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A Real Option Approach to Responsible Tax Behavior

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Abstract

Recent investigative journalism such as the Paradise Papers suggests that aggressive tax planning is still present today. The initiatives of the OECD and of the EU authorities against aggressive tax planning in general, and the BEPS initiative in particular, still lack effectiveness. We analyze the fight against aggressive corporate tax planning from a Real Option Theory perspective, in order to find an explanation for the difficult shift of companies' aggressive tax planning strategies to more responsible tax behavior. Moreover, we suggest additional public policy interventions against aggressive tax planning based on Real Option Theory insights.

Keywords: real option theory, tax avoidance, BEPS, aggressive tax planning, CSR

1. Introduction

On 5 November 2017 the International Consortium of Investigative Journalists ("ICIJ") disclosed documents revealing aggressive tax planning structures on a large scale. The documents originate from a law firm located in Bermuda and other tax havens ("Paradise Papers"). The firm appears to host letter box companies of many multinationals including for instance Apple. Yet Apple was already mentioned in other tax scandals following previous revelations of the ICIJ. In 2014 at the occasion of the *LuxLeaks*, ICIJ revealed that Apple benefited from a secret tax ruling granted by the Luxemburg tax authorities[1]. Apparently, these 2014 revelations so far did not (yet) convince firms such as Apple to change their behavior.

Traditionally tax planning is a part of companies' strategic policy (Desai & Dharmapala, 2006). Since the turn of the century, however, aggressive tax planning is increasingly perceived as unfair (Bird & David-Nozemack, 2016; West, 2017). The media through the ICIJ has played an important role in the agenda setting. The revelations of these journalists at the occasions of *LuxLeaks* (2014), *Swiss Leaks* (2015), *Bahama Leaks* (2016) and the *Panama Papers* (2017) have disclosed numerous aggressive tax planning structures. Their disclosures have contributed to the social protest. International tax issues are now high on the global political agenda.

The social protest is mainly directed against multinationals. Although they may fulfill their legal obligations, society feels that they do not meet their societal obligations because of aggressive tax planning (Lanis & Richardson, 2015). In the field of international taxation legal scholars distinguish between tax evasion and tax avoidance (Braithwaite & Wenzel, 2008; Payne & Raiborn, 2015). 'Tax evasion' is synonymous with tax fraud and means criminal activity. It is defined as an illegal act of commission or omission that reduces or prevents a tax liability that would otherwise be incurred (Braithwaite & Wenzel, 2008; Thuronyi et al., 2016). 'Tax avoidance' refers to any activity that is not criminal in nature but is aimed at the reduction of tax (Thuronyi et al., 2016). 'Aggressive tax planning' is a specific form of tax avoidance that is contrary to the spirit or the purpose of the law (OECD, 2011: 58). When tax law is complex opportunities arise for finding loopholes and ambiguities to reduce one's tax liability within the boundaries of the law (Braithwaite & Wenzel, 2008). While tax planning itself can be considered as legitimate, "aggressive" tax planning can be characterized by an intensive use of legal and financial tools, establishments in foreign tax havens, unbalanced capital structures and transfer prices, or a disingenuous use of tax treaties, among other techniques (Knuutinen, 2014). While remaining within the letter of the law, aggressive tax planning boils down to coining the international system of rules as much as possible in order to maximize tax benefits (Gribnau, 2017).

The Organisation for Economic Co-operation and Development ("OECD") describes the term "aggressive tax planning" as a type of tax planning that is contrary to the spirit or the purpose of the law (OECD, 2011). In such cases tax planning makes use of mismatches between tax systems: "instances where the interaction of different tax rules leads to double non-taxation or less than single taxation. It also relates to arrangements that achieve no or low taxation by shifting profits away from the jurisdictions where the activities creating those profits take place" (OECD, 2013). This is also in line with the definition of the European Commission which describes aggressive tax planning as "taking advantage of the technicalities of a tax system or of mismatches between two or more tax systems for the purpose of reducing tax liability" (European Commission, 2017). Overall aggressive tax planning refers to companies taking advantage of loopholes in legislation (e.g. tax arbitrage) or opting for jurisdictions with weaker

[1] See https://www.icij.org/investigations/luxembourg-leaks/explore-documents-luxembourg-leaks-database/.

legal standards (e.g. tax havens) (Hardeck & Hertl, 2014).

Aggressive tax planning results in a tax income gap for governments. They have to cope with less tax revenues that are crucial for the provision of public services and goods (Avi-Yonah, 2008; Bird & Davis-Nozemack, 2016). Companies that utilize responsible tax behavior strategies intend to pay their fair share of taxes to ensure that governments are adequately financed (Friese et al., 2008). Although the estimated amounts of the tax gap may vary depending on the definition of aggressive tax planning, research clearly shows the magnitude of the problem. A research paper of the European Parliament estimates the loss of tax revenue to the European Union (EU) Member States through aggressive corporate tax planning to be around 160-190 billion euro per year (European Parliament, 2015). The European Commission suggests that Luxembourg, Netherlands, Belgium, Ireland, Cyprus, Hungary and Malta appear to be employing aggressive tax planning structures (European Commission, 2017). In the United States, a study shows that the US Treasury is losing over $345 billion per year because of tax avoidance and evasion (Sikka, 2010). A recent study estimates that about 40% of multinational profits are shifted to low-tax countries each year (Tørsløv *et al.*, 2018). Besides the financial dimension for government budgets, aggressive tax planning also undermines trust, shared understandings and commitments, as well as organizational integrity (Bird & Davis-Nozemack, 2016).

