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Should multinational companies request an advance pricing agreement (APA) — or shouldn't they?

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Should multinational companies request an advance pricing agreement (APA) — or shouldn't they?

Abstract: Advance Pricing Agreements (APAs) are commonly used by multinational groups to gain certainty about their transfer prices for tax purposes. I focus on a multinational company that invests in a foreign subsidiary in a low-tax country. Applying a binomial model for flexible investment planning, I analyze whether and under what circumstances the multinational company should consider requesting an APA. I show that APAs are worth considering when high double taxation may arise and when the tax rates in the involved countries differ sufficiently to outweigh the drawbacks associated with time and fee effects. Furthermore, I find that increasing double taxation and an increasing tax rate differential increase the relative attractiveness of an APA request. That said, multinational companies need to also control for opposing effects when considering an APA request.

JEL Classification: H25, H21

Keywords: Advance Pricing Agreements, Uncertainty, Investment Decisions

1 Introduction

According to OECD estimates, by the early 1990s trade between affiliated companies already accounted for more than 60% of international trade.¹ Due to intensified globalisation and the internationalization of the economy, today the intra-group exchange of goods and services plays a growing role in international terms. In this context transfer pricing for tax purposes of such intra-group services gains higher importance. Transfer prices that are set by multinational companies for intra-company transfer between their internationally active affiliates have to meet the criteria for arm's length transactions for tax purposes. The arm's length price corresponds to a price that independent third parties would set for the same service or product on the free market. Transfer prices form the basis for determining the income of single entities in multinational companies and in turn of the multinational group. Transfer pricing in this context is crucial for the allocation of the tax base to the tax authorities in the countries in question.²

For multinational companies determining exact transfer prices is often a task that involves a lot of uncertainty as it is by no means certain that the tax authorities will accept their chosen transfer pricing method. This uncertainty is due to the fact that the determination of such intra-firm prices has a direct effect on the distribution of the tax base among the involved countries and therefore on the amount of tax revenues. Against this background, many tax authorities assume that multinational companies shift profits to low tax countries by manipulating their transfer prices.³ Tax authorities meet such profit shifting activities by increasing their transfer pricing staffing.⁴ The importance of the transfer pricing topic from the tax authorities' perspective is also reflected in the OECD's attempt to address the

¹Cf. *Commission of the European Communities* (2001), p. 23.

²Cf., e.g., *Baistrocchi* (2006).

³Evidence of profit shifting through transfer prices is, for example, found by *Bartelsman/Beetsma* (2003), *Clausing* (2003) and *Huizinga/Laeven* (2008). For recent surveys of empirical studies of profit shifting through transfer pricing see exemplarily *Luckhaupt/Overesch/Schreiber* (2012) and *Heckemeyer/Overesch* (2013).

⁴Cf. *Ernst & Young* (2012), pp. 4 and 8. In its 2012 global transfer pricing tax authority survey the Big 4 accounting firm *Ernst & Young* shows that only two of the 48 surveyed companies do not increase staffing. Cf. *Ernst & Young* (2012), p. 8.

issue of “Base Erosion and Profit Shifting (BEPS)”⁵. The BEPS project aims, by creating an action plan with the participation of all stakeholders⁶, “to provide comprehensive, balanced and effective strategies for countries concerned with base erosion and profit shifting”⁷.

Multinational companies also rank the issue of transfer pricing as one of the most important tax challenges.⁸ For internationally active companies the non-acceptance of the chosen transfer pricing method and an adjustment of the tax payment by one of the involved tax authorities can lead, e.g., in a bilateral setting, to double taxation in cases where the other tax authority does not adjust the tax payment.⁹ Furthermore, the uncertainty about the correct determination of the transfer prices may not only lead to additional tax burdens but also to the imposition of penalties in case of transfer pricing adjustments. Such risk of facing penalties has increased in recent years.¹⁰ Thus, the risk of transfer pricing adjustments may have a substantial effect on multinational companies’ business planning. In addition, transfer pricing conflicts between multinational companies and tax authorities often have to be solved by time-consuming, complex, and mainly costly audits and litigations.¹¹

To reduce or even eliminate legal uncertainty regarding the determination of transfer prices, multinational companies can make use of Advance Pricing Agreements (APA)¹². An APA is an agreement between one (or more) affiliated companies and one (or more) tax authorities that determines, in advance of a series of business transactions between the affiliated companies, an appropriate transfer price for these transactions over a fixed period of time.¹³ APAs are requested in order to avoid double taxation and costly audits as well as to create

⁵Cf. *OECD* (2013a).

⁶In this regard the *OECD* plans consultations with the business community to provide them with certainty regarding long-term investments. Cf. *OECD* (2013a), p. 9.

⁷Cf. *OECD* (2013b).

⁸Cf. *Ernst & Young* (2010), pp. 3 and 5 ff. In its 2010 global transfer pricing survey *Ernst & Young* interviewed 877 companies in 25 countries. Cf. *Ernst & Young* (2010), p. 1.

⁹By using an online survey among large firms (733 respondents) the Big 4 accounting firm *Deloitte* shows that in Germany alone performed tax audits lead to relevant or very high additional tax burdens due to transfer pricing adjustments in 23% of the cases. Cf. *Deloitte* (2011), p. 5.

¹⁰Cf. *Ernst & Young* (2010), p. 11. Due to the results of this survey among tax directors the risk of a penalty has increased from a 4% (2005) to a 20% chance (2010). Cf. also *Ernst & Young* (2012), pp. 4 and 11.

¹¹Cf. *Nehoray/Ishii* (2009), p. 72.

¹²Although I use the term Advance Pricing Agreement, the terms Advanced Pricing Agreement and Advance Pricing Arrangement describe the same process.

¹³Cf. *OECD* (2010), p. 168.

legal certainty for multinational companies regarding their transfer prices.¹⁴

In recent years many countries have — following the recommendation of the OECD¹⁵ — introduced APA systems or APA processes as a cooperative form of negotiation.¹⁶ Against this background I use flexible investment planning to analyze if and under what circumstances the request for an APA is worth filing for a multinational group. I exemplify an APA process involving a multinational company that wants to invest in a foreign subsidiary. In this context I investigate the underlying mechanisms by taking the difference in tax rates in the relevant countries into account. I show that multinational companies should, under certain conditions, consider requesting an APA if double taxation may arise when the companies invest immediately and in the presence of tax rate differences. Furthermore, I find that increasing double taxation and an increasing tax wedge increase the relative attractiveness of requesting an APA. That said, there are some opposing effects that have to be considered when deciding whether to request an APA.

The remainder of this paper is organized as follows. In the next section I review the prior literature. In section 3 I introduce a model framework, which reflects a company's decision to invest in a foreign subsidiary. In my model setting I account for the possibility of requesting an APA in order to gain legal certainty regarding future transfer pricing. To identify factors that affect the request of an APA I first set up an introductory model that abstracts from any specific regulations or fiscal rules. Then, to further analyze these factors I model the company's investment decision in a more detailed extended framework. I analyze the company's decision in section 4 without and with double taxation. I consider a scenario with equal tax rates before I discuss the effects in the light of tax rate differentials. Finally, I summarize and draw conclusions in Section 5.

¹⁴Cf. *Canale/Wrappe* (2008), p. 193 ff. See also *Nehoray/Ishii* (2009) on the use of APAs to reduce compliance costs.

¹⁵Cf. *OECD* (2010).

¹⁶On APA implementation in different countries, cf., e.g., *Markham* (2006), *Feinschreiber/Kent* (2009a,b,c,d).

