETR's in the samples

Table 3

Industry Classification for both samples based on BVD major sector

Industry classification	Domestic firms		Multinational corporations	
	Firms-years	Sample%	Firms-years	Sample%
Banks	98	1.50	55	1.17
Chemicals, rubber, plastics and non-metall	92	1.41	279	5.9
Construction	748	11.48	93	1.98
Education, Health	163	2.50	9	0.19
Food, beverages and tobacco	204	3.13	127	2.71
Gas, water and electricity	47	0.72	32	0.68
Hotels & restaurants	63	0.97	11	0.23
Insurance companies	-	-	4	0.09
Machinery, equipment, furniture and recycle	283	4.34	391	8.33
Metals & metal products	213	3.27	141	3.00
Other services	2,531	38.84	1,608	34.26
Post & telecommunications	35	0.54	48	1.02
Primary sector	47	0.72	154	3.28
Publishing & printing	66	1.01	48	1.02
Textiles, wearing apparel and leather	44	0.68	5	0.11
Transport	397	6.09	338	7.20
Wholesale & retail trade	1,450	22.25	1,287	27.42
Wood, cork and paper	36	0.55	63	1.35
Total	6,517	100	4,693	100

assume values from an ETR of 1 percent until 80 percent. This suggests a large variety between the companies in conducting tax strategies in lowering the tax burden. However, the different mean values do not differ significantly from the statutory tax rate in the Netherlands which is 25 percent. Of these descriptive statistics, a remarkable result is the small difference between the mean ETR of the domestic sample (0.247) and those of the multinational sample (0.260). More remarkable of these statistics is that the mean ETR of the multinational sample larger is than those of the domestic sample. This contradicts with the pronounced expectation that

Table 4
Descriptive statistics sample observations 2007-2015

Panel A: Descriptive statistics entire sample

Variable	N	Mean	Std. Dev.	Q1	Median	Q3	Min	Max
ETR	11,210	0.252	0.120	0.205	0.249	0.262	0.010	0.800
TIME	11,210	5.267	2.460	3	5	7	1	9
MNC	11,210	0.419	0.493	0	0	1	0	1
MNC_TIME	11,210	2.243	3.088	0	0	5	0	9
FSIZE	11,210	9.997	2.048	8.866	9.982	11.10	4.605	15.65
ROA	11,210	7.919	13.71	1.440	5.770	12.56	-30.96	59.85
SR	11,210	42.70	27.00	19.87	40.41	63.06	0.540	98.22
SAL	11,208	10.43	2.126	9.432	10.56	11.60	4.564	16.03

Panel B: Descriptive statistics domestic sample

Variable	N	Mean	Std. Dev.	Q1	Median	Q3	Min	Max
ETR	6,517	0.247	0.109	0.203	0.247	0.257	0.0123	0.779
TIME	6,517	5.202	2.454	3	5	7	1	9
MNC	6,517	0	0	0	0	0	0	0
FSIZE	6,517	9.423	1.901	8.485	9.603	10.53	4.344	14.33
ROA	6,517	7.967	13.91	1.480	5.960	12.80	-33.95	58.75
SR	6,517	43.22	26.37	21.64	41.33	62.47	0.560	98.20
SAL	6,517	9.945	2.077	9.108	10.26	11.29	4.248	14.49

Panel C: Descriptive statistics multinational sample

Variable	N	Mean	Std. Dev.	Q1	Median	Q3	Min	Max
ETR	4,693	0.260	0.133	0.209	0.250	0.274	0.00628	0.824
TIME	4,693	5.358	2.467	3	6	7	1	9
MNC	4,693	1	0	1	1	1	1	1
FSIZE	4,693	10.80	1.987	9.531	10.64	11.88	6.043	16.45
ROA	4,693	7.831	13.53	1.420	5.510	12.17	-28.86	61.62
SR	4,693	41.99	27.84	17.02	39.01	63.96	0.480	98.23
SAL	4,693	11.10	2.016	9.918	10.90	12.20	5.724	16.85

Note: All variables are windsorized at the the 1st and 99th level. Descriptions and composition of the variables are consistent with the definition in appendix A. The financial data (SAL and FSIZE) are taken the logarithm of the value in thousand euros.

multinationals benefits from income shifting across borders. In that perspective it is strange to observe a lower average ETR for multinationals compared to domestic firms. The variable *TIME* is a dummy variable with values which assume 1 until 9 for the period 2007-2015. The mean of the samples here is 5.27, 5.20 and 5.36 for the samples from panel A, B and C, respectively. This shows that the observations are equally divided over the years but more important that there is no difference in the spread over the years of the observations between the three samples. The variable *MNC* is a dummy variable as well, which assume the value ‘1’ for firms in the

multinational sample and '0' in the domestic sample. In the combined sample there a few more domestic firms (6,517) than multinationals (4,693) which results in a mean of 0.419 for *MNC* in the entire sample. The control variables *FSIZE*, *ROA*, *SR* and *SAL* give some additional information to the dataset. For the entire sample is the mean (median) value 9.997 (21,634) for *FSIZE*, 7.919 (5.770) for *ROA*, 42.70 (40.41) for *SR* and 10.43 (10.56) for *SAL*.

Table 5 shows the Pearson correlations of the independent variable *ETR*, the dependent variables *TIME* and *MNC* and the control variables *FSIZE*, *ROA*, *SR* and *SAL*. The correlations indicates the linear relation among the variables. As expected, the variable *TIME* is negative and significantly correlated with the effective tax rate. This supports hypothesis 2 which suggest a decreasing trend in tax burden of Dutch domestic firms. The independent variable *MNC* is both positive correlated with *ETR* as with *TIME* which suggest that being part of a multinational corporation has a positive influence on the firm's tax burden and in addition the *ETR* of multinationals increases over time. These correlations contradicts with the stated expectation in hypothesis 1 and 3. Of the four control variables, *ROA* and *SR* are significantly correlated with the dependent variable *ETR*. Only *ROA* is significantly correlated with the independent variable *TIME* and looking at independent variable *MNC* both *FSIZE* and *SR* as *SAL* have a significant correlation with *MNC*.