To address aggressive tax planning international organizations[2] have taken several countermeasures. The OECD has taken a leading role. At the request of the G20 finance ministers, the OECD developed the OECD Action Plan on Base Erosion and Profit Shifting ("OECD BEPS Action Plan") in 2013. The OECD BEPS Action Plan contains 15 actions that center around three pillars: substance, coherence and transparency (OECD, 2013). The European Union makes specific efforts as well. EU regulations adopted so far address tax avoidance practices[3] and introduce transparency requirements for tax rulings[4] and multinationals' activities[5]. The basic aim of these countermeasures is to stimulate more "responsible tax behavior". According to the OECD "enterprises should comply with both the letter and the spirit of the tax laws and the regulations of the countries in which they operate. Complying with the spirit of the law means discerning and following the intention of the legislature" (OECD, 2011). Also, multinationals should refrain from lobbying for (excessively) favorable tax rules that disproportionally affect other taxpayers (Gribnau, 2017). As such, responsible tax behavior is closely linked to corporate social responsibility ("CSR") (Dowling, 2014; Bird & David-Nozemack, 2016; Col & Patel, 2016). The Paradise Papers, however, reveal that aggressive tax planning is still omnipresent and that the initiatives of the OECD and the national authorities against aggressive tax planning still lack effectiveness. How can the difficult shift from aggressive tax planning to more responsible tax behavior be explained?

This study uses economic theory to answer this question. The traditional economic model explaining business decisions is a net present value (NPV) or a cost-benefit (CB) model. When the direct pay-off from immediate investment is positive (i.e. the benefits exceed the costs), conventional CB calculation tells us that it is worthwhile to invest. The seminal model

[2] Our paper considers the initiatives of the OECD and the European Union. We do not discuss initiatives at country-level (e.g. United States).

[3] Council Directive (EU) 2016/1164 of 12 July 2016 laying down rules against tax avoidance practices that directly affect the functioning of the internal market, *OJ L* 193, 19 July 2016, p. 1–14.

[4] Council Directive (EU) 2015/2376 of 8 December 2015 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation, *OJ L* 332, 18 December 2015, p. 1–10.

[5] Council Directive (EU) 2016/881 of 25 May 2016 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation, *OJ L* 146, 3 June 2016, p. 8–21.

of Allingham & Sandmo (1972) uses a CB framework to explain tax avoidance and tax evasion. This model analyzes an individual taxpayer's decision on whether and to what extent to avoid taxes by deliberate underreporting earnings. The model shows that economic actors pay taxes because of the fear of detection and punishment and is, in fact, an application of an economics of crime model in which a criminal tradeoffs the benefits and costs of committing the crime (Engelen et al., 2016). If the apprehension rate is high, the actor would be better off declaring the actual income and avoid penalties. If the probability for detection is low, the actor will be better if he does not declare and thus pays less taxes. The traditional implication for designing strategies to reduce tax avoidance and evasion is therefore to increase detection and penalty rates (Alm, 2012). Later theoretical research extended or refined the Allingham & Sandmo model, yet remained within the framework of the CB model.[6]

This study wants to contribute on a conceptual level to this strand of literature by applying Real Option Theory to tax planning decisions. A real option approach seems especially promising in this context, as it can addresses some of the limitations of the traditional CB/NPV-model. By explicitly allowing for flexibility in project design and in the timing of decision making, it incorporates the issue of how to optimally deal with uncertainty in the business environment in a fundamentally different way. Especially for projects that cannot be easily reversed once executed, this flexibility in timing and design may lead to delay in executing positive CB-projects in order to gain more information and reduce uncertainty, so as to be able to make a better and more informed decision somewhere in the future (Cassimon & Engelen, 2015). As such, it allows for a richer and more realistic analysis of such crucial elements as flexibility and uncertainty.

Although real option theory has been originally developed and applied in a context of corporate investment decisions (McDonald & D. Siegel, 1986; Trigeorgis 1996; Cassimon et al., 2011), this framework has also been applied to global warming and sustainable energy solutions (Sanders et al. 2013), criminal actions (Engelen 2004) and global public policy issues (Cassimon et al., 2013). More recently, the real option approach has also been applied to corporate decisions in a broader sense, such as e.g. investments in corporate social responsibility strategies (Cassimon et al., 2016). This study introduces the real option model into the field of international taxation, and more particularly, to decisions that deal with ('investment' in) responsible tax behavior. The application of the real option model is tested against empirical evidence in previous studies for the theoretical implications of the model (section 2). Next, the effectiveness of the OECD BEPS Action Plan and the EU countermeasures are evaluated from this real option perspective. Based on the real option model this study finds an explanation for the *status quo* or at least difficult shift towards more responsible tax behavior (section 3). Finally, the study suggests public policy interventions to stimulate responsible tax behavior. These suggestions consider the impact of stakeholder support, uncertainty, first mover advantage, and the time window available to opt for responsible tax behavior in the (near) future (section 4). Section 5 concludes.

[6] Andreoni, et al. (1998) add to the model the uncertainty of the outcome of tax investigations due to complexity of the investigation and a richer penalty structure. Kleven et al. (2011) find a differentiation between self-reported income and income reported by a third party. Behavioral economics also provided new models for the tax evasion decision (Pickhardt & Prinz, 2014). Dhami and Nowaihi (2007) use prospect theory to conclude that low (investigation) probabilities are overestimated and high probabilities are underestimated.

2. Real Option Theory

2.1. Introduction of the real option theory

Real option theory states that any investment decision can be considered as exercising an option. An option can be defined as the right, but not the obligation, to buy (i.e., a call-option) or sell (i.e., a put-option) the underlying asset at an agreed price (i.e., the strike price or exercise price) during a specific period (as in the case of American options) or at a predetermined expiration date (as in the case of European options) (Cassimon & Engelen, 2016). While the CB-model infers a now-or-never approach, the real option theory makes it possible to attribute value to the postponement of taking the investment decision ('waiting'). As a result, this model is very useful to deal with projects in uncertain environments for which there is some flexibility in timing of decision and project design.