2 Prior literature

While there are several jurisprudential and practical contributions regarding the implementation of APA systems in different countries, particularly comparisons of such APA systems and the descriptions of the pros and cons, few contributions examine the economic reasoning behind implementing such agreements. One of them is *Brem* (2003). With the help of APAs he investigates the governance change from bureaucracy (ex post) to cooperation (ex ante) between the taxpayer and the relevant tax authorities. Applying transaction cost economics, he concludes that cooperation is able to minimize legal uncertainty if two-sided asymmetric information exists. Using a game theory approach *Tomohara* (2004) investigates the inefficiency of production decisions of multinational companies within the scope of a bilateral APA. In a scenario with no information asymmetry regarding transfer prices (as the tax authorities and the company have agreed on a specific transfer pricing method) *Tomohara* shows the inefficient production shifts that result from tax rate differences. In order to reduce their total tax burden multinational companies adjust their production output so that more profit is generated in the country with the lower tax rate. *Tomohara* concludes that tax authorities should consider equal tax rates in order to avoid inefficient production shifts when coordinating bilateral APAs. *De Waegenaere/Sansing/Wielhouwer* (2007) use a game theory approach to a tax compliance issue to analyze the usefulness of bilateral APAs to resolve transfer pricing disputes between a taxpayer and two tax authorities. The authors show that companies and governments accept the implementation of a bilateral APA if the income that is subject to double taxation is low and if the difference in tax rates in the two countries in question is high. An agreement is reached if the compliance cost can be reduced. This is a necessary but not sufficient condition. Using the scenario without an established APA programme as a benchmark, bilateral APAs can increase compliance costs if the failure to request an APA leads tax authorities to audit a taxpayer more closely. *Givati* (2009) takes the corporate perspective. Analyzing a company's strategic considerations regarding whether or not to request an APA the author explains the infrequent use of APAs in the US. The author shows that the strategic disadvantages of an APA request, such as the long wait

to complete an APA, expert knowledge as the transfer prices are examined by a special APA team, and the likelihood of a detailed examination of the transfer pricing method, outweigh the benefits, e.g., the avoidance of penalty interests. *Diller/Kortebusch/Schneider/Sureth* (2014) provide new explanations for why advance tax rulings are not as intensively requested by taxpayers as expected against the background of high tax uncertainty. The authors show that taxpayers request advance tax rulings if the fee does not exceed a certain threshold. Furthermore, tax authorities that integrate the taxpayer's calculus into their decision of offer such an instrument usually only supply advance tax rulings under certain circumstances (e.g., reduced tax audit costs or increased detection probability).

Empirical investigations on the subject of Advance Pricing Agreements mainly analyze data from surveys. Based on an analysis of surveys of U.S. companies *Borkowski* (1993, 1996) concludes that comprehensive information and documentation requirements as well as the costs of an APA are reasons for companies not to request an APA. The author also shows, based on a survey of manufacturing companies in Canada, Germany, Japan, UK, and the U.S., that companies doubt the confidentiality of information contained in the documentation. For the Pacific Association of Tax Administrators (PATA) region (Australia, Canada, Japan and U.S.) *Borkowski* (2008) examines whether transparent documents providing specific guidance for companies regarding the APA process influence the usage and efficiency of APAs. The author concludes that the greater the transparency, the more attractive APAs become for multinational companies. A faster and cheaper completion of APAs in comparison to the situation without specific documents cannot be found.

Thanks to the introduction of FIN 48 the tax authorities can identify relevant transfer pricing issues and investigate them in detail during tax audits as the companies have to declare uncertain tax positions in their financial statements. Against this background, in a comment *Capuzzi* (2010) proposes using the APA process in order to reduce uncertainty regarding the FIN 48 analysis. In this context *Borkowski/Gaffney* (2012a) investigate the effect of FIN 48 on the APA activity of companies in the PATA region. The authors show that the introduction of FIN 48 has induced more APA requests. Also by means of a survey among

companies in the PATA region, *Borkowski/Gaffney* (2012b) show a rise in the number of APA requests after the introduction of FIN 48. Furthermore, the authors investigate whether companies can, by requesting an APA, successfully reduce their tax audit risks. However, *Borkowski/Gaffney* find no evidence of the expected relation between APAs and tax audit risk.

Using the example of Advance Pricing Agreements *Whitford* (2010) empirically examines under which conditions governments remove regulatory uncertainty. Large FDI flows increase the likelihood of a government introducing APAs as they reduce uncertainty regarding transfer prices. It is obvious that this effect is stronger for outbound than for inbound FDI flows. Furthermore, *Whitford* finds evidence that countries with high corporate tax rates are more likely to allow for an Advance Pricing Agreement in order to solve transfer pricing disputes.

The aforementioned studies show that APAs may, under certain conditions — e.g., to reduce transaction and compliance costs — be a useful instrument to enhance legal certainty and to resolve transfer pricing disputes. They also provide insights how APAs should be developed efficiently, as well as which countries are likely to introduce APAs. Furthermore, the reasons why companies request an APA are empirically highlighted. However, apart from *Givati's* qualitative strategic considerations, there are no studies, particularly quantitative studies, that examine APAs from a corporate perspective. To close this gap, I investigate APAs within a microeconomic context. More specifically, I analyze a company's decision to invest in setting up a foreign subsidiary. The company may invest immediately without requesting an APA. Alternatively, the company may request an APA in order to avoid double taxation and achieve legal certainty. Requesting an APA is a drawn-out process which delays the investment. Thus, I examine whether and if so, under which conditions requesting an APA is worthwhile for a company.

3 Model framework

A domestic company has to decide whether to acquire a foreign subsidiary in a country with lower taxation.^{17,18} The acquisition cost of the investment in a foreign subsidiary is I_0 . I assume that the investment in a foreign subsidiary earns a certain pre-tax cash flow CF . The company faces uncertainty whether the transfer pricing method that the company uses to determine its intra-company transactions will be accepted by the involved tax authorities. The probability that the tax authorities accept the transfer pricing method is p . In the case in which the transfer pricing method is not accepted by the tax authorities the company faces additional tax payments due to the change of the method and/or penalty payments. To reduce such uncertainty the company has the possibility to request an APA in order to clarify whether its transfer pricing method will be accepted. The fee for such a request is F .

3.1 Preliminary considerations

To show the general effects of requesting an APA from the multinational companies' perspective I set up an introductory basic approach¹⁹ that does neither contain any specific regulations regarding the request of such an agreement nor detailed fiscal rules.²⁰ This approach rather allows me to basically identify the factors that influence the decision of a multinational company whether or not to request an APA.

When requesting an APA the company is able to influence the probability p that the tax authorities accept the transfer pricing method by paying the fee F . Therefore, I assume the following relation between the fee F and the probability p : The higher the fee the higher

¹⁷I abstract from Subpart F income. I rather assume that the foreign corporate tax rate is lower than the domestic corporate tax rate.

¹⁸To reduce the number of distinctions of cases I assume that the foreign tax rate is smaller than the domestic tax rate. Without altering the results of the analysis I could also assume that the foreign subsidiary is situated in a country with higher taxation. In both cases I analyze the APA-decision of an affiliated company that operates in two countries with different tax rates.

¹⁹I employ the basic approach of an analytical model that is used in the field of auditing. See e.g. *Smith/Tiras/Vichitlekarn (2000)*; *Wagenhofer/Ewert (2007)*, p. 441 ff.

