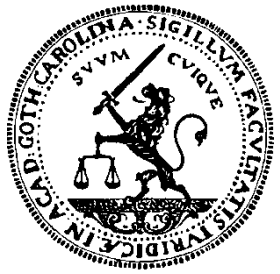

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The Seeking of a Business-Optimal Transfer Price

- In Accordance with the Arm's Length Principle

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Contents

Abstract

The search of a business-optimal transfer price has been going on for decades. One interesting solution aimed to, by the use of game theory, bargaining theory and transfer pricing, create a quantitative solution to optimize the global profits of a multinational enterprise. This paper aims to identify and analyze the legal questions emerging from that solution. The paper also aims to discuss the use of such a method in the future and its role on the international taxation arena.

The primary legal question identified was whether or not the arm's length principle accepts the usage of a maximum and minimum legally authorized boundaries. The discussion of this question is conducted from an international perspective using the OECD's arm's length principle and its guidelines as leading source of interpretation. The answer to the legal question determined the solution viable under certain circumstances where the maximum and minimum legally authorized was determined using an appropriate arm's length range. Another requirement detected was that the range had been determined using a statistical tool of central tendency for purposes of accuracy in its compliance with the arm's length principle.

Finally, the paper also provides a discussion whether or not the solution could conform to the arm's length principle solely because of the objective elements of a quantitative solution. The discussion argued in favour of the conclusions that without the use of maximum and minimum legally authorized boundaries, the solution can never be in compliance with the arm's length principle. The argumentation derived primarily from the intention of the solution being to maximize the global profits of a corporation which will, in many cases, lead to solutions that escapes taxation. However, the discussion does explore the possibility of an objective solution deriving from bargaining-, and game theory.

Sammanfattning

Sökandet efter en företagsekonomiskt optimal internprissättning har pågått i årtionden. En intressant lösning på problemet syftade till, genom att använda sig av spelteori, förhandlingsteori och internprissättning, att skapa en kvantitativ lösning för att optimera de globala vinsterna för en multinationell koncern. Denna uppsats syftar till att identifiera och analysera the legala frågorna som uppstår till följd av den presenterade lösningen. Uppsatsen syftar också till att diskutera ett eventuellt framtida användande av en metod av liknande slag och dess roll på den internationella skattejuridiska arenan.

Den primära legala frågeställningen härrörande från lösningen identifierades. Frågan var huruvida användandet av ett prisintervall (max och mini) konstituerats av legalt accepterade internpriser kan accepteras i enlighet med armlängdsprincipen. Diskussionen genomfördes från ett internationellt perspektiv där de ledande legala källorna var OECDs armlängdsprincip och dess anslutna källor. Svaret på de legala frågorna fastställde lösningen som genomförbar under specifika förhållanden då intervallet fastställdes genom användande av ett lämpligt armlängdsintervall (*an arm's length range*). Ett annat krav var att intervallet hade blivit beräknat med hjälp av ett statistiskt analysverktyg med mått på *centraltendens* för att säkerställa närmre kongruens med armlängdsprincipen.

Slutligen tillhandahåller också uppsatsen en diskussion huruvida lösningen kan vara i enlighet med armlängdsprincipen baserat på de objektiva element en kvantitativ lösning tillhandahåller. Slutsatsen drogs att utan användandet av en intervall kan kongruens aldrig uppnås främst på grund av lösningens intention att maximera företagsgruppens vinster. Detta eftersom intentionen blir i många fall omöjlig om transfer pricing reglerna skall följas. Däremot utforskas möjligheten av en objektiv lösning härrörande från spelteori och förhandlingsteori.

Preface

Juristprogrammet lider mot sitt slut och jag har många att tacka. Först och främst vill jag tacka min älskade mor och far, Anna Paladini och Peter Söderberg för deras uppmuntran till högre studier samt stöd i alla mina beslut. Allt sedan jag var liten har de tvingat mig att tro på att ingenting är omöjligt och att jag själv sätter gränserna. Detta har verkligen hjälpt mig i min strävan att erhålla dubbla examen vid sidan om mina andra åtaganden som regionchef eller min resa jorden runt. Jag vill också tacka min mormor och morfar, Kerstin och Paolo Paladini för deras oumbärliga finansiella stöd för att kunna leva som jag gjort och uppleva Lunds studentliv till dess maximum.

Jag vill också tacka min otroligt engagerade mentor Mats Tjernberg för att ha hjälpt mig med oersättlig feedback. Jag efterfrågade Mats som mentor specifikt inte bara på grund av hans omfattande expertis på uppsatsskrivande samt skatteområdet utan också på grund av hans flexibilitet att erbjuda en så elevanpassad handledning som möjligt.
Jag vill avsluta med ett citat som härstammar från både min käre farfar Charlie Söderberg och min far Peter som jag anser att alla borde ha med sig.

- *Vill inte, kan inte, får inte… men vi orkar alltid.*

Uluwatu Bali, Indonesien 15th of Mars 2019.