As a consequence of this option analogy, any decision to invest can be modeled according to the model for financial options, i.e. exercising a call option on the benefits of such behavior (the underlying asset achieved upon exercise), by paying a particular investment cost (the exercise price of the real option). As such, six basic determinants of the value of a classical stock option can be easily translated in similar parameters in real option terminology (see also the first two columns of Table 1). The *stock price* is translated into the present value of the expected benefits of the investment decision. The *exercise price* at which the underlying asset can be acquired is the investment cost. Note that these two first parameters are identical to those used in a CB approach. The stock option analogy approach adds four parameters: Risk, or *Volatility*, is measured as the standard deviation of the expected return on the investment. *Time to maturity* is the actual lifetime of the real option or the window of opportunity (indicating the degree of timing flexibility). Also the *risk-free interest rate* enters into the calculation, with the same interpretation in both cases. Finally, the sixth element is the *opportunity cost of waiting* to invest (Cassimon et al., 2016). As long as the holder has not executed his financial option, he is not entitled to receive the dividend payments, which are only attached to holding the underlying stock. As such, the dividend yield acts as a kind of opportunity cost of still holding the option, and not having executed. In real option contexts similar opportunity costs also arise. While waiting, firms are often exposed to opportunity costs, for instance while postponing the launch of a new product or service, they might lose market share or they might lose a first-mover advantage. Since this value-driver is also relevant for our analysis, we include in our real option model the opportunity cost variable.

Table 1. Financial and real option analogy, value drivers and impact direction

[a] Financial options definition	[b] Real options analogy	[c} Real options applied to Responsible Tax Behavior (RTB)	[d] Impact on Option Value
Underlying asset price	Present value of expected benefits of investment	Present value of expected benefits of RTB (*long-term stakeholder support*)	+
Strike price	Investment cost	Investment cost of RTB (*higher tax bill*)	-
Volatility of underlying asset return	Volatility of return of benefits	Volatility of RTB benefits	+
Time to maturity	Window of opportunity (*timing flexibility*)	Window of opportunity (*timing flexibility*)	+
Risk free rate	Risk free rate	Risk free rate	+
Dividend yield	Opportunity cost	Opportunity cost (*short-term reputational risk*)	-

On the basis of these parameters, the value of such an option can be calculated, using standard financial option calculation models; the impact of the different value-drivers of real options is analogous to financial options. For instance, as shown also in the right column of table 1, the present value of the expected benefits as well as the volatility have a positive impact on the option value, while the investment cost and the opportunity cost have a negative impact (see e.g. Cassimon & Engelen, 2016 for details).

2.2. Responsible tax behavior as a real option

In this section we argue that the decision to shift from aggressive tax planning to more responsible tax behavior (RTB), can also be modeled according to the real option model. In our conceptual framework we build on earlier work of Husted (2005) and Cassimon et al. (2016) who define CSR investment as exercising a call option on the benefits of CSR (the underlying asset achieved upon exercise), by paying a particular investment cost of CSR (the exercise price of the real option). The benefit of investing in CSR is the long-term effect of increasing or maintaining the support of the company's main stakeholders to call upon for resources it needs (Husted 2005). Put differently, "refraining from investing in CSR can push major stakeholders to disengage from the company, with negative and potentially devastating effects on company value and/or even survival" (Cassimon et al., 2016:18).

In a similar vein, we argue that a decision to invest in responsible tax behavior can be defined as exercising a call option on the benefits of responsible tax behavior (the underlying asset achieved upon exercise) by paying a particular investment cost (the exercise price of the real option). The decision to shift from aggressive tax planning to more responsible tax behavior is an option, but no obligation, as "tax rules are in many ways indeterminate and therefore a matter of choice within the boundaries of the law. Especially multinational corporations enjoy much freedom in this respect" (Gribnau, 2017). Multinationals determine their own strategy about complying with merely the letter of the law or also the spirit of the law, about taking advantage of loopholes or setting up structures in countries with weaker standards. Also, multinationals determine their own policy on lobbying in order to obtain beneficial tax treatment that may disproportionally affect other taxpayers.

Exercising the option to shift towards more responsible tax behavior, requires that such decision adds sufficient value to the company and its stakeholders. The stakeholders must provide the necessary support and resources for the company to make this investment. The importance of the stakeholders in this respect, resonates with previous research on the correlation between stakeholder support and aggressive tax planning. Previous research has suggested that aggressive tax planning has a negative influence on firm reputation, while responsible tax behavior has a positive influence on firm reputation and stakeholders support (Fisher, 2014; Harvey, 2014; Lanis & Richardson, 2012).

In the real option model, the stakeholder support is measured through its impact on the value of the company. At some point, refraining from investing in responsible tax behavior can push major stakeholders to disengage from the company, with negative effects on company value. As such, determining the value of investing in responsible tax behavior for this case needs to focus on the stance of the firm's major stakeholders vis-à-vis this decision (Cassimon et al., 2016). In general, we can identify at least four major types of stakeholders, namely its clients, its employees, its finance providers, and the government as the public interest regulator. These major types of stakeholders have also been identified in the context of tax avoidance (Dowling, 2014; Hillenbrand et al., 2017; Payne & Raiborn, 2015). Hanlon and Slemrod found that on average the price of corporations' stock declines when news spreads about aggressive corporate tax strategies (Hanlon & Slemrod, 2009). Hardeck and Hertl have investigated the effects of media reporting aggressive and responsible corporate tax strategies on corporate success with consumers. The results of this study show that aggressive corporate tax planning strategies diminishes corporate success with consumers, while responsible tax behavior strategies enhance it (Hardeck & Hertl, 2014).

The decision to invest in more responsible tax behavior can be translated in the six parameters of the real option model (see also the third column of Table 1). The *expected benefits* of responsible tax behavior can best be defined as the long-term effect of increasing or maintaining the support of a company's stakeholders. The *investment cost* of responsible tax behavior consists in additional tax payments, which have a negative impact on the company's net operating profits. The volatility, measured as the *standard deviation of the expected benefits* is the uncertainty with respect to increased or maintained stakeholder support. The *window of opportunity* is the time frame during which the company has the choice for investing in responsible tax planning. Such window would come to an end for instance when a specific form of tax avoidance would be qualified as a criminal activity. The *risk-free interest rate* is merely a technical (discounting) parameter and has the same interpretation as in a financial option. Finally, the *opportunity cost* refers to the cost of still not having executed the option to invest in responsible tax behavior.