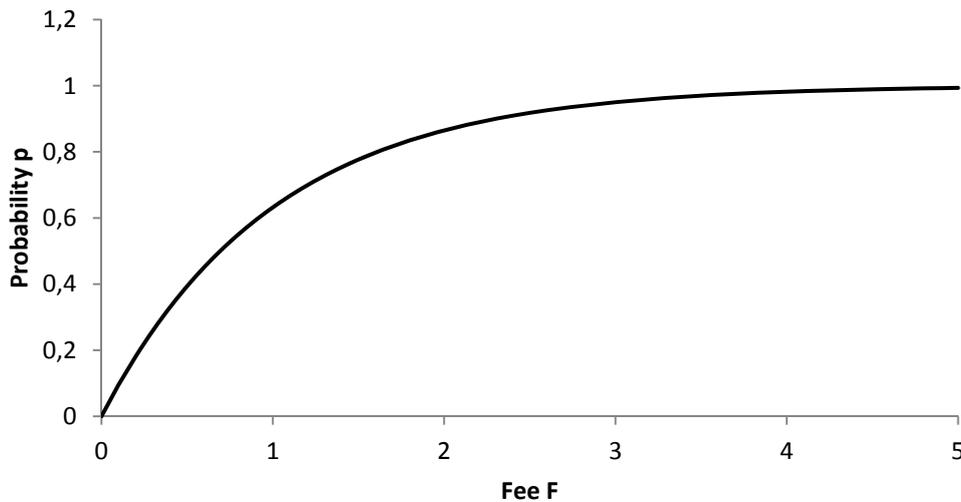
²⁰In particular I abstract from the precise form of the fee. Furthermore, I consider an after-tax cash flow and thus abstract from fiscal rules such as tax rates, the determination of the tax base in the involved countries etc. I consider such regulations in the following model in section 3.2.

is the probability that the tax authorities accept the company's transfer pricing method.²¹ When requesting an APA companies generally pay a one-time fee in every involved country. The assumed increase of the fee in the basic approach may be due to a multilateral APA. That is, the fee increases with the number of countries that are not only involved in the intra-company transactions but also in the APA request. It is also conceivable that the consideration of further intra-company transactions leads to a higher fee.²² Such relation between the probability p and the fee F can be described by:

$$p = 1 - e^{-F} \quad \text{with} \quad \frac{dp}{dF} > 0. \quad (1)$$

I use the e -function to describe the relation between the probability and the fee as it allows explicit solutions.²³

Figure 1: Relation between the fee F and the probability p



²¹ Assuming a relation between F and p I abstract from the design of an APA insofar that paying a fee not only reduces legal uncertainty regarding the decision of the tax authorities which transfer pricing method will be accepted. It rather leads to a higher probability that the company's preferred transfer pricing method will be accepted. In this context I explicitly abstract from corruption cases. The increase of p in the case of an APA request may be justifiable because of the cooperative character of an APA. Companies have the possibility to argue in more detail than in a tax audit why their preferred method should be accepted. Furthermore, APAs are usually processed by transfer pricing experts (e. g., APA teams) that probably have comprehensive knowledge and therefore, better assess the companies' transfer pricing cases. Nevertheless, by assuming the above outlined relation I abstract from the probability p as a possible decisive factor. I extend my model and consider p as a decisive factor in section 3.2.

²² E.g., the multinational company may include not only the product A but also product B into its APA request and therefore, has to pay a higher fee.

²³ Cf. *Wagenhofer/Ewert* (2007), p. 442.

Figure 1 illustrates the relation between the fee F and the probability p . The higher the fee the higher is the probability that the tax authorities accept the transfer pricing method. Furthermore, the graph converges towards one, which implies that the probability of the acceptance of the transfer pricing method converges towards 100%.

When investing in the foreign subsidiary the company pays the acquisition cost I_0 and, in case of requesting an APA, the fee F . The investment earns the after-tax cash flow CF^τ as long as the tax authorities accept the transfer pricing method used by the company to determine its intra-company transactions. The probability that the tax authorities accept the company's transfer pricing method is p . However, it is possible that the tax authorities correct the transfer pricing method with the probability $1 - p$. Thus, the company faces additional cost $\tilde{\Delta}$. These cost may include additional tax payments and penalty payments. If the the tax authorities do not accept the transfer pricing method the after-tax cash flow CF^τ is reduced by $\tilde{\Delta}$ with $\tilde{\Delta} > 0$. By paying the fee F the company is able to reduce the probability $1 - p$. The determination of the optimal level for the fee F can be interpreted as insurance against the payment of additional cost.

To abstract from effects of different risk attitudes I assume the company to be risk neutral.²⁴ Therefore, I focus on expected future values $E[FV]$. Considering the investment-related costs $c = I_0 + F$ the expected future value $E[FV]$ is determined as follows:

$$\begin{aligned} E[FV] &= \text{Max}[p(CF^\tau - c) + (1 - p)((CF^\tau - \tilde{\Delta}) - c)] \\ &= CF^\tau - I_0 - F - e^{-F}\tilde{\Delta}. \end{aligned} \tag{2}$$

²⁴The assumption of risk neutrality facilitates the analysis and allows me to identify the basic effects. Even though the analytical integration of risk averse companies is desirable, the attention to risk neutral companies is appropriate because tax managers are often compensated on pre-tax compensation measurements (see e.g., *Wilson(1993)*; *Douglas/Ellingsworth (1996)*; *Phillips (2003)*; *KPMG (2005)*) and thus are rather risk neutral.

Differentiating $E[FV]$ with respect to the fee F I get the first order condition for the optimal fee:

$$\frac{\partial E[FV]}{\partial F} = -1 - e^{-F} \tilde{\Delta} = 0. \quad (3)$$

Solving for F I receive the optimal fee F^*

$$F^* = \ln(\tilde{\Delta}). \quad (4)$$

The optimal fee that the company should pay for requesting an APA depends on the additional cost that the company has to pay when the tax authorities do not accept the transfer pricing method. The higher the additional cost the higher is the optimal fee the company should be willing to pay for an APA.

The additional cost may arise due to the following reasons:

- The tax authorities involved do not accept the transfer pricing method that the company chooses for its intra-company transactions. They consistently correct it to a method that leads to a higher tax burden.²⁵
- Some of the tax authorities involved correct the method in a manner that leads to a higher tax burden in these countries while the other authorities do not correct it. Therefore, the company does not only face a higher total tax burden but even double taxation.
- If the transfer pricing method is not accepted by (some of) the tax authorities the company may also face penalty payments.

To further analyze the factors that affect the request of an APA I set up a model that contains specific regulations regarding the APA, e.g., a one-time fee for requesting such an agreement, and specific fiscal rules. In section 3.2 I set up a model without double taxation. I consider the integration of double taxation in section 3.3.

²⁵I abstract from the case in which a correction of the method leads to taxation that is too low.

3.2 Model without double taxation

A domestic company has to decide whether to acquire a foreign subsidiary at time $t = 0$. The company owns initial equity $I_0 + F$ that corresponds to the acquisition cost I_0 and the fee F for an APA.

When carrying out the investment the company has to determine prices for its intercompany transactions. For tax purposes, these transfer prices have to be at arm's length. I assume that the company chooses the legal transfer pricing method TP_x that minimizes the overall tax burden.²⁶ The company faces uncertainty whether TP_x will be accepted by the tax authorities of the countries in question. I assume that both the domestic and the foreign tax authority either accept TP_x with the probability p or correct the transfer pricing method to TP_y with the probability $1 - p$.²⁷ Whenever the tax authorities correct the transfer pricing method to TP_y the company faces — compared to the case in which TP_x is accepted — a higher tax burden and therefore a lower after-tax cash flow from the investment.

Instead of investing immediately the company may first request an APA in order to clarify whether its transfer pricing method will be accepted. Due to the long processing time of this APA the investment decision has to be postponed to $t = 1$.²⁸ Assuming the tax authorities pursue a straightforward policy when it comes to transfer pricing, the probability that the tax authorities accept TP_x is again p . The probability that they correct the method to TP_y is $1 - p$. At time $t = 1$, the company that now knows the transfer pricing method fixed by the APA has to decide whether or not to acquire a foreign subsidiary.