Table 5
Pearson correlation table

Variable	ETR	TIME	MNC	FSIZE	ROA	SR	SAL
ETR	1.000						
TIME	-0.024**	1.000					
MNC	0.051***	0.031**	1.000				
FSIZE	-0.001	0.016*	0.131***	1.000			
ROA	-0.030***	-0.041***	-0.008	-0.023**	1.000		
SR	-0.025***	-0.006	-0.022**	0.014	0.222***	1.000	
SAL	-0.018*	-0.005	0.084***	0.577***	-0.005	-0.005	1.000

Note: This table provides information on the Pearson Correlation between the variables of interest. The indication ***, ** and * reflect the statistical significance of the coefficients at the 1%, 5% and 10% level, respectively.

The correlation between *FSIZE* and *SAL* is large with a percentage of 57.7 percent. Excluding the variable *SAL* from the model do not have consequences related to the independent variables

and dependent variable. Regarding hypothesis 1, excluding *SAL* increases the coefficient for *FSIZE*, but do not enlarge the significance of *FSIZE*. Related to hypothesis 2, excluding *SA* increases both the coefficient for *FSIZE* as make this coefficient significant. The chances related to *FSIZE* when excluding *SAL* are the same for hypothesis 3 as for hypothesis 2. Concluding, the high correlation between *FSIZE* and *SAL* do not affect the interpretation of the results, it affects only the related variable *FSIZE* and enlarge the significance of them. This can be explained by the fact that the explanatory power of *FSIZE* enlarged when excluded the high related variable *SAL*.

When conducting regression analysis it is wise to check for multicollinearity between the explaining variables. Multicollinearity means that two variables are too strongly correlated with each other which makes one of them otiose due to a lack of information in explaining the independent variable. The statistical test VIF measures the multicollinearity between the variables. A rule of thumb is that an VIF value higher than 10 indicates multicollinearity. In appendix C the VIF-statistics are included for the three hypotheses. For more detailed information about the VIF values refer to table 10 in appendix C.

6.3 Regression results

Table 6 presents the regression results of the OLS analysis in testing hypothesis 1. The first hypothesis predicts a decreasing trend of the tax burden for Dutch subsidiaries of multinational corporations over the sample period 2007-2015. This means that the coefficient for the variable *TIME* has to be negative. As expected, the coefficient for *TIME* in table 6 shows a negative relation on the dependent variable *GAAP ETR*. However this relation is not significant, therefore hypothesis 1 is rejected. The adjusted R-squared is 0.019, which is relatively low. The adjusted R-squared indicates the explanatory power of the regression, which is based not only on the number of explanatory variables but most of all on their explanatory influence on the dependent variable. In contrast to the independent variable of interest, two of the control variables have a significant relationship with *GAAP ETR*. *FSIZE* has a positive impact on the dependent variable which can be explained by the ‘political cost’ hypothesis of the positive account theory; larger firms face more attention and have to pay more taxes. The other significant control variable is sales (*SAL*) which has a negative influence on the effective tax rate. *TIME* has to be negative. As expected, the coefficient for *TIME* in table 6 shows a negative relation on the dependent variable *GAAP ETR*. However this relation is not significant, therefore hypothesis 1 is rejected.

Table 6
 OLS Regression results H1
 Dutch subsidiaries owned by multinational corporations

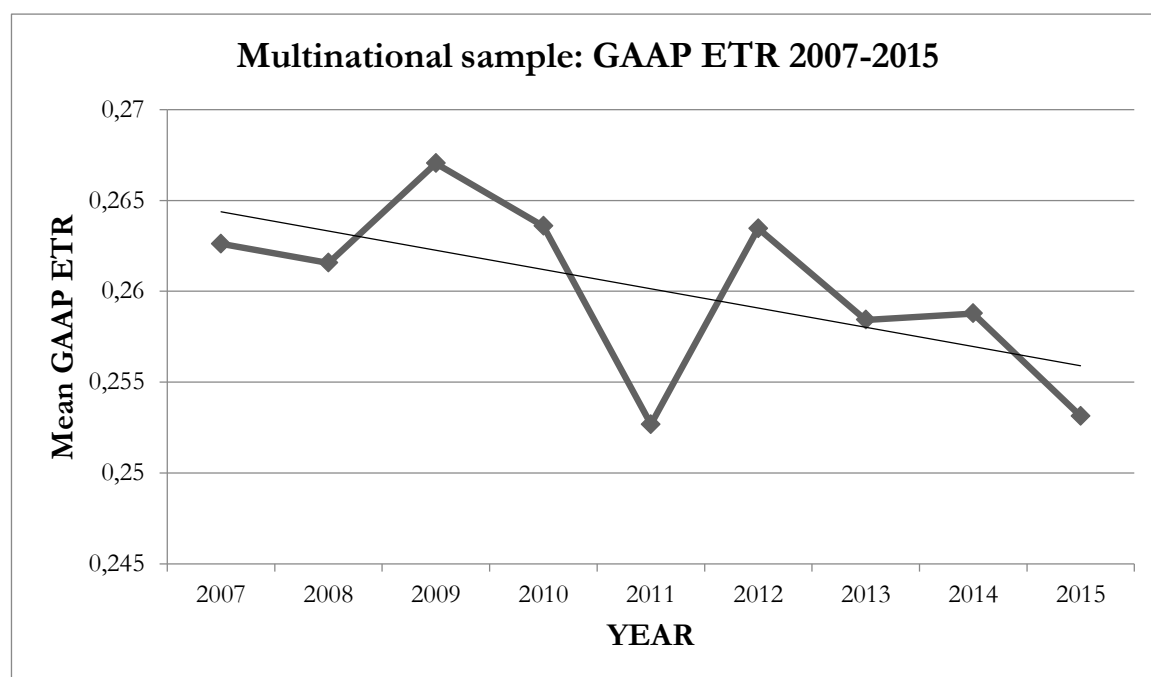
Variable	Coefficient Estimate (Standard error)
	GAAP ETR
INTERCEPT	0.231*** (0.022)
TIME	-0.001 (0.001)
FSIZE	0.004** (0.002)
ROA	0.000 (0.000)
SR	-0.000 (0.000)
SAL	-0.002* (0.002)
INDUSTRY FIXED EFFECTS	YES
Observations	4,693
Adjusted R-squared	0.019

Note: This table provides the OLS regression results of GAAP ETR on the dummy variable TIME which is 1 for the year 2007 until 9 for the year 2015. ***, ** and * reflect the statistical significance of the coefficients at the 1%, 5% and 10% level, respectively. The variables between brackets represent robust standard errors.