The opportunity costs become clear when we take a close look at the benefits of a responsible tax behavior. First, as explained above, such behavior creates the possibility for the company to call upon stakeholders' support. Delaying such decision therefore exposes the firm to a (gradual) loss of support from its key stakeholders and also to an increasing reputational risk together. Today's increasing transparency of tax matters increases the risk that aggressive tax planning structures will come to the surface through investigative journalists, activists or otherwise. Also, losing first-mover advantages of responsible tax behavior can be an important opportunity cost as "some specific outcomes of achieving first-mover advantage include being able to establish the firm as the model or benchmark against which all others are judged, setting the industry standards, influencing the direction of [...] regulations, and reinforcing the firm's reputation to embed legitimacy in the eyes of its stakeholders" (Sirsley & Lamertz, 2008). Accounting for opportunity costs in a real option model of responsible tax behavior is therefore a necessity to capture the full dynamics of the decision process.

2.3. Consequences of the real option perspective on the decision to shift to responsible tax behavior

The real option theory makes it possible to find an explanation for the slow and difficult shift from aggressive tax planning to more responsible tax behavior. The basic consequence of viewing such decision as exercising an investment option can be illustrated by contrasting it to the traditional CB-model, the traditional model to explain tax planning. When the direct pay-off from tax planning, i.e. the difference between the present value of the benefits of tax planning and the investment cost, is positive, the conventional NPV calculation tells us that it is worthwhile to engage in tax planning. When a company engages in normal and appropriate tax planning, the present value after taxes increases because of the tax savings. However, if a company engages in aggressive tax planning or other inappropriate tax behavior which is not accepted by the relevant stakeholders, this can decrease the cash flow before taxes. The effective tax rate of the company is maybe lower, but the overall effect on net cash flows can be negative as a result of these actions and reactions (Knuutinen, 2014). The CB-model can also be rephrased from this angle: when the direct pay-off of responsible tax behavior, i.e. the difference between the present value of the benefits of responsible tax behavior (e.g. reputation building) and the investment cost (e.g. additional tax payments) is positive, conventional CB calculation tells us that it is worthwhile to "invest" in RTB.

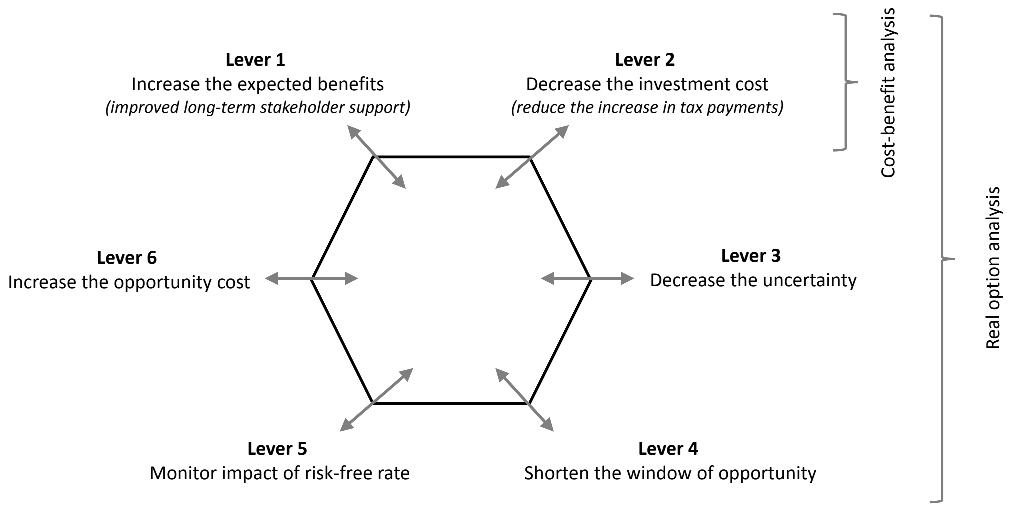
The advantage of starting from the real option perspective is that an alternative decision becomes clear. Another alternative for the firm is indeed to postpone its decision to shift towards more responsible tax behavior for some time. Delaying the investment has the advantage to gain more information with respect to the uncertain environment and to avoid being stuck in a loss-making, to a certain extent, irreversible project. Waiting has value because the return on responsible tax behavior (the benefits) is uncertain: while the expected benefits are based on current information, the benefit actually realized might be higher or lower than this mean. A higher uncertainty will lead to a higher real option value (to wait). While the CB-model is unable to capture this effect, the real option model shows that a company will postpone the decision on responsible tax behavior as long as the value of waiting, as captured by the real option value, exceeds the value of investing immediately. More particularly, unlike the CB approach, where the benefits are compared to the cost, the real option approach compares the value of keeping the option alive (i.e. decide to *wait*, as measured by the option value), with the value of executing the option *now* (as measured by the NPV). As such, a firm will only decide to execute the option now whenever the NPV exceeds the value of waiting, and is deciding to wait if otherwise. Once the investment is made, the option is gone and the company loses its flexibility. Put differently, the value of the option can be considered as an opportunity cost of investing (now), and hence must be added to the investment cost, leading the firm to decide to invest now only if the expected benefits are higher than the sum of the option value and the investment cost.

As such, the Real Option Theory provides the insight that the firm will wait until the conventional NPV is "sufficiently positive" before committing resources to responsible tax behavior, with the option value putting an exact number to this threshold value. As such, the decision to take is not (only) *whether or not* to invest (as indicated by the conventional NPV-rule), but rather *when* to invest.

This is very relevant to explain the slow and difficult shift from rather aggressive tax planning to more responsible tax behavior. As the return on this type of investment is perceived highly uncertain, companies prefer "postponing" such behavior, waiting for new information to become available on the returns of responsible tax behavior and/or the behavior of other firms in the sector. The more uncertain the benefits are, the longer one will wait. On the contrary, a higher opportunity cost will reduce the value of the option and will lead to earlier execution of the option.