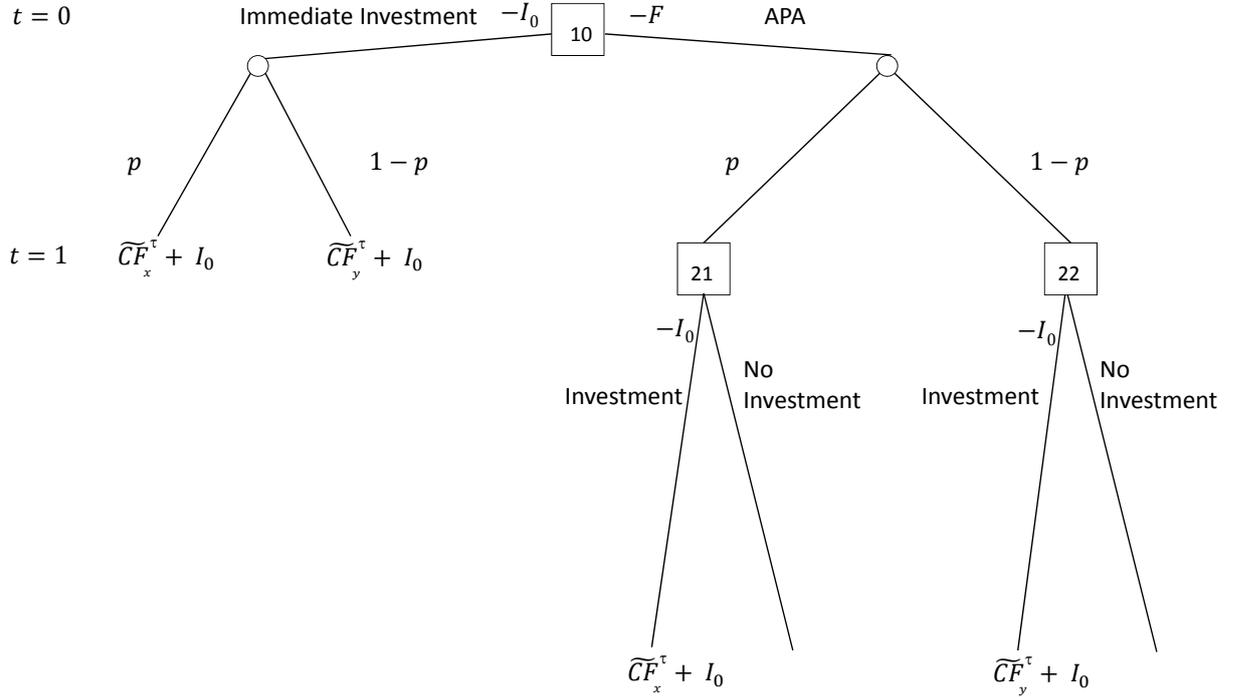
The decision tree is displayed graphically in Figure 2. Decision nodes are represented by numbered rectangles (10, 21, 22). Event nodes, i.e., the decision of the tax authorities regarding the transfer pricing methods, are symbolized by dots.

²⁶I assume the immediate investment under consideration of TP_x as benchmark. To ensure that the investment in a foreign subsidiary is profitable I additionally model the investment in the capital market. However, as I focus on the decision between the immediate investment and the APA request I do not model the investment in the capital market explicitly in the following model framework and decision trees.

²⁷In other words, I abstract in a first step from double taxation and from taxation that is too low.

²⁸This approach is similar to models on the effects of taxes on investment timing, e.g., *MacKie-Mason* (1990), *Schneider/Sureth* (2010), *Niemann/Sureth* (2013).

Figure 2: Decision tree in the model without double taxation



I assume the investment in a foreign subsidiary to be a single period investment. Therefore, $T = 2$ is the shortest possible time horizon that permits me to compare the immediate investment with the investment with a request for an APA simultaneously. I assume that the company sells the foreign subsidiary one period after the investment.²⁹ The selling price corresponds to the book value I_0 . Therefore, I do not have to account for capital gains taxation.

The uncertainty regarding the acceptance of the transfer pricing method by the tax authorities is reflected in the tax base. When carrying out the investment the overall company's tax base (domestic company and foreign subsidiary) corresponds to the pre-tax cash flow CF . Applying the respective transfer pricing method the amount of income that is taxed in the relevant countries is determined. x (y) is the fraction of the tax base that is taxed in the domestic country when TP_x (TP_y) is used. $1 - x$ or $1 - y$, respectively, is the fraction that

²⁹A sale of the foreign investment after such a short time period can be due to changes or unfavorable developments in the foreign country's business environment (e.g., increasing wage costs, decreasing production quality or intercultural differences). It is also conceivable that the company changes its strategic orientation and therefore may decide to sell its subsidiary and to withdraw from the foreign market.

is taxed in the foreign country. As by assumption TP_x is the transfer pricing method that minimizes the overall tax burden, $x < y$ must apply.

$$CF = xCF + (1 - x)CF = yCF + (1 - y)CF \quad (5)$$

with $0 \leq x < y \leq 1$.

Given a linear corporate tax rate τ^d in the domestic country and τ^f in the foreign country, the after-tax cash flow is determined as follows:

$$\widetilde{CF}_x^\tau = (1 - \tau^d)xCF + (1 - \tau^f)(1 - x)CF \quad (6)$$

$$\widetilde{CF}_y^\tau = (1 - \tau^d)yCF + (1 - \tau^f)(1 - y)CF \quad (7)$$

The expected after-tax cash flow $E[\widetilde{CF}^\tau]$ from the investment in a foreign subsidiary amounts to

$$E[\widetilde{CF}^\tau] = p\widetilde{CF}_x^\tau + (1 - p)\widetilde{CF}_y^\tau. \quad (8)$$

Given that the cash flow that is earned in the foreign country is fully distributed to the domestic company, I assume that no further tax is levied on dividends.³⁰ I assume that the company invests free cash flows in the capital market. The after-tax rate of return is given by r^τ .³¹

To exclude unprofitable projects I use the investment of the initial equity in the capital market as a benchmark. In the case of such an investment the company invests the initial equity $I_0 + F$. The equity earns the after-tax rate of return r^τ . The future value of investing in the capital market in $t = 2$ amounts to

$$FV_{Capitalmarket}^{t=0} = (I_0 + F)(1 + r^\tau)^2. \quad (9)$$

³⁰The Parent-Subsidiary Directive is an example for a tax exemption of dividends.

³¹This interest rate may imply that the company invests free cash flows either in the domestic or in the foreign capital market, depending on the interest level and the tax treatment of the interest payments. As the decision about the capital market investment is not subject of this study the concrete form is negligible.

At time $t = 0$ the company decides — considering the profitability of the investment by means of the capital market alternative — on the investment alternatives, i.e., to carry out the investment immediately or to request an APA, by choosing the alternative that earns the maximum future value at decision node [10].

$$FV_{10} = \text{Max}[FV_{Invest^{t=0}}; FV_{APA^{t=0}}] \quad (10)$$

In the case of an immediate real investment, the company carries out the investment in $t = 0$ by paying the acquisition cost I_0 and investing the additional initial equity F in the capital market. In $t = 1$ the company sells the foreign subsidiary. The after-tax returns from the single period investment as well as the selling price I_0 are invested in the capital market for another period. The future value of the immediate investment amounts to

$$FV_{Invest^{t=0}} = -I_0 + (E[\widetilde{CF}^\tau] + I_0)(1 + r^\tau) + F(1 + r^\tau)^2. \quad (11)$$

To determine the future value of the delayed investment (APA) I need to use backward induction, i.e., the decision to invest in $t = 1$ has to be solved first. At decision nodes [21] and [22] the company will invest if the after-tax cash flow less the acquisition cost I_0 ³² are greater than the interest income that can be earned on the capital market. The company chooses the maximal future value resulting from the alternatives, i.e., investing in the capital market or investing in the foreign subsidiary.

$$FV_{21} = \text{Max}[FV_{Capitalmarket^{t=1}}; FV_{Invest^{t=1}}] \quad (12)$$

$$FV_{22} = \text{Max}[FV_{Capitalmarket^{t=1}}; FV_{Invest^{t=1}}] \quad (13)$$

³²I assume that the acquisition cost in a later period still amounts to I_0 . The assumption of constant acquisition cost is reasonable in a real investment setting because market-related significant price changes cannot be expected for the considered time period.