The adjusted R-squared is 0.019, which is relatively low. The adjusted R-squared indicates the explanatory power of the regression, which is based not only on the number of explanatory variables but most of all on their explanatory influence on the dependent variable. In contrast to the independent variable of interest, two of the control variables have a significant relationship with *GAAP ETR*. *FSIZE* has a positive impact on the dependent variable which can be explained by the ‘political cost’ hypothesis of the positive account theory; larger firms faces more attention and have to pay more taxes. The other significant control variable is sales (*SAL*) which has a negative influence on the effective tax rate. This is interesting, because the logical explanation is an increasing sales results in paying more taxes.

It is remarkable that, in contradiction of prior research into tax avoidance of multinationals, Dutch subsidiaries of multinational corporations do not effectively lower their ETR over the past (excluding 2016) nine years. Figure 1 plots the mean annual ETR per year of all observations. A decreasing trend line is visible over the period 2007-2015.

Figure 1



Note: Mean annual GAAP ETR over the sample period 2007-2015 of Dutch subsidiaries owned by multinational corporations. This figure plots the annual mean ETR per year. ETR is the ratio of taxation to pretax accounting income. All observations are subject to the criteria described in Table 1.

However, this decrease is relatively small with 26.26% in 2007 to 25.31% in 2015 resulting in a barely decrease of 1%. A possible explanation for these low effort of Dutch companies could be the relatively low statutory tax rate in the Netherlands compared to other large western countries. The statutory tax rate, in Dutch so-called “Vennootschapsbelasting”, remains constant in the period from 2007 until 2015 on a level of 20% for the taxable amount until 200,000 and 25% for the remainder above 200,000. This is very low compared to more or less comparable western countries as the U.S., Canada, Germany, France and Belgium. In this countries are the average corporate tax rates over the sample period approximately 40.0%, 29.6%, 30.5%, 33.3% and 34.0%, respectively.

Table 7 presents de results related to the second hypothesis which stated that the tax burden of Dutch subsidiaries owned by Dutch domestic companies decreased over het sample period 2007-2015. In contradiction to the results of hypothesis 1, the independent variable *TIME* for hypothesis 2 is significant at the <1% level negative related to *GAAP ETR*. The coefficient of *TIME* on *GAAP ETR* is -0.002 which can be interpreted as one additional year later in the time

Table 7
 OLS Regression results H2
 Dutch subsidiaries owned by Dutch domestic firms

Variable	Coefficient Estimate (Standard error)
	GAAP ETR
INTERCEPT	0.206*** (0.013)
TIME	-0.002*** (0.001)
FSIZE	-0.001 (0.001)
ROA	-0.001*** (0.000)
SR	-0.000* (0.000)
SAL	0.008*** (0.001)
INDUSTRY FIXED EFFECTS	YES
Observations	6,517
Adjusted R-squared	0.026

Note: This table provides the OLS regression results of GAAP ETR on the dummy variable TIME which is 1 for the year 2007 until 9 for the year 2015. ***, ** and * reflect the statistical significance of the coefficients at the 1%, 5% and 10% level, respectively. The variables between brackets represent robust standard errors.

period the effective tax rate decreases with 0.002. Given these results, the second hypothesis can be accepted. Again the adjusted R-squared is relatively low with 2.6%, which means that the impact of the independent variable together with the control variables on *GAAP ETR* is not large. Regarding the control variables, again the variable total sales (*SAL*) is significant in the same direction as for hypothesis 1. Next to these, the variable *ROA* and *SR* is significant in a negative direction. Possible explanation of the negative influence of *ROA* could be that a higher net returns indicate a lower effective tax rate, because of the available resources to lower the tax burden. In addition, *SR* is significant but regarding the coefficient negligible.

In figure 2 the mean *GAAP ETR* of the domestic subsidiaries is plot over the period of interest 2007-2015. Although the decrease in ETR for these group of subsidiaries significant is, the decrease in percentages is from 25.70% until 24.91% only 0.79% which is less than the decrease of the group subsidiaries of multinational corporations. Just like in the first sample the decline in ETR is barely 1%. Since both groups of companies facing the same tax regime it is not strange to