This insight is important as it gives clear guidance to public policy interventions. Once governments understand the value drivers that impact firms' decisions (not) to invest in RTB, it can influence one or more parameters to induce firms into RTB. More particularly, as shown also in Figure 1, the six implied parameters that have been identified above to drive the value of the option provide six potential levers that can be used by policy initiatives to influence the firms' optimal decision. This can be done of course by trying to increase the expected benefits of RTB (lever 1) or reduce its costs (lever 2), which are the standard tools that would be derived from a CB approach, but the toolkit of possible interventions is extended through the real options approach in deriving interventions aiming at reducing the uncertainty of benefits, shortening the window of opportunity as well as increasing the opportunity cost of waiting. We will use this framework to discuss concrete policy interventions in the next sections.

Figure 1: Policy interventions as option value drivers



3. Countermeasures from a cost-benefit perspective

The previous section showed how real option theory can explain firms' waiting behavior to switch to RTB. In this section we will analyze to what extent the OECD BEPS Action Plan and the EU countermeasures against aggressive tax planning fit within the different value-drivers of the real option model. The objective of the present contribution is not to discuss the OECD BEPS Action Plan nor the EU countermeasures into detail. To this end we refer to other publications (e.g. Panayi, 2016).

The real option model allows to evaluate the effectiveness of the OECD and EU countermeasures in inducing firms to switch from aggressive tax planning to more responsible tax behavior. In terms of the real option model, it means to make sure that the NPV of responsible tax behavior becomes larger than the option value (to wait). From a real option perspective, the conclusion is that the OECD and EU countermeasures only focus on two value-drivers, i.e. reducing the investment cost of responsible tax planning and, to a lesser extent, also increasing the expected benefits of responsible tax behavior. In this section we briefly discuss the countermeasures adopted so far from a CB perspective.[7] In the next section we will show the additional levers a real option model add to the two levers of the CB model.

3.1. Countermeasures reducing the investment cost

The first category of countermeasures aims at lowering the investment cost of forfeiting tax benefits resulting from such aggressive tax planning when choosing for more responsible tax behavior. Action 5 of the OECD BEPS Action Plan is a good example of a countermeasure that results in a reduction of the investment cost of responsible tax planning. It wants to address preferential tax regimes that risk being used for artificial profit shifting from one country to another. The aim is to realign taxation of profits with typically geographically mobile activities that generate them.[8] To this end, the OECD Member States agreed on the application of a "nexus approach" as from 30 June 2016. This approach was developed in the context of preferential tax regimes for intellectual property ("IP regimes") and it allows a taxpayer to benefit from an IP regime only to the extent that the taxpayer itself incurred qualifying research and development expenditures that gave rise to the intellectual property income. This focus on expenditures aligns with the underlying purpose of IP regimes by ensuring that the regimes that are intended to encourage R&D activity only provide benefits to companies that in fact engage in such activity. In addition, under the nexus approach the only IP assets that could qualify for benefits under an IP regime, are patents and other IP assets that are functionally equivalent to patent if those IP assets are both legally protected and subject to similar approval and registration processes (OECD, 2015/5). Accordingly, the nexus approach of Action 5 limits the scope of application of IP regimes to taxpayers that have incurred qualifying research and development expenditures that gave rise to the intellectual property income (*ratione personae*) and to only certain types of intellectual property (*ratione materiae*). Aggressive tax planning outside this scope of application is not effective anymore, since based on the new rules, the benefit will cease to apply.

Similarly, a wide range of other OECD (OECD, 2013) and EU[9] countermeasures aim

[7] With respect to the OECD BEPS Action Plan it must be mentioned that it is a so-called "soft" law instrument. OECD Member States have committed themselves to gradually implement (certain) actions into treaties or domestic legislation. So far, countries have reached an agreement on "minimum standards" for (only) three actions that address aggressive tax planning (action 5, action 6 and action 13).

[8] E.g. financial and other service activities, including the provision of intangibles.

[9] Council Directive (EU) 2016/1164 of 12 July 2016 laying down rules against tax avoidance practices that directly affect the functioning of the internal market, *OJ L* 193, 19 July 2016, p. 1–14.

at limiting the effectiveness of aggressive tax planning and thus, at the same time, reduce the investment cost of responsible tax planning. These measures more specifically want to avoid treaty shopping, which involves strategies through which a person claims treaty benefits in situations where these benefits were not intended to be granted, by limiting the scope of application of treaty benefits to taxpayers having a certain level of substance (no letterbox companies), neutralize the effects of hybrid mismatch arrangements, increase the effectiveness of controlled foreign company rules, limit base erosion involving interest deductions, prevent artificial avoidance of permanent establishments, align transfer pricing outcomes with value creation. Within the boundaries of all these countermeasures aggressive tax planning loses its effectiveness.

These examples show that the scope of the anti-abuse measures is limited and typically focusses on a specific form of aggressive tax planning. As such these measures can be circumvented by new aggressive tax planning schemes. In addition, in a recent study Tørsløv shows that tax authorities of high-tax countries do not have incentives to combat profit shifting to tax havens, since this type of enforcement "is hard (little data exists), costly (as multinationals spend large resources to defend their shifting to low-tax locales), and lengthy (due to lack of cooperation by tax havens)". The anti-abuse measures mainly focus on relocating profits booked in other high-tax places, but less on aggressive tax planning through low-tax jurisdictions (Tørsløv *et al.*, 2018).

The second category includes countermeasures increasing tax transparency. The EU Directive 2016/881 of 25 May 2016 on country-by-country reporting is a good example of a countermeasure focusing on tax transparency and as such resulting in an increased investigation risk[10]. The Directive provides mandatory country-by-country reporting, whereby multinationals must report the amount of revenue, profit (loss) before income tax, income tax paid, income tax accrued, stated capital, accumulated earnings, number of employees, and tangible assets other than cash or cash equivalents with regard to each jurisdiction in which the multinational operates. Also, Member States must automatically exchange information on the country-by-country reports. Action 13 of the OECD BEPS Action Plan also introduces additional transfer pricing documentation obligations and country-by-country reporting (OECD, 2013). The purpose of this action is to provide tax authorities with useful information to assess transfer pricing and other BEPS risks and to make determinations about where audit resources can most effectively be deployed. The assumption is that this information should make it easier for tax authorities to identify whether companies have engaged in transfer pricing and other practices that have the effect of artificially shifting substantial amounts of income into tax-advantaged environments (OECD, 2015/13).