with

$$FV_{Capitalmarket^{t=1}} = I_0(1 + r^\tau)^2 \quad (14)$$

$$\begin{aligned} FV_{Invest^{t=1}} &= -I_0 + \widetilde{CF}_{x,y}^\tau + r^\tau I_0(1 + r^\tau) + I_0 \\ &= \widetilde{CF}_{x,y}^\tau + r^\tau I_0(1 + r^\tau) \end{aligned} \quad (15)$$

At time $t = 0$ the company pays the fee F for the APA. Therefore, the future value of the investment when requesting an APA is:

$$FV_{APA^{t=0}} = -F + pFV_{21} + (1 - p)FV_{22}. \quad (16)$$

3.3 Integration of double taxation

So far, I have excluded double taxation from my model framework by assuming that both tax authorities either accept TP_x or correct the transfer pricing method to TP_y . Now, I modify this aspect of the model. I still assume that the company chooses the transfer pricing method TP_x for its intra-company transactions and that the tax authorities accept TP_x or correct it to TP_y . However, I also assume that the domestic tax authority does not accept TP_x and corrects the fraction that is taxed in the domestic country from x to $x + z$ with $0 \leq z \leq 1 - x$. The foreign tax authority accepts TP_x .³³

Therefore, considering the immediate investment three cases can arise. Both the domestic and the foreign tax authority either accept TP_x with the probability p_x or correct the transfer pricing method to TP_y with the probability p_y . Furthermore, it is now also possible that only the domestic tax authority corrects the transfer pricing method with the probability p_z . In the third case the tax base TB no longer equals the pre-tax cash flow CF and amounts to:

$$TB = (x + z)CF + (1 - x)CF. \quad (17)$$

³³I abstract from the case where the foreign tax authority corrects the transfer pricing method as this would reduce its tax revenues. Therefore, I abstract from cases with too low taxation.

Therefore, the after-tax cash flow is determined as follows:

$$\widetilde{CF}_z^\tau = CF - \tau^d(x+z)CF - \tau^f(1-x)CF. \quad (18)$$

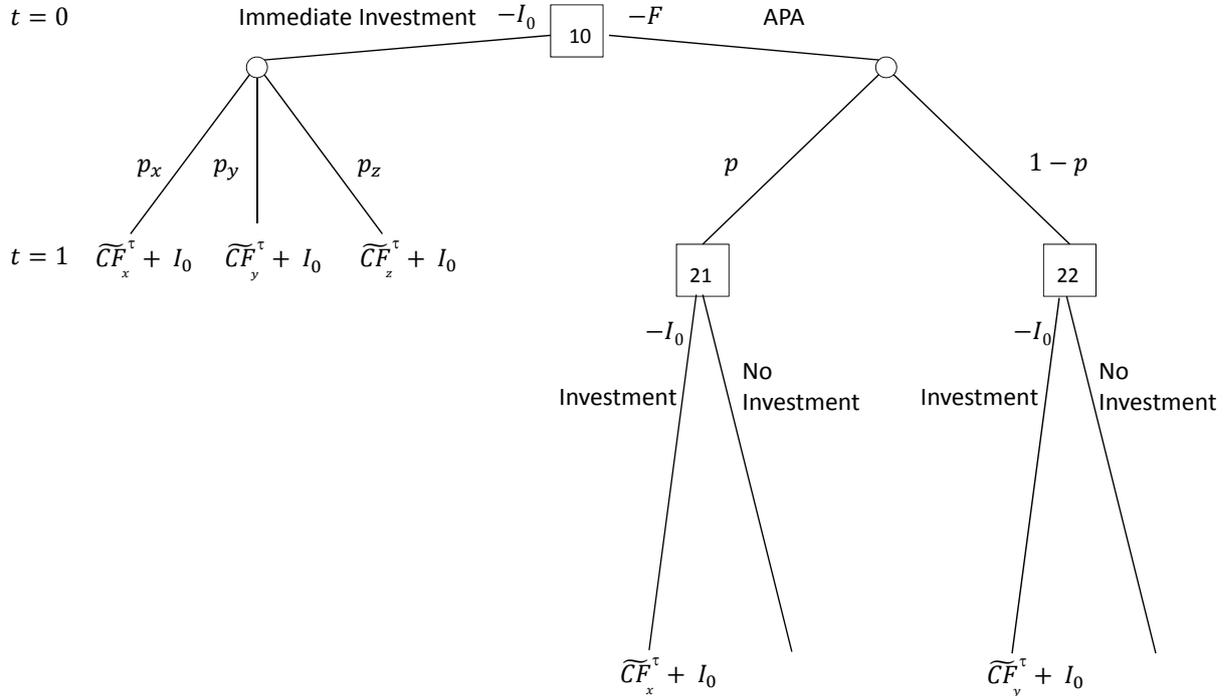
Considering the possibility of double taxation the expected after-tax cash flow when the company invests immediately amounts to:

$$E[\widetilde{CF}_{DB}^\tau] = p_x \widetilde{CF}_x^\tau + p_y \widetilde{CF}_y^\tau + p_z \widetilde{CF}_z^\tau. \quad (19)$$

Although this additional possibility where the tax authorities do not agree on a transfer pricing method has to be considered in the case of an immediate investment, the APA alternative is not affected as the involved tax authorities will agree either on TP_x or TP_y .

The decision tree for the model with double taxation is displayed in Figure 3.

Figure 3: Decision tree in the model with double taxation



4 Analysis

To solve the company's decision problem shown in equation (10), i.e., the decision between investing immediately and requesting an APA, I first consider the decisions in $t = 1$ (APA request). Equating $FV_{Invest}^{t=1}$ and $FV_{Capitalmarket}^{t=1}$ and solving for the pre-tax cash flow CF , I obtain the critical cash flow CF^* . CF^* determines the cash flow at which the company is indifferent between investing in a foreign subsidiary and investing in the capital market. The company invests in the capital market at decision nodes [21] and [22] if CF is smaller than CF^* . However, if CF is greater than CF^* the company invests in the foreign subsidiary. Depending on the transfer pricing method the critical cash flow CF^* amounts to:

$$CF_x^* = \frac{I_0(1 + r^\tau)}{(1 - \tau^f) - x(\tau^d - \tau^f)} \quad (20)$$

$$CF_y^* = \frac{I_0(1 + r^\tau)}{(1 - \tau^f) - y(\tau^d - \tau^f)} \quad (21)$$

As $x < y$ holds, $CF_x^* < CF_y^*$ must apply. If the tax authorities accept the transfer price TP_x (decision node [21]), the critical cash flow CF_x^* for investing in a foreign subsidiary is smaller than CF_y^* that determines the critical cash flow in case of a correction of the transfer pricing method by the tax authorities (decision node [22]). Depending on the pre-tax cash flow the following three cases can arise.

Table 1: Decision matrix for investments in the capital market or the foreign subsidiary in period 1, depending on the pre-tax cash flow

Case No.	Cash flow relation	Decisions at $t = 1$
<i>I</i>	$CF < CF_x^*$	[21] Capitalmarket [22] Capitalmarket
<i>II</i>	$CF_x^* < CF \leq CF_y^*$	[21] Investment [22] Capitalmarket
<i>III</i>	$CF > CF_y^*$	[21] Investment [22] Investment

If the cash flow that is earned by investing in a foreign subsidiary is smaller than the critical cash flow CF_x^* (case no. *I*), the company invests neither at decision node [21] nor at decision node [22]. The future value of requesting an APA can only be as advantageous as the investment in the capital market.³⁴ Therefore, as the company does not request an APA, case no. *I* can be excluded from my analysis. In case no. *III* the company invests in the foreign subsidiary at both decision nodes [21] and [22], independently of the accepted transfer pricing method. However, if the pre-tax cash flow ranges between CF_x^* and CF_y^* (case no. *II*), the company invests in the foreign subsidiary if the tax authorities accept TP_x (decision node [21]) and invests in the capital market if the transfer pricing method is corrected to TP_y (decision node [22]). In this case, the option not to invest becomes relevant. In cases no. *II* and *III* the company may, under certain conditions, request an APA.