Figure 2

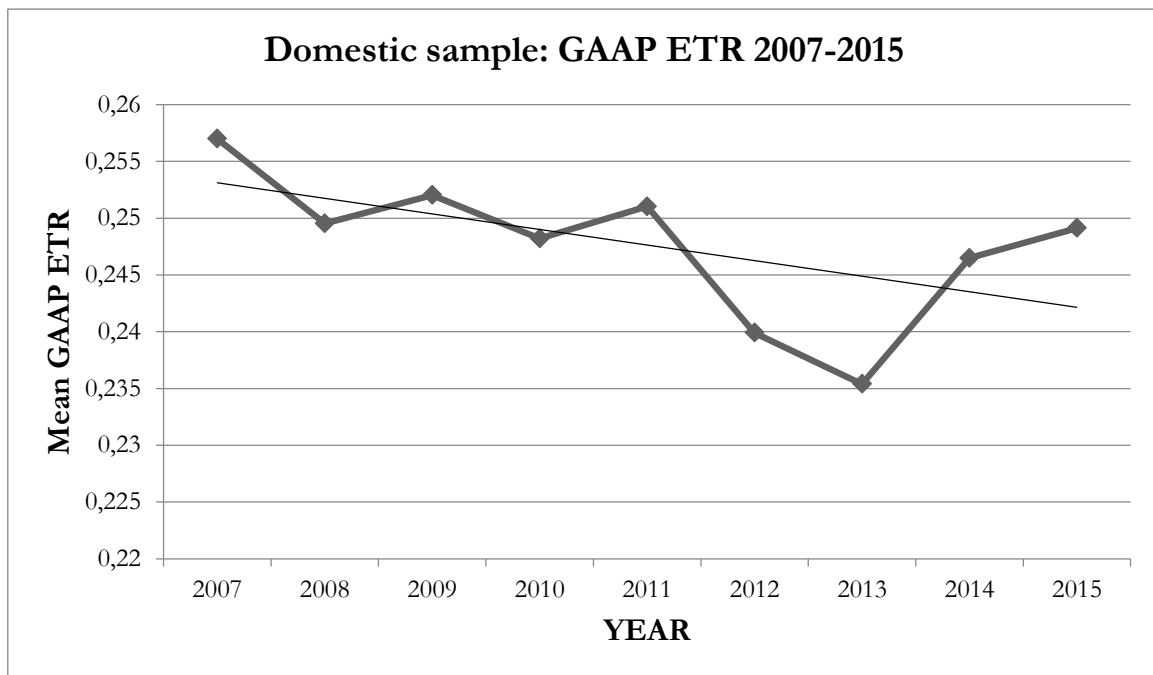


Figure 2: Mean annual GAAP ETR over the sample period 2007-2015 of Dutch subsidiaries owned by Dutch domestic firms. This figure plots the annual mean ETR per year. ETR is the ratio of taxation to pretax accounting income. All observations are subject to the criteria described in Table 2.

observe that both decreases are more or less the same in absolute values. However, remarkable fact is that both in 2007 as in 2015 the average ETR for subsidiaries of domestic firms 0.5% lower is than those of subsidiaries owned by multinational corporations. This is in contradiction to the expectation on beforehand that subsidiaries of multinationals could benefit shifting income over different (more favorable) tax regimes in multiple countries.

Lastly table 8 shows the regression results related to the third hypothesis. This hypothesis combines the two samples in one entire sample including both the ‘domestic’ subsidiaries as the ‘multinational subsidiaries’. To make a distinction between the two different groups within this combined sample a dummy variable called *MNC* is added to the regression model. This dummy variable assume the value 1 when a subsidiary is part of a multinational corporation. Not surprisingly regarding the earlier results, *MNC* has a positivize influence on *GAAP ETR* however not significant. This means that hypothesis 3 is rejected. It is hardly to observe the difference in decline between the domestic sample and the multinational sample in figure 3. Both groups of companies show a small decline in *GAAP ETR* over the period, but most remarkable is that the decline of the multinational sample is not significant and presents higher ETR’s than the domestic sample.

Table 8

OLS Regression results H3: Entire sample

Variable	Coefficient Estimate (Standard error)
	GAAP ETR
INTERCEPT	0.210*** (0.012)
TIME	-0.002*** (0.001)
MNC	0.003 (0.006)
MNC_TIME	0.000 (0.001)
FSIZE	0.001 (0.001)
ROA	-0.000*** (0.000)
SR	-0.000 (0.000)
SAL	0.004*** (0.001)
INDUSTRY FIXED EFFECTS	YES
Observations	11,210
Adjusted R-squared	0.020

Note: This table provides the OLS regression results of GAAP ETR on the dummy TIME and the dummy MNC which is 0 for domestic firms and 1 for multinationals. ***, ** and * reflect the statistical significance of the coefficients at the 1%, 5% and 10% level, respectively. The variables between brackets represent robust standard errors.

The other independent variable *TIME* is in the combined sample significant and has a negative influence on *GAAP ETR* what suggest that the Dutch subsidiaries overall lower their tax burden over time. This is mainly due to the larger sample of domestic firms compared to the subsidiaries of the multinational corporations.

The total average decrease in percentages for the entire sample is 0.83%, from 25.93% in 2007 until 25.10% in 2015. Next to the dummy *MNC*, an interaction term between the two independent variables *TIME* and *MNC* added to this regression model. Only in the years 2012 and 2013 there was a significant difference between the subsidiaries of the multinationals and those of the domestic firms. The ETR's for those of the domestic firms decreased significantly, while the subsidiaries of multinationals in these two years show a small increase in ETR's. Furthermore it is striking that within the interaction term the values 1 for *MNC* presents positive coefficients while when *MNC* takes the value 0 a small positive coefficient is visible.