Similarly, some other OECD (OECD, 2013; OECD, 2015/5) and EU[11] countermeasures aim at increasing tax transparency, such as the automatic exchange of tax rulings and mandatory disclosure of potentially aggressive or abusive tax planning schemes.

The above-mentioned transparency countermeasures have in common that to a large extent they aim at rendering aggressive tax planning less effective by increasing the detection probability. Accordingly, the investment cost of forfeiting tax benefits resulting from such aggressive tax planning when choosing for more responsible tax behavior, becomes lower.

[10] Council Directive (EU) 2016/881 of 25 May 2016 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation, *OJ L* 146, 3 June 2016, p. 8–21.

[11] Council Directive (EU) 2018/822 of 25 May 2018 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation in relation to reportable cross-border arrangements, *OJ L* 139, 5 June 2018; Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation, *OJ L* 332, 18 December 2015, p. 1–10.

3.2. Countermeasures increasing the benefits of RTB

These OECD and EU transparency countermeasures also impact another value-driver, i.e. the long-term effect of increasing or maintaining stakeholder support, but only vis-à-vis one specific stakeholder, i.e. the tax authorities. The above-mentioned transparency countermeasures aim at providing more information to the tax authorities. Such information can affect the support of the tax authorities. In addition to the above-mentioned country-by-country reporting to the tax authorities, the European Commission adopted a proposal to also introduce *public* country-by-country reporting. This proposal requires multinational groups to publish a yearly report on profits and tax paid in each country where they are active[12]. As such, also other stakeholders would have access to this information. This proposal, however, has not been adopted yet.

3.3. Preliminary conclusion

From a real option perspective, we argue that these measures are insufficient to realize a shift towards more responsible tax behavior. First, the scope of anti-abuse measures is limited and can thus be circumvented. Second, the transparency measures only take into account one stakeholder, i.e. the government (tax authorities). However, above also other relevant stakeholders have been identified, *i.e.* clients, shareholders and other finance-providers, employees, and (indirectly) NGOs and other types of lobbyists. The countermeasures adopted so far do not aim at providing tax transparency to these other stakeholders. Finally, the countermeasures do not address other value-drivers impacting such decision, such as the uncertainty of the benefits. Confronted with the trade-off between on the one hand the cost of investing now, in terms of additional tax payments in the short-run (investment cost), and on the other hand the long-term reputational impact which is uncertain, it is understandable that companies decide not to invest in responsible tax behavior at this moment.

This conclusion is in line with observations that on the one hand countermeasures adopted so far have achieved some results, but not enough. Since the publication of the OECD BEPS Action Plan in 2013 the various actions have been further developed and implemented in different countries. On 16 October 2017 the OECD published a Progress Report on Action 5 (OECD, 2015/5). The report presents the results achieved by jurisdictions in implementing the "nexus approach". While in 2015 the OECD still identified 16 IP regimes that were not in line with the "nexus approach", now only one IP regime is still considered as harmful. This report shows progress in the field of the fight against aggressive tax planning.

However, the scope of the OECD BEPS Action Plan "minimum standards" is relatively narrow, and the Paradise Papers suggest that, so far, aggressive tax planning is still omnipresent. In 2016 Grant Thornton published the results of a survey that confirms this observation. The survey shows that 2,600 businesses in 36 countries find little impact from the OECD BEPS Action Plan. 78 per cent of businesses say they have not (yet) changed their approach to taxation. Legal scholars question the efficacy of the plan (Avi-Jonah & Xu, 2017). It is merely based on deterrence and does not address companies' societal responsibility (Bird & Davis-Nozemack, 2016). It provides hard law anti-abuse rules that, however, do not adjust to changing circumstances very quickly (Bird & Davis-Nozemack, 2016). Also civil society organizations claim that the initiatives that have been developed so far, lack ambition and are not effective (Eurodad, 2016).

[12] Proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU as regards disclosure of income tax information by certain undertakings and branches, COM/2016/0198 final - 2016/0107 (COD).

In addition, as the countermeasures adopted so far target the expected benefits and the investment cost of a decision, they affect both the NPV as well as the option value to wait in the same direction. A reduction in the investment cost increases both the NPV as well as the real option to wait. However, this intervention does lead to responsible tax behavior happening sooner because the effect on the NPV is larger than that on the option (to wait). But in order to make this intervention more effective, it should make NPV becoming larger than the option (to wait). To that end, the level of intervention should be high enough to make companies switch (Cassimon et al., 2016). Alternatively, the OECD and the EU may also consider to make use of the other value-drivers. Section 4 makes some suggestions.

4. Additional countermeasures from a real option perspective

The countermeasures adopted so far do not address other important value-drivers, such as the volatility (uncertainty), the opportunity cost and the opportunity window. Contrary to interventions impacting only the expected benefits and the investment cost, these interventions only affect the option value (to wait), and can be targeted at reducing this option to a level lower than the NPV, triggering immediate investment in responsible tax behavior (Cassimon et al., 2016: 25). In this section we suggest public policy interventions that may impact these value-drivers positively or negatively. The aim of these interventions is to reduce the value of the option (to wait) in order to stimulate companies to shift to responsible tax behavior now (or in the near future). The value-driver interest rate is largely exogenous and will therefore not be further considered here.

4.1. Countermeasures reducing uncertainty

The real option model shows that the uncertainty of the benefits of responsible tax behavior increases the value of the real option to wait. Delaying the investment has the advantage to gain more information with respect to the uncertain environment and to avoid being stuck in a loss-making project. Waiting has value because the return of responsible tax behavior is uncertain. In order to stimulate companies to engage in more responsible tax behavior now (or in the near future), this uncertainty should be taken away or at least reduced.