4.1 Equal tax rates

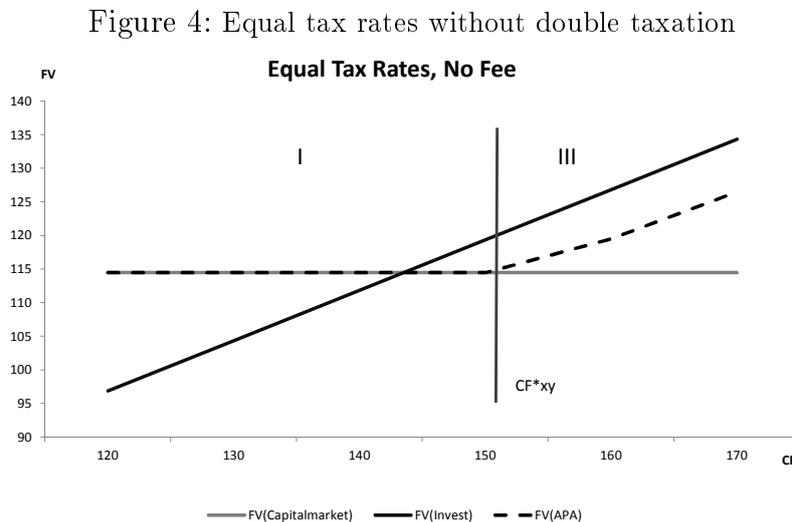
In order to show the effects independently of any tax rate differences I first assume equal tax rates ($\tau^d = \tau^f$) in both countries. In such a scenario the company is not able to reduce the total tax burden by using a particular legal transfer pricing method. As double taxation cannot arise when requesting an APA, the total tax burden is independent of the chosen transfer prices. As a consequence, CF_x^* equals CF_y^* and therefore the company's decision at decision nodes [21] and [22] is equal: the company either invests in the capital market or in the foreign subsidiary. The case no. *II*, where the company has the option not to invest in the case of TP_y , vanishes.

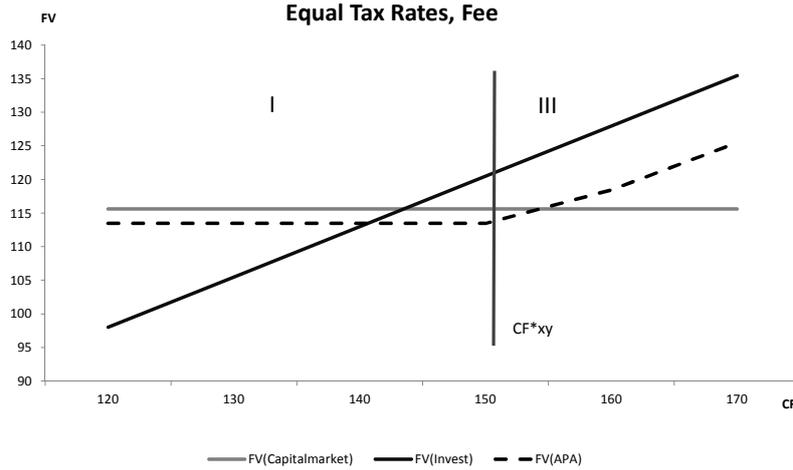
³⁴The difference between $FV_{Capitalmarket}^{t=0}$ and $FV_{APA}^{t=0}$ in case no. *I* is $F(2 + 2r^\tau + (r^\tau)^2)$. If $F = 0$ the APA alternative is as good as the investment in the capital market. If $F > 0$ the company will invest in the capital market.

4.1.1 No double taxation

If the tax rates are equal and if no double taxation can arise, the immediate investment is better than the APA request in case no. *III*. This is due to two effects. The first is a time effect. If the company invests immediately, the cash flow from the investment in the foreign subsidiary is earned in the first period. Then, in the second period the cash flow earns the market rate of return. By contrast, if an APA is requested the investment decision is postponed to a later period and thus the cash flow is earned one period later. This effect increases with increasing cash flows. The second effect is due to the fee that the company pays when requesting an APA. As case no. *II* vanishes when tax rates are equal and the company invests immediately in case no. *III*, it becomes clear that the company does not request an APA in the case of equal tax rates without double taxation.

Figure 4 exemplifies the future values of the investment in the capital market, the immediate investment, and the investment with an APA request depending on the cash flows for $I_0 = 100$, $p = 0.5$, $r^\tau = 0.07$, $x = 0.1$, $y = 0.9$ and $\tau^d = \tau^f = 0.3$.





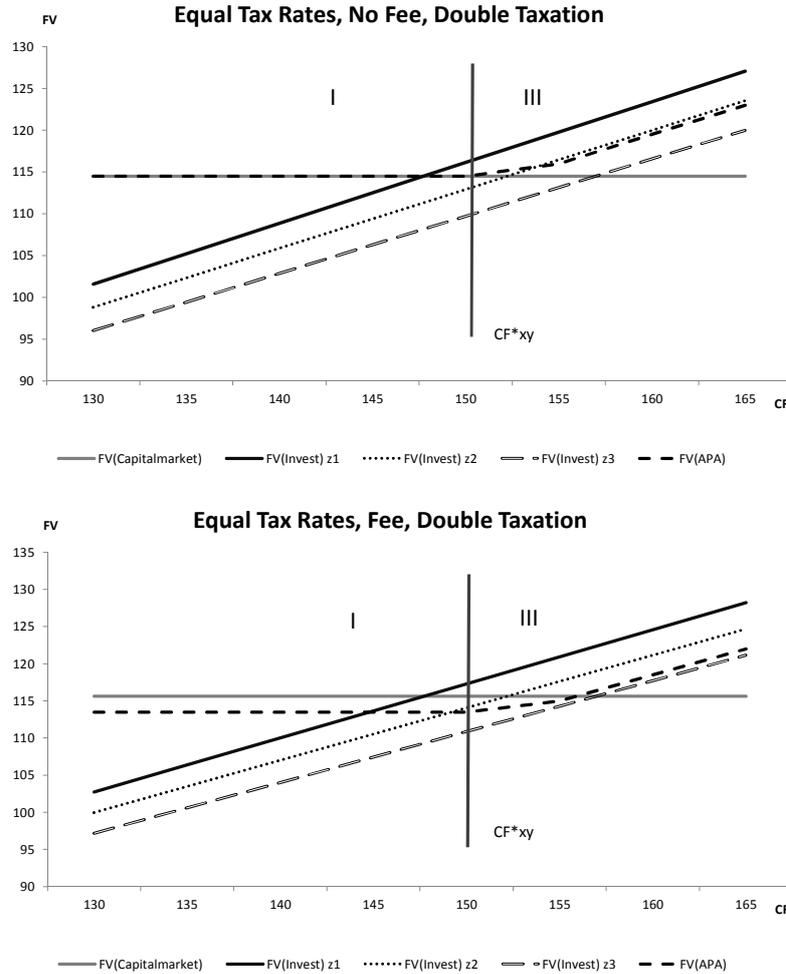
The first chart shows the company's decision problem with equal tax rates and no double taxation when no fee is charged for the APA request. In the second chart a fee of $F = 1$ is charged for the APA request.³⁵ The vertical line determines the critical cash flows CF_x^* and CF_y^* . It is obvious that the company does not request an APA when the tax rates are equal and no double taxation exists. The first chart demonstrates the time effect while the second chart additionally illustrates the fee effect.