Figure 3

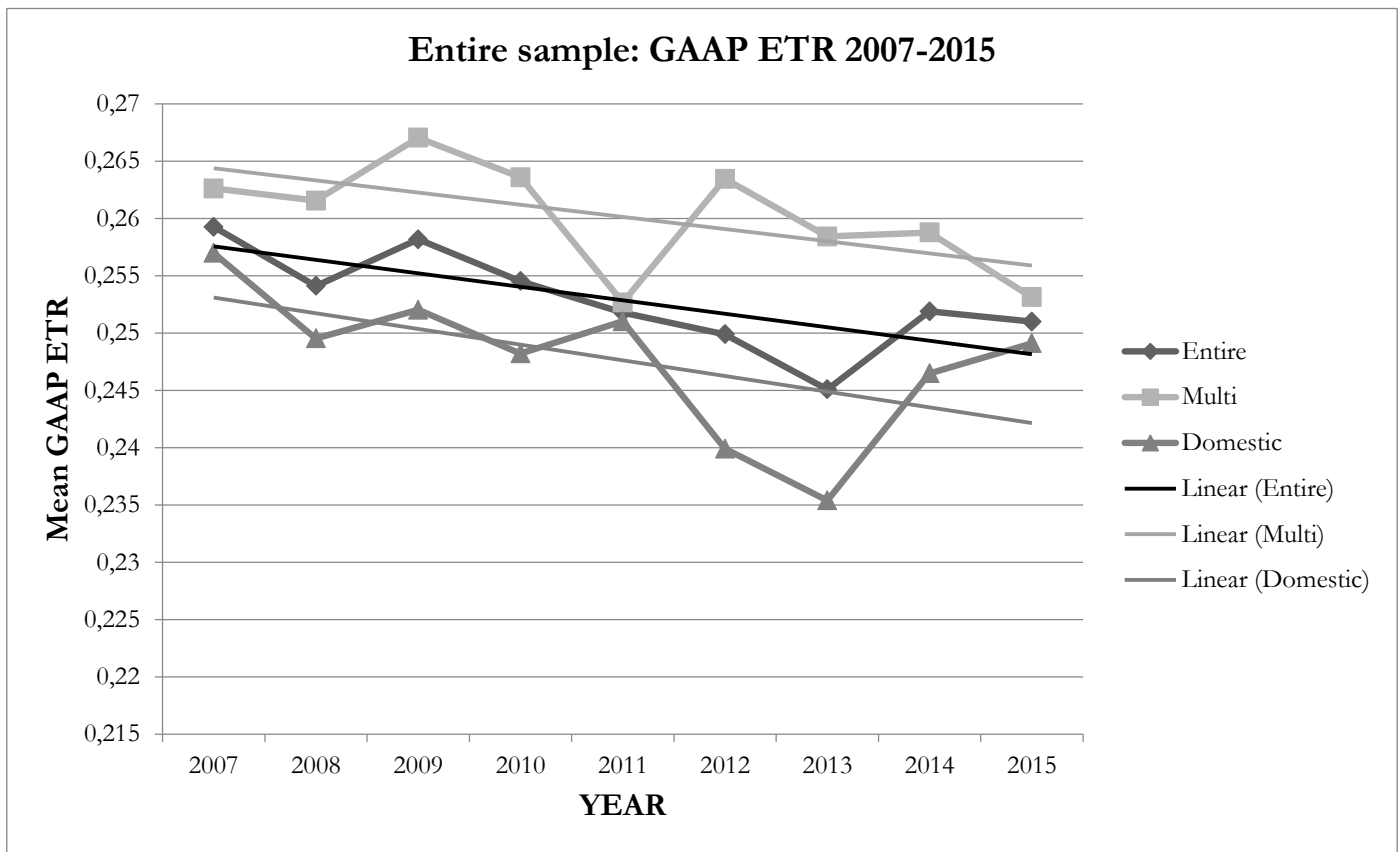


Figure 3: Mean annual GAAP ETR over the sample period 2007-2015 of the three samples called 'Multi', 'Entire' and 'Domestic'. This figure plots the annual mean ETR per year. ETR is the ratio of taxation to pretax accounting income.

The adjusted R-squared of the last model is 1.48% which is in between the model of the domestic sample with 0.98% and those related to the first hypothesis with 1.98%.

6.4 Concluding remarks

In this chapter the results of this thesis have been described and analyzed. First of all, the descriptive statistics of the samples are presented together with the distribution of companies over the different industries. Found is that the industries "Other services" and "Wholesale & retail trade" for both samples contains more than half of the companies. Most remarkable finding in the descriptive statistics is that the mean *GAAP ETR* of the multinational sample 1.3 percent higher is than those of the domestic sample. The regression results provide enough evidence that the hypothesis 1 and 3 can be rejected. Only the tax burden, measured by *GAAP ETR*, decreased significantly over time. In contradiction with the stated expectations, subsidiaries of multinationals do not benefit from their income shifting opportunities resulting in lower ETR's than those of domestic firms who do not have these opportunities.

7. CONCLUSION

The purpose of this thesis is to answer the question whether there is a difference between tax burdens of Dutch subsidiary companies which are part of Dutch domestic firms and subsidiaries owned by multinational corporations. Furthermore, the trend of the tax burdens, measured by the GAAP effective tax rates, of the different compared companies examined. In order to answer the research question, all Dutch subsidiaries are divided over two unique samples which are examined itself and compared with each other.

To support the research question, four sub questions are formulated and delivered a contribution in answering the research question. First of all, an answer on the question “what is tax avoidance?” is given and discussed why tax avoidance is applied by companies through examining the motivations and incentives for avoiding taxes. There is no common used definition of tax avoidance. However, the main content of tax avoidance can be summarized in the worth’s ‘dodging tax without actually breaking the law’. The simple ‘why’ of tax avoidance can be described as lowering the tax burden in order to benefit as company on their own or as the responsible manager. To be able to answer the third sub question a literature review of prior research into tax avoidance is included in this thesis. Main finding and similarity between the different studies is the decreasing ETR’s over time as a result of income shifting by multinationals which indicates tax avoiding behavior. U.S and European multinational corporations reallocate their income in order to minimize the global tax burden. Measuring tax avoidance is not easy, most used measure in prior research is the effective tax rate. Based on the literature review, the stated expectation is that the tax burden of Dutch subsidiaries also decrease over the sample period 2007-2015. A decreasing tax burden (ETR) gives an indication for tax avoidance, because of an unchanged tax regime in the Netherlands with a corporate tax rate of 25 percent (20% over the first 200,000).

The three developed hypotheses interpret these expectations in stating that the tax burden of Dutch subsidiaries owned by multinational corporations changed (decreased) significantly over time (1), the tax burden of Dutch subsidiaries owned by Dutch domestic firms changed (decreased) significantly over time (2), the tax burden of Dutch subsidiaries owned by multinational corporations changed (decreased) relatively more over time compared to those of Dutch domestic firms (3). The third hypothesis is mainly based on the cross-border opportunity of income shifting for multinational corporations.