This aspect concerns uncertainty on how stakeholders will react to responsible tax planning, what are the expectations of the shareholders and to what extent they consider aggressive tax planning as unacceptable or undesirable. As discussed above, in certain circumstances research reveals reduced stakeholder support as a result of aggressive tax planning. However, literature suggests that there is a gap in expectations of responsible tax planning approaches and dialogue between different stakeholder groups, i.e. on the one hand business leaders, industry leaders, shareholders and on the other hand NGOs that have higher expectations (David-Barret, 2015; Hillenbrand et al., 2017). Also, Blank indicates that to the extent that the tax rules are not clear, it cannot be excluded that stakeholders will approve (aggressive) tax planning. He claims that it cannot be ruled out that: "the community of consumers, shareholders, and business partners do not view tax avoidance activities that fail to violate explicit tax rules as inconsistent with shared moral norms. By contrast, when the community perceives that a taxpayer has violated a clear tax rule in place at the time of the taxpayer's action, it may react to this perception with significantly more hostility" (Blank, 2009: 564). Blank even notes that "Short-term investors, like hedge and private equity funds, may be attracted to, rather than repelled by, corporations with tax directors who claim tax positions that 'push the envelope'" (Blank, 2009: 541).

Legal scholars indicate that international tax law is the subject of substantial uncertainty: the boundary between aggressive tax planning and more responsible tax behavior is vague (Thuronyi et al., 2016). The vaguer this boundary, the more room is left for different viewpoints in respect of tax planning approaches and, correspondingly, also the more uncertainty on stakeholders' appreciations, expectations and reactions. In addition, this uncertainty is amplified due to the fact that (direct) taxation is still mainly a national matter. As a result, this boundary varies between different states. For multinationals that operate in different countries this variation increases the uncertainty. In the United Kingdom for instance until the early 1980 the predominant view was that as long as what the taxpayer does is within the terms of the tax law, there is nothing wrong with it, even if the taxpayer manages to find a clever and artificial way of reducing taxes (Thuronyi et al., 2016). On the contrary, the U.S. courts apply the "substance over form" doctrine since a long time. Already in 1921 the Supreme Court ruled that "We recognize the importance of regarding matters of substance and disregarding forms in applying the provisions of the Sixteenth Amendment and income tax law enacted thereunder"[13]. Still, Fisher notes that even in the United States uncertainty remains. She claims that judicial application of these doctrines and their "interpretive glosses" remains unpredictable (Fisher, 2014).

The OECD BEPS Action Plan to a certain extent contributes to more certainty about the boundary between aggressive tax planning and more responsible tax behavior. From Action 6 for instance one can derive that treaty shopping (see above), cannot be considered as responsible tax behavior. The scope of the OECD BEPS Action Plan is, however, limited and, amongst others, domestic anti-abuse measures remain a national matter. This leaves room for deviating definitions and corresponding uncertainty. The OECD or the EU may consider to provide harmonization instruments or more guidelines on this boundary.

In addition, as mentioned above, aggressive tax planning can also take the form of aggressive lobbying. The OECD BEPS Action Plan does not address this kind of planning. Yet Gribnau (2017) observes that business lobbying for creating and preserving expenditures in the form of tax exemptions is often very effective. These tax privileges are the result of unchecked political bargaining power and go at the cost of the principle of equality. In the field of lobbying the OECD has already developed some initiatives. The starting point is that lobbying is a democratic right that can inform government with valuable insights and data and that lobbying allows citizens and interest groups to present their views on public decisions. However, it can also lead to unfair advantages for vested interests, it is associated with secrecy and unfair advantage and public interest is at risk when negotiations are carried out behind closed doors. The OECD developed a general framework for lobbying that meets public expectations for transparency, accountability and integrity. This framework includes standards and procedures for disclosing information that cover key aspects of lobbying such as its intent, beneficiaries and targets[14]. Public policy may introduce (enhanced) mandatory disclosure rules for lobbying in the field of taxation.

Since harmonization at worldwide level is extremely difficult, public policy interventions could also try to stimulate self-regulation by the private sector. Such self-regulation is already implemented in other fields. For instance, the Business Social Compliance Initiative supports working conditions through code of conducts and audit procedures. With the involvement of participating companies and stakeholders, it develops a broad range of tools and activities to monitor, train and share information to improve working conditions. It also organizes internal business audits

[13] Supreme Court, *United States v. Phellis*, 257 US 156, 168 (1921).

[14] *Cf.* http://www.keepeek.com/Digital-Asset-Management/oecd/governance/lobbyists-governments-and-public-trust-volume-1_9789264073371-en#.Wil07-SWz4Y#page5.

amongst participating companies (Berzau, 2011). Following this example business tax compliance initiatives may organize self-regulation in the field of taxation. Such self-regulation can include various aspects of responsible tax behavior: interpretation of statutes according to letter and purpose, refraining from aggressive lobbying, reporting of tax strategies and lobbying activities. The OECD and the EU may stimulate the (early) introduction of code of conducts or, as already mentioned above, integrating tax in company's corporate social responsibility strategy (Jallai & Gribnau, 2018), by initiating or participating to discussions or negotiations on industry codes or CSR strategies.

4.2. Countermeasures increasing the opportunity cost

The real option model shows that also the opportunity cost of not investing in responsible tax behavior is an important value-driver. First, as explained above, delaying the decision to invest in responsible tax planning exposes the firm to a reputational risk as long as such decision has not been taken. However, an actual reputational risk is only present if these stakeholders have sufficient information on that tax strategy. So far, transparency on aggressive tax planning and the subsequent negative commotion in the public opinion largely comes from activist NGOs and journalists, that have found information with respect to multinationals' tax strategy based on their investigations, not publicly available information. The disclosure of this information in the media has had some impact on the other stakeholders (Kanagaretnam et al., 2016). For instance, this explains that Starbucks, after the company's aggressive tax planning structures had been mediatized, in order to safeguard its reputation voluntarily paid around ten million pounds in additional taxes to United Kingdom's Her Majesty's Revenue & Customs ("HMRC") (van den Hurk, 2018). However, Gallemore et al. (2014) have found that the reputational cost resulting from journalists accusing companies of tax shelter involvement, is only temporary. As mentioned above, NGOs and journalist are (only) indirect stakeholders that may influence direct stakeholders. The Real Option Theory shows that governments may want to introduce transparency measures also focusing on direct stakeholders.