4.1.2 Double taxation

Now double taxation can arise when the company invests immediately. Therefore, if the tax rates are equal, it is possible that requesting an APA is worthwhile in case no. *III*. Figure 5 demonstrates the future values of the investment in the capital market, the immediate investment for three different values of z , and the investment with an APA request depending on the cash flows for the values $I_0 = 100$, $p = 0.5$, $p_x = p_y = p_z = \frac{1}{3}$, $r^T = 0.07$, $x = 0.1$, $y = 0.9$ and $\tau^d = \tau^f = 0.3$. Moreover, to show the effects when double taxation may arise three different values of z are chosen: $z_1 = 0.3$, $z_2 = 0.5$ and $z_3 = 0.7$. As z equals the fraction of the tax base that is taxed twice, once in the domestic country and then again in the foreign country, double taxation increases with increasing z .

³⁵To focus on the cash flows close to the critical ones that are important for this paper's analysis, the axes of the figures are cutted. This approach also applies for the following figures.

Figure 5: Equal tax rates with double taxation



Again, the first chart of Figure 5 illustrates the company's decision problem with equal tax rates and double taxation when no fee is charged for the APA request. In the second chart a fee of $F = 1$ is charged for the APA request. The vertical line determines the critical cash flows CF_x^* and CF_y^* .

If the fraction of the tax base that is taxed in both countries is relatively low, due to time and fee effects the company prefers in case no. *III* to invest immediately instead of requesting an APA (z_1 and z_2 if a fee is charged). However, if the total tax burden increases due to double taxation the APA request becomes worthwhile for relatively small cash flows (z_2 if no fee is charged) or even for all cash flows (z_3). Here, the effect of the tax authorities having to reach an agreement regarding the transfer pricing method when an APA is requested outweighs the advantages of the time and fee effects when the company invests immediately. It becomes

clear that requesting an APA may be worthwhile for companies that cannot obviate possible high double taxation of their future activities in a foreign country.

4.2 Tax rate differences

In the second part of the analysis the tax rates differ in the countries in question. Therefore, CF_x^* and CF_y^* differ as well. Case no. *II* does not vanish and the option of not investing in the foreign subsidiary if the tax authorities correct the transfer price when an APA is requested becomes relevant.

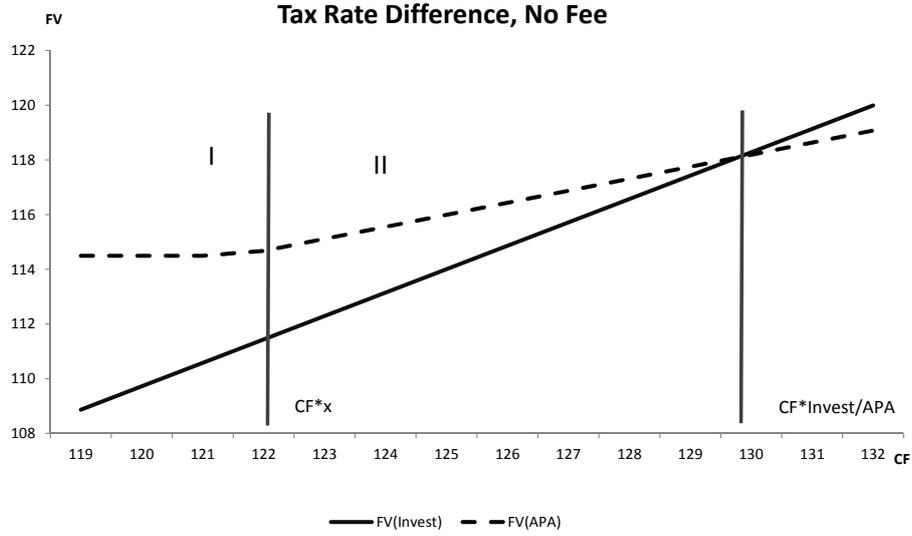
4.2.1 No double taxation

To analyze the scenario of differing tax rates when no double taxation can arise, I determine the critical cash flow $CF_{Invest,APA}^*$ at which the company is indifferent between the immediate investment and the APA request in case no. *II*. Equating $FV_{Invest}^{t=0}$ and $FV_{APA}^{t=0}$ and solving for the pre-tax cash flow CF I obtain:

$$CF_{Invest,APA}^* = \frac{I_0(1 + r^\tau(1 + r^\tau) - p(1 + r^\tau))}{1 - p + r^\tau + \tau^f(-1 + p - r^\tau) + (\tau^d - \tau^f)(y(-1 + r^\tau + p(1 + r^\tau)) - r^\tau px)} \quad (22)$$

If in case no. *II* the cash flow CF is smaller than the critical cash flow $CF_{Invest,APA}^*$, the company uses the possibility of requesting an APA to gain legal certainty regarding the transfer pricing method. In such a case the company benefits from the option not to invest if the tax authorities correct the transfer pricing method. If CF is greater than $CF_{Invest,APA}^*$, the company invests immediately in the foreign subsidiary. Figure 6 shows the future values of the immediate investment and the investment when requesting an APA for the above values, $F = 0$ and different tax rates $\tau^d = 0.3$ and $\tau^f = 0.1$.

Figure 6: Tax rate difference without double taxation



The numerical example illustrates that requesting an APA is worthwhile for relatively small cash flows.³⁶ Here, the effect of the option of not investing in the foreign subsidiary if the tax authorities correct the transfer price outweighs the disadvantages that result from the time effect.³⁷ It becomes clear that requesting an APA may be worthwhile for companies that plan future business activities in countries with differing tax rates.

To further analyze the effect of tax rate differences on the advantage of APAs in comparison to an immediate investment I consider the difference (ΔCF) between the critical cash flows CF_x^* and $CF_{Invest,APA}^*$. This difference captures all cash flows for which it is worth requesting an APA. By varying the tax rates τ^d and τ^f I analyze the effects of various tax rate differences.

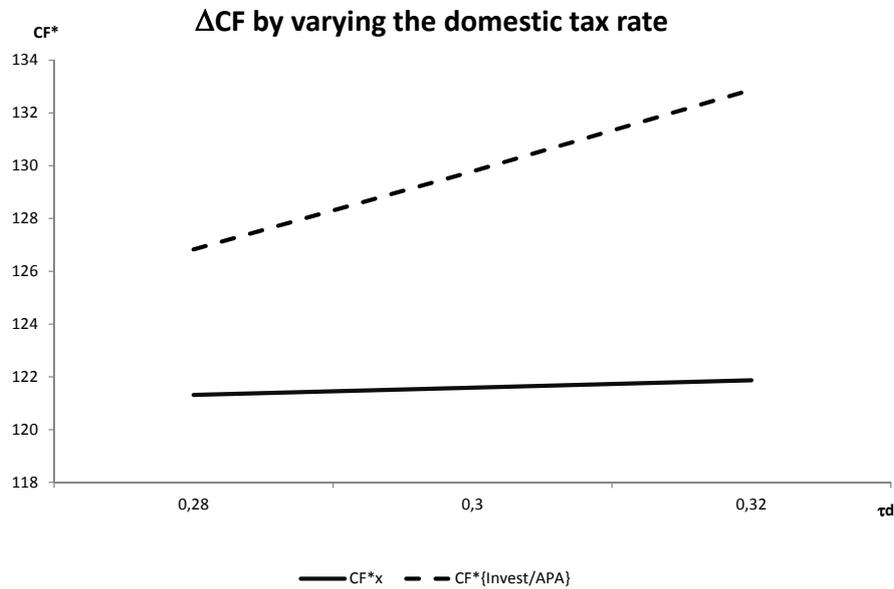
Figure 7 demonstrates the cash flow difference ΔCF depending on the domestic tax rate τ^d for the numerical example. The difference ΔCF between the considered critical cash flows increases with an increasing domestic tax rate and thus with an increasing tax rate difference. Hence, the proportion of cash flows for which an APA request becomes worthwhile increases as the difference between tax rates in the countries in question increases. This result confirms that companies planning to set up a foreign subsidiary should consider the possibility of

³⁶In this numerical example such cash flows range between values of 122 and 129.