The results related to the first hypothesis show a small decrease of the ETR over time, however it is not significant. This contradicts with the stated expectation that subsidiaries as part of multinationals can profit from the income shifting opportunities of multinational corporations. Over a time frame of nine years the mean ETR of subsidiaries owned by multinationals decrease barely with one percent. The mean ETR of Dutch subsidiaries of Dutch domestic firms show, in contrast to those of the multinational corporations, a significant decrease over the sample period of 1 percent. Combining the two separated samples shows remarkably a positive influence of the dummy variable *MNC* which is in contradiction with the common thought that multinationals have more tax avoiding activities and opportunities than domestic firms. The mean ETR's of both samples shows a relative small decrease over time and do not deviate much from the statutory tax rate in the Netherlands. This could be the result of the relative low statutory tax rate in the Netherlands compared to other comparable western countries as the U.S., Canada, Germany, France and Belgium what probably lowers the incentives for avoiding taxes.

Examining the trends of tax burdens for Dutch subsidiaries contributes to existing research into tax avoidance behavior of multinationals compared to domestic firms. Other studies found decreasing trends in ETR's for multinationals in the U.S. and on European level. Only one study examined the determinants who influencing the ETR of Dutch companies. This thesis contributing in investigating trends of ETR's in the Dutch setting. The results show that prior found evidence of decreasing ETR's and competitive tax advantages for multinationals compared to domestic firms is not applicable in the Netherlands. A reason for this contradiction could be the relative low tax rate in the Netherlands compared to other western countries. Next to the relative low tax rate, prior empirical evidence showed that the Netherlands can be seen as a tax haven due to several factors which make the Netherlands attractive for foreign companies (Dijk et al., 2006). A main advantage of the Dutch tax system in the context of this thesis is the advance tax ruling system which gives certainty to multinationals how the income of their Dutch subsidiaries will be taxed. This and other beneficial factors of the Dutch tax system could be a main reason that there is no difference between tax burdens of multinationals and domestic firms on subsidiary level regarding the effective tax rates. However, this contradiction in results seems an interesting topic for further research, in order to examine why there is no significant difference between multinationals and domestic firms in the Netherlands in contradiction with prior research in other countries/regions. The results are interesting for the Dutch tax authorities who creates regulations for corporate taxes and supervisory bodies as the AFM (Autoriteit Financiële Markten; Dutch supervisory body of financial markets). The average ETR over the

(recent) sample period 2007-2015 is 24.7 and 26.0 percent for the domestic- and multinational sample, respectively. This is for both samples nearly to the statutory tax rate of 25 percent, so the tax authorities do not have to intervene. In addition, the AFM does not need to act in order to oppose to unfair competition between different sort of companies. Furthermore, the results implicates that a common thought in the social debate; tax avoiding behavior of multinationals and paying unfair share of corporate taxes, is based on gut feelings instead of facts.

This thesis has his limitations. Probably the main one is the measure for tax avoidance, the effective tax rate. It starts already with the given fact that tax avoidance is difficult to define, there is no clear definition. Therefore, a proper variable to measure tax avoidance is maybe even harder. The fact that the ETR deviate from the statutory tax rate does not have to indicate tax avoidance. Other causes could be the basis for the deviation. Furthermore, the small difference of 1.3 percent between the subsidiaries owned by multinationals and those which are part of domestic firms could be explained by other reasons then tax avoidance. One of them could be that domestic firms are mostly smaller firms which are subject to tax benefits compared to the large multination corporation who faces increasing political costs due to more attention of society and social institutions (PAT). This and other possible reasons could be interesting for further research in comparing different sort of companies related to tax avoidance. In addition, extending this thesis by comparing other different measures for tax avoidance could be interesting for further research to get more reliable results. Furthermore could be mentioned that the adjusted R-squares of the used models are relatively low. This means that the percentage of variation explained by exclusive the independent variables that actually affect the dependent variable is not really high. This could be logical explained by the fact that a time period per se not explaining the effective tax rate, but more an upward or downward trend can indicate. Other influencing factors could be interesting in further research.

REFERENCES

- Akerlof, G. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3): 488-500.
- Alm, J., McClelland, G., & Schulze, W. (1992). Why do people pay taxes? *Journal of Public Economics*, 48(1): 21-38.
- Armstrong, C., Blouin, J., & Larcker, D. (2012). The incentives for tax planning. *Journal of Accounting and Economics*, 53(1-2): 391-411.
- Berg, J.-P. v., & Huisman, N. (2013). Dutch Government Letter Stresses Favorable Tax Climate. *Journal of International Taxation*, 24(4): 59-61.
- Beuselinck, C., Deloof, M., & Vanstraelen, A. (2015). Cross-jurisdictional income shifting and tax enforcement: evidence from public versus private multinationals. *Review of Accounting Studies*, 20(2): 710-746.
- Camerer, C. F. (2000). Prospect theory in the wild: Evidence from the field. In D. Kahneman & A. Tversky (eds.), *Choices, values, and frames* (pp. 288-300). Cambridge: Cambridge University Press.
- Christensen, J., & Murphy, R. (2004). The Social Irresponsibility of Corporate Tax Avoidance: Taking CSR to the bottom line. *Society for International Development*, 47(3): 37-44.
- Desai, M., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, 79(1): 145-179.
- Desai, M., & Dharmapala, D. (2009, March). Earnings Management, Corporate Tax Shelters, and Book-Tax Alignment. *National Tax Journal*, 62(1): 169-186.
- Dhami, S., & al-Nowaihi, A. (2007). Why do people pay taxes? Prospect theory versus expected utility theory. *Journal of Economic Behavior & Organization*, 64(1): 171-192.
- Dharmapala, D., & Riedel, N. (2013). Earnings shocks and tax-motivated income-shifting: Evidence from European multinationals. *Journal of Public Economics*, 97(C): 95-107.
- Dijk, M. v., Weyzig, F., & Murphy, R. (2006). *The Netherlands: A Tax Haven?* Amsterdam: Stichting Onderzoek Multinationale Ondernemingen (SOMO).
- Dixon, D. (2015). Defining Tax Avoidance. *The King's Student Law Review*, 5(2): 16-32.
- Donohoe, M., McGill, G., & Outslay, E. (2012). Through a glass darkly: What can we learn about a U.S. multinational corporation's international operations from its financial statement disclosures? *National Tax Journal*, 65(4): 961-984.
- Dyreng, S. D., & Markle, K. S. (2016). The Effect of Financial Constraints on Income Shifting by U.S. Multinationals. *The Accounting Review*, 91(6): 1601-1627.

- Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-run corporate tax avoidance. *The Accounting Review*, 83(1): 61-82.
- Dyreng, S. D., Hanlon, M., Maydew, E. L., & Thornock, J. R. (2017). Changes in Corporate Effective Tax Rates Over the Past 25 Years. *Journal of Financial Economics*, 124(3): 441-463.
- Dyreng, S. D., Lindsey, B. P., & Thornock, J. R. (2013). Exploring the role Delaware plays as a domestic tax haven. *Journal of Financial Economics*, 108(3): 751-772.
- Eisenhardt, K. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review*, 14(1): 57-74.
- Elffers, H., & Hessing, D. J. (1997). Influencing the prospects of tax evasion. *Journal of Economic Psychology*, 18(2-3): 289-304.
- Graham, J. R., & Tucker, A. L. (2006). Tax shelters and corporate debt policy. *Journal of Financial Economics*, 81(3): 563-594.
- Hamayun Kabir, M. (2010). Positive Accounting Theory and Science. *Journal of CENTRUM Cathedra: The Business and Economics Research Journal*, 3(2): 136-149.
- Hanlon, M. (2003). What can we infer about a firm's taxable income from its financial statements? *National Tax Journal*, 56(4): 831-863.
- Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2-3): 127-178.
- Harris, D. G. (1993). The Impact of U.S. Tax Law Revision on Multinational Corporations' Capital Location and Income-Shifting Decisions. *Journal of Accounting Research*, 31: 111-140.
- Hines, J., & Rice, E. M. (1994). Fiscal Paradise: Foreign tax havens and American business. *The Quarterly Journal of Economics*, 109(1): 149-182.
- Holmstrom, B. (1979). Moral Hazard and Observability. *The Bell Journal of Economics*, 10(1): 74-91.
- Huizinga, H., & Laeven, L. (2008). International profit shifting within multinationals: A multi-country perspective. *Journal of Public Economics*, 92(5-6): 1164-1182.
- Janssen, B. (2005). Corporate effective tax rates in the Netherlands. *De Economist*, 153(1), 47-66.
- Janssen, B., & Buijink, W. (2000). Determinants of the variability of corporate effective tax rates (ETRs): Evidence for the Netherlands. MARC Working Paper, WP/3/2000-08, Universiteit Maastricht, the Netherlands.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4): 305-360.
- Joint Committee on Taxation. (1999). Study of present-law penalty and interest provisions as required by Section 3801 of the Internal Revenue Service Restructuring and Reform Act of 1998 (including provisions relating to corporate tax shelters). JCS 3-99. US Government Printing Office, D.C.

- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2): 263-291.
- Killian, S., & Kolitz, M. (2004). Revenue approach to income tax evasion: a comparative study of Ireland and South Africa. *Journal of Accounting, Ethics and Public Policy*, 4(4): 235-257.
- Kim, J. B., Li, B., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3): 639-662.
- Klassen, K. J., & Laplante, S. K. (2012, December). Are U.S. Multinational Corporations Becoming More Aggressive Income Shifters? *Journal of Accounting Research*, 50(5): 1245-1286.
- Klassen, K. J., Lang, M., & Wolfson, M. (1993). Geographic Income Shifting by Multinational Corporations in Response to Tax Rate Changes. *Journal of Accounting Research*, 31: 141-173.
- Manzon, G. B., & Plesko, G. A. (2002). The relation between financial and tax reporting measures of income. *Tax Law Review*, 55: 175-214.
- Markle, K. S. (2016). A Comparison of the Tax-motivated Income Shifting of Multinationals in Territorial and Worldwide Countries. *Contemporary Accounting Research*, 33(1): 7-43.
- Markle, K. S., & Shackelford, D. A. (2012). Cross-Country Comparisons of Corporate Income Taxes. *National Tax Journal*, 65(3): 493-528.
- McGill, G. A., & Outslay, E. (2004). Lost in Translation: Detecting Tax Shelter Activity in Financial Statements. *National Tax Journal*, 57(3): 739-756.
- Mills, L. F., Erickson, M., & Maydew, E. L. (1998). Investments in tax planning. *Journal of the American Taxation Association*, 20(1): 1-20.
- Otusanya, O. J. (2011). The role of multinational companies in tax evasion and tax avoidance: The case of Nigeria. *Critical Perspectives on Accounting*, 22(3): 316-332.
- Philips, J. D. (2003). Corporate tax planning effectiveness: The role of compensation based incentives. *The Accounting Review*, 78(3): 847-874.
- Rego, S. O. (2003). Tax-Avoidance Activities of U.S. Multinational Corporations. *Contemporary Accounting Research*, 20(4): 805-833.
- Salihu, I. A., Obid, S. N., & Annuar, H. A. (2014). Government Ownership and Corporate Tax Avoidance: Empirical Evidence from Malaysia. In *Handbook on the Emerging Trends in Scientific Research* (pp. 673-689).
- Slemrod, J. (2004). The economics of corporate tax selfishness. *National Tax Journal*, 57(4): 877-899.
- Stiglitz, J. E. (1985). The General Theory of Tax Avoidance. *National Tax Journal*, 38(3): 325-337.