As explained above the OECD BEPS Action Plan and new EU rules introduce such transparency measures, which accordingly increase the reputational risk, but only vis-à-vis one specific direct stakeholder, i.e. the tax authorities. The Real Option Theory shows that transparency vis-à-vis all relevant stakeholders is important. As mentioned above these encompass also clients, shareholders and other finance-providers, and employees. Currently, these direct stakeholders, however, in most countries[15] do not have access to detailed information on a company's tax strategy. Tax reporting has "historically been opaque" (Gradison et al., 2006). Companies tend to report their tax obligations in obscure ways in their annual reports (Dowling, 2014). In addition, based on qualitative research Ylönen and Laine show how, despite corporate social responsibility commitments in respect of accurate and transparent communication, companies make only limited disclosures on taxation and completely omit issues such as tax planning, tax risks and tax compliance (Ylönen & Laine, 2015).

Insofar stakeholders lack access to information on the company's tax strategy, the reputational risk remains limited. The reputational risk can be increased by introducing public policy interventions that provide transparency vis-à-vis all relevant stakeholders, not only the tax authorities. This resonates with the proposal at EU level to introduce public country-by-country reporting (see above), or suggestions to introduce other mandatory public tax reporting requirements for multinationals, such as disclosure of aggressive tax planning positions

[15] In Scandinavian countries tax transparency is much higher (Hey, 2018).

(Gradison et al., 2006) or other corporate income tax data (Avi-Yonah & Siman, 2014).

Next, while public disclosure may trigger a negative connotation with "naming and shaming" (Blank, 2009), the Real Option Theory shows that public disclosure should also be looked at from another angle. Companies adopting and disclosing responsible tax behavior in an early stage benefit from a first-mover advantage and have the opportunity to setting industry standards. Looked at from this angle, the opportunity cost concerns the fact that a company may lose such first-mover advantage.

For this opportunity to have a positive impact on stakeholder support, however, more is needed. Sirsly & Lamertz (2008) indicate that for investments to actually result in a first-mover advantage, it is very important that these initiatives are made visible to the stakeholders. In order to increase visibility, previous research has suggested to incorporate tax compliance in corporate social responsibility reporting and other communication mechanism developed by NGO's, or to incorporate "tax strategy" as an assessment criterion in sustainability indices (Bird & Davis-Nozemack, 2016).

Sirsly & Lamertz (2008) note, however, that the credibility of the source for visibility is a key factor in attracting stakeholder attention. This suggests that the support of not only NGO's but also governments in making responsible tax behavior initiatives visible has an important impact. A good example of this can be seen in the Code of Practice on Taxation for Banks that was introduced by the HMRC in 2009. The Code describes the approach expected of banks with regard to governance and tax planning. The HMRC is in addition required to publish an annual report on the operation of the code. The report lists banks which have adopted the Code, identifies any bank that has not adopted the Code and can identify any bank that is found to be in breach of its Code commitments[16]. The OECD and the EU may consider developing instruments stimulating the (voluntary) reporting of responsible tax behavior.

4.3. Countermeasures reducing the option window

Finally, the real option model also shows that the option window is a relevant value-driver. The interventions suggested above may be accompanied by interventions that affect the option window by threatening to impose more direct enforcement types of interventions. Since the OECD, however, has no competences it is difficult for this organization to influence this value-driver. The European Union on the contrary has certain competences that are useful to have an impact on the option window. This value-driver can explain that the actions of the European Commission in the framework of EU state aid rules are efficient to combat aggressive tax planning. In 2016 for instance the European Commission decided that the beneficial tax treatment of income of Apple's "head office" in Ireland constitutes illegal state aid. The same year Facebook announced that its sales structure would be changed. Going forward the non-American sales will no longer be organized through and Irish "head office" of Facebook, but accounting profits will be registered locally. As a result, Facebook is expected to pay taxes on net profits in 30 countries including Germany, France, Spain, Italy, the Netherlands, Belgium, Norway, Poland, and Sweden[17]. This illustrates that the enforcement actions also impact other taxpayers. This can be explained by the fact that the latter consider that as a result of the actions of the EC the option window to freely choose for responsible tax behavior becomes shorter.

[16] *See* https://www.gov.uk/government/publications/the-code-of-practice-on-taxation-for-banks-annual-report-2017.

[17] *See* http://www.bbc.com/news/business-42324485.

Conclusion

Based on a traditional net present value approach, one may assume that a decision to shift from aggressive tax planning to more responsible tax behavior is taken as soon as the benefits of responsible tax behavior (e.g. reputation building) exceed the investment cost (e.g. additional tax payments). However, the Real Option Theory shows that, because of the uncertainty that surrounds the benefits of responsible tax behavior, more is needed for companies to take such a decision. Delaying the investment has the advantage to gain more information with respect to the uncertain environment.

We have shown that viewing investment in responsible tax behavior from a real option framework, allows for a richer and more realistic analysis of value drivers. Countermeasures adopted so by far the OECD or at EU level mainly reduce the investment cost of responsible tax planning, but do not address other important value-drivers, such as the uncertainty surrounding the benefits of responsible tax behavior, the opportunity cost of delaying responsible tax planning, and the time frame of delaying.

Finally, we suggested some public policy interventions that address these three value-drives. These interventions aim at clarifying the boundary between aggressive tax planning and responsible tax behavior, increasing transparency to all relevant stakeholders, through self-regulation or otherwise, and reducing the time window by threatening with more direct enforcement actions. From our analysis, it is shown that diversifying the range of interventions to these additional ones aiming directly at reducing this real option value (of waiting) is needed to make public interventions in stimulating RTB effective and stop companies from dragging their feet in switching to it today.

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