³⁷If in this scenario a fee of $F = 1$ is charged on top, the advantage of the option not to invest vanishes and the company invests immediately in the foreign subsidiary.

requesting an APA if the tax rate difference is substantially high. This is in line with the findings of *De Waegenare/Sansing/Wielhouwer(2007)*.

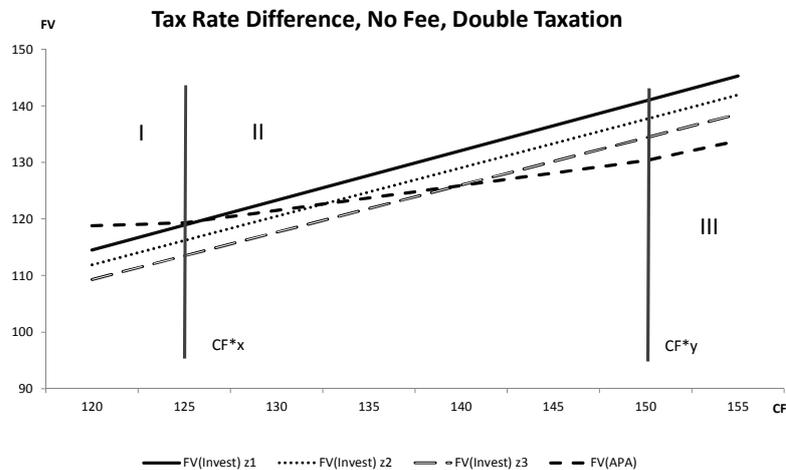
Figure 7: Cash flow difference depending on domestic tax rate



4.2.2 Double taxation

Figure 8 illustrates the future values of the immediate investment for different values of z and the investment when requesting an APA for the underlying example when the tax rates differ ($\tau^d = 0.3$ and $\tau^f = 0.1$) and double taxation may arise.

Figure 8: Tax rate difference with double taxation



As in the scenario without double taxation, the numerical example clarifies that an APA request may be worthwhile for relatively small cash flows.³⁸ In case of investments with small pre-tax cash flows companies are willing to pay for legal certainty regarding the transfer pricing method. Here, the tax consequences are more crucial for the advantageousness of a future investment project compared to investments with higher pre-tax cash flow. Moreover, the proportion of the cash flows for which an APA is worthwhile increase with increasing values of z , that is, with higher double taxation. Here, the option not to invest when requesting an APA and the effect of the tax authorities having to reach an agreement when requesting an APA outweighs the advantages of the time effects.³⁹ The result that companies are more likely to request APAs when they face higher double taxation is interesting in the context of the findings of *De Waegenaere/Sansing/Wielhouwer(2007)*. They show that companies and governments accept the implementation of a bilateral APA if the income that is subject to double taxation is low because in such a case an agreement between the tax authorities is more likely. However, by considering exclusively the corporate perspective I show that companies would rather like to request APAs with increasing double taxation. This may help tax authorities that are interested in providing legal certainty to multinational companies to design APAs effectively considering the companies' calculus.⁴⁰ Deriving beneficial design options of APAs by integrating tax authorities that consider the investor's calculus should be subject to future research.

³⁸Compared to the scenario with equal tax rates I expect, under certain value constellations, that even in case no. *III* an APA request may be worthwhile for the company. I also expect that the proportion of cash flows for which requesting an APA is worthwhile increases with increasing tax rate differences. In the current numerical example τ^f decreases. Therefore, the company's total tax burden decreases as well when compared to the scenario with equal tax rates. Thus, I expect the effect that the APA becomes worthwhile even higher if τ^d increases.

³⁹If an additional fee of $F = 1$ is integrated, the fee effect has to be considered as well. Therefore, the proportion of cash flows for which an APA request is worthwhile decreases.

⁴⁰See *Diller/Kortebusch/Schneider/Sureth* (2014) who show how tax authorities should effectively design advance tax rulings when taking into account the investor's calculus.

5 Conclusion

Advance Pricing Agreements are commonly used by companies with cross-border business activities in order to gain certainty about their transfer prices for intra-company transactions. I contribute to the existing literature on APAs by concentrating on the investor's perspective. Specifically, I analyze a company's decision to invest in setting up a foreign subsidiary in a country with lower taxation. The company may decide to invest immediately without knowing if both tax authorities accept or correct the chosen transfer pricing method for its intra-company transactions, or if only one tax authority corrects the method which leads to double taxation. Alternatively, the company may request a bilateral APA to gain certainty about its transfer pricing. In this case the investment in the foreign subsidiary is postponed by one period. With the knowledge about the acceptance or correction of the transfer pricing method by the tax authorities, the company invests in the foreign subsidiary or in the capital market. Within this framework of flexible investment planning I analyze the company's decision depending on the tax rates in both countries and on the differences between the two.

When the domestic and foreign tax rates are equal and no double taxation exists due to an agreement between the tax authorities, companies do not request APAs. I use this scenario as a benchmark. Here, the immediate investment is more attractive than requesting an APA due to time and fee effects. The time effect means that, in case of an APA request, the cash flows from the investment are earned later. The fee effect is due to the fee companies have to pay when requesting an APA.

However, if companies cannot obviate possible double taxation for the immediate investment an APA request may be worthwhile. Companies will request an APA if time and fee effects are outweighed by opposing effects. Here, such an opposing effect arises as the tax authorities — in the case of an APA request — have to reach an agreement about the transfer pricing method. Furthermore, I show that the higher the double taxation, the greater is the relative attractiveness of an APA request.

Moreover, different tax rates in the countries in question may make it more attractive to request an APA rather than to invest immediately. This result occurs whenever the option not to invest if the tax authorities agree on another transfer pricing method overcompensates both the disadvantageous time and fee effect. I also show that an increasing tax rate differential increases the relative attractiveness of requesting an APA.

Both effects, double taxation and tax rate differences, that lead to attractive APAs outweigh time and fee effects in case of small pre-tax cash flows. Here, the tax consequences resulting from the acceptance of the transfer pricing method are more crucial for the advantageousness of a future investment project than in case of high pre-tax cash flows.

These findings may support companies in their decision-making whether to request an APA. I show that companies that face investment opportunities with small pre-tax cash flows should consider requesting an APA when high double taxation may arise and when the tax rates in the involved countries differ sufficiently to outweigh drawbacks associated with time and fee effects. Furthermore, I find that increasing double taxation increases the relative attractiveness of an APA request. As this result holds when considering exclusively the corporate perspective (without considering the agreement process between active participating tax authorities)⁴¹ it may function as starting point for tax authorities to design APAs more effectively under consideration of companies' calculus.

My research provides a general framework that accounts for quantifiable factors in APA decisions. This tool is interesting for investors to support their decisions that are associated with APA activities. In addition, governments may learn about these factors that are associated with APA requests when designing such cooperative instruments. Nevertheless, my study suffers from certain limitations. Due to the complexity of international tax cases and the multitude of (qualitative) factors that influence APAs it is necessary to make simplifying assumptions. Especially, the assumption of deterministic cash flows is crucial. Cash flow uncertainty may either strengthen or reduce the shown effects and therefore, may lead

⁴¹See *De Waegenaere/Sansing/Wielhouwer* (2007) who show that companies and governments accept the implementation of a bilateral APA if the income that is subject to double taxation is low because in such a case an agreement between the tax authorities is more likely.

to different decisions regarding the APA request. Furthermore, the results of this study are based on a numerical analysis. Therefore, the generalizability of the results to diverting cases is limited. Nevertheless, sensitivity analyses show the robustness of the results to increasing tax rate differentials and increasing uncertainty regarding the acceptance of the transfer pricing method. Thus, a general framework to support individual APA decisions is provided. Moreover, the consideration of consultant activities and active participating tax authorities may provide additional insights in future research.

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