- Tang, T., & Firth, M. A. (2011). Can book-tax differences capture earnings management and tax management? Empirical evidence from China. *The International Journal of Accounting*, 46(2): 175-204.
- Watts, R. L., & Zimmerman, J. L. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review*, 53(1): 112-134.
- Wheatcroft, G. S. (1955). The attitude of the legislature and the courts to tax avoidance. *The Modern Law Review*, 18(3): 209-230.
- Wilson, R. J. (2009). An Examination of Corporate Tax Shelter Participants. *The Accounting Review*, 84(3): 969-999.
- Yaniv, G. (1999). Tax compliance and advance tax payments: a prospect theory analysis. *National Tax Journal*, 52(4): 753-764.
- Zimmerman, J. L. (1983). Taxes and firm shize. *Journal of Accounting and Economics*, 5(1): 119-149.

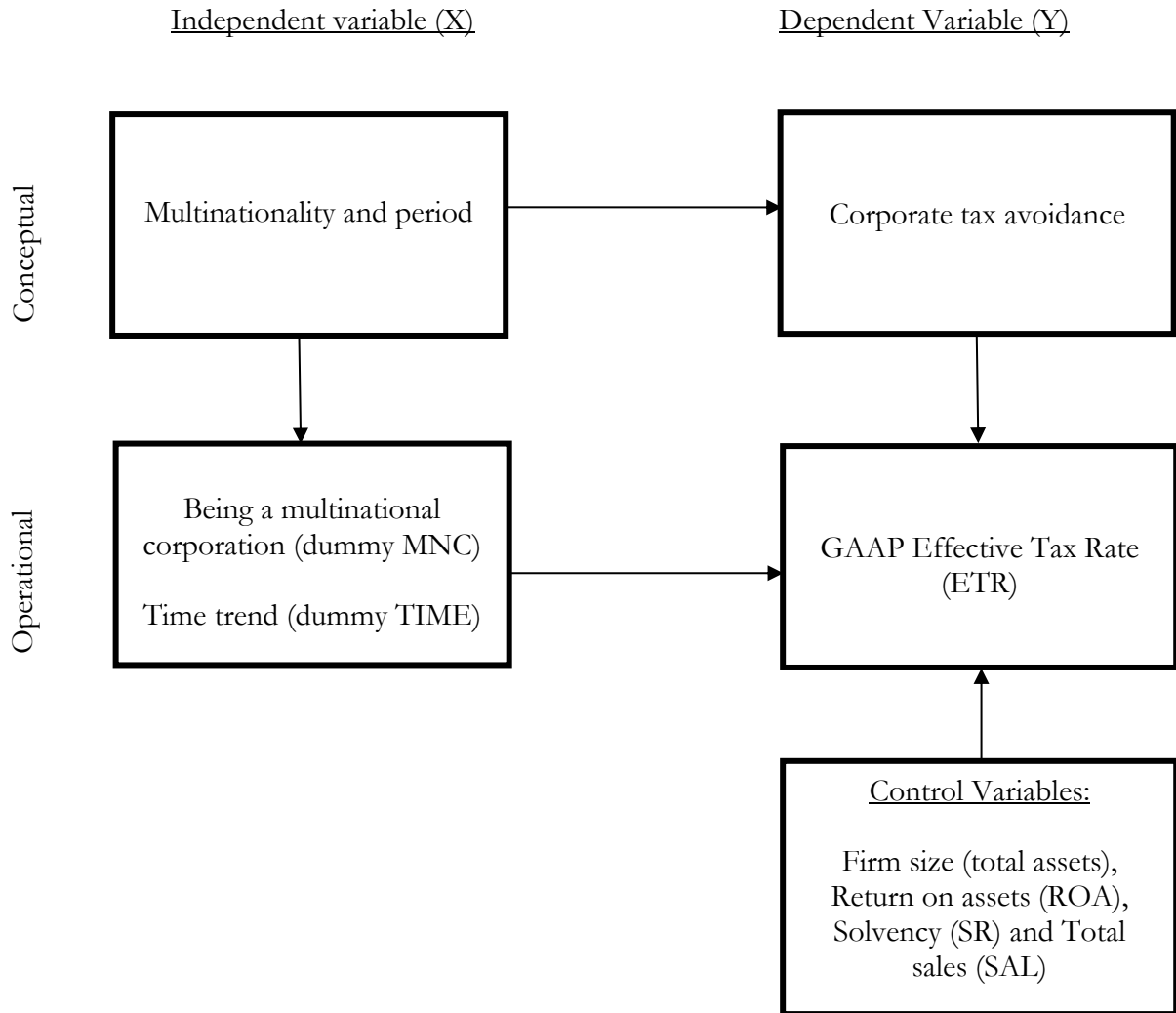
APPENDIX A

Table 9
Variable Descriptions

Variable name		Variable description
<i>GAAP ETR</i>	=	GAAP Effective Tax Rate: Taxation divided by pretax accounting income.
<i>TIME</i>	=	Dummy variable TIME which stands for the sample period 2007-2015. Assume the value 1 for 2007, 2 for 2008,, 8 for 2014 and 9 for 2015
<i>MNC</i>	=	Dummy variable MNC which equals 1 if a company is classified as being part of a multinational corporation and 0 otherwise.
<i>FSIZE</i>	=	Control variable which measures the firms size calculated by taken the logarithm of the total assets.
<i>ROA</i>	=	Control variable which measure the return on assets using the P&L before tax.
<i>SR</i>	=	Control variable which measure the solvency rate of the company based on the liabilities in percentages.
<i>SAL</i>	=	Control variable which taken the logarithm of the total sales of the company in one fiscal year.

APPENDIX B

Predictive Validity Framework “Libby Boxes”:



APPENDIX C

Table 10
Multicollinearity VIF Values

Variable	Entire sample		Domestic sample		Multinational sample	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
TIME	1.74	0.575	1.01	0.991	1.01	0.987
FSIZE	4.41	0.227	4.05	0.247	3.91	0.256
ROA	1.12	0.890	1.13	0.884	1.15	0.869
SR	1.08	0.929	1.08	0.925	1.10	0.910
SAL	4.22	0.237	4.11	0.244	3.82	0.262
MNC	5.89	0.170				
MNC_TIME	6.50	0.154				
Mean Industry VIF	4.36		4.19		4.97	
Mean VIF	4.13		3.73		4.34	