Oskar Peter Paladini Söderberg

Abbreviations

ALP	Arm's Length Principle
BATNA	Best Alternative to a Negotiated Agreement
BEPS	Base Erosion and Profit Shifting
CUP method	Comparable Uncontrolled Price Method
EU	European Union
IQR	Interquartile Range
OECD	The Organisation for Economic Co-operation and Development
OECD Commentary	Model Tax Convention on Income and on Capital, Condensed Version (as it read on 21 November 2017)
OECD Glossary	Glossary of Tax Terms
OECD Guidelines	OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, Nov 2017
OECD Model Convention	Model Tax Convention on Income and on Capital: Condensed Version 2017

1 Introduction

This introductory chapter aims to provide the reader with a necessary background and scope of the paper. The chapter also outlines the research method and covers the considerations in relation to the used materials.

1.1 Background

Transfer pricing is in practice a multi layered issue. If you ask someone with a background in law chances are that they will tell you that transfer pricing is an issue primarily connected with international tax regulations. If the question instead is directed to someone with a background in strategic management it is very likely that the explanation of transfer pricing will describe a tool that can be used to coordinate the divisions of a company undergoing decentralization and maximize the overall profits of the firm. On another level sits the mathematicians that might describe transfer pricing by using a specific element of the problem to conceptualize a theory, e.g. game theory and the negotiation element of transfer pricing.

If we instead view the issue from the perspective of the central management of a multinational enterprise, all the sides to the concept will be accounted for in the decisions regarding transfer pricing. Continuing, a large proportion of the world's trade is conducted within multinational enterprises. [1] This emphasizes the need to harmonize the perspectives making sure that they work side by side towards a mutual objective. Moreover, when making decisions, problem may arise for central management where the different perspectives may lead to outcomes that satisfies only the main objective of one perspective but not another one.

One example of this is the seeking of a business-optimal transfer price. The main objectives behind this pursuit are of different character, dependending on the role of the person you ask. Can the objective to maximize the global profits of a firm through a computation of the business-optimal transfer price be fulfilled whilst at the same time complying with the rules and limits of transfer pricing regulations?From the OECD Guidelines:

> It is important not to lose sight of the objective to find a reasonable estimate of an arm's length outcome based on reliable information. It should also be recalled at

[1] Neighbour, (2002). www.oecdobserver.org/news/archivestory.php/aid/670/Transfer_pricing:_Keeping_it_at_arms_length.html. Accessed: 02-04-2019.

> this point that transfer pricing is not an exact science but does require the exercise of judgment on the part of both the tax administration and taxpayer.[2]

Continuing, a new problem surfaces. If the pursuit of a multinational enterprise is to achieve a higher coordination between its divisions and in turn acquire a higher global overall profit using transfer pricing, there is still a need to achieve this within the framework of the transfer pricing legislation. If the rules are described as a grey area it may be very difficult for multinational enterprises to innovate and create new ways to achieve this main objective. With this being said, the different perspectives and how they work together in terms of process innovation is something that requires extensive research.

1.2 Subject and purpose

The purpose of this paper is to establish if a solution deriving from the search for business-optimal transfer prices, similar to the *Nash bargaining solution,*[3] can satisfy the arm's length principle. Moreover, the purpose of this essay is to develop a discussion about a solution similar to the one mentioned above and its compliance with the arm's length principle based upon its structure and quantitative approach. This will be conducted from an international perspective considering only international elements.

To fulfill the purpose of the paper, the following questions have to be answered a/o discussed.

1. Can a solution similar to the one created by Clempner and Poznyak comply with the arm's length principle?
2. If this is the case, is it because of the fact that the arm's length principle accepts that there can be an interval of prices where all figures in between the maximum and minimum boundaries are legally authorized?
3. If the answer to question (2) is of affirmative nature, under which circumstances and prerequisites is it the case?

1.3 Method and materials

As presented briefly and selectively from a standpoint of relevance later in the paper there exist extensive research on the subject of how to compute the business-optimal transfer price. However, there is at the moment no

[2] OECD Guidelines, Chapter I, section B.1, paragraph 1.13.
[3] Clempner & Poznyak (2017).

research regarding the specific subject of this paper investigating the legal aspects of the a quantitative solution using a game theoretical approach.

In order to fulfill the subject of the paper and answer the questions presented an introduction to the pursuit of a business-optimal transfer price will be presented. This chapter has been written by firstly, and briefly, presenting an historical outlook regarding the origin of calculating the business-optimal transfer price and why. This will provide the reader with a background and also the main objective of the pursuit. The next part of the chapter was written by narrowing down the main method for the computation to the one of negotiated transfer pricing using game theory and specifically the Nash bargaining problem. The rendering of the results and methods of the research are not complete and for the full picture I refer to the original document as the essay is compiled with relevant parts of the research. Finally, the chapter will present the solution, from which derives from what has been stated above, and thus narrowing the paper down to the solution provided by Clempner and Poznyak.

The next chapter was written taking an international perspective and covering the problem of transfer pricing. The perspective was preferred compared to a domestic or semi-international and multidomestic perspective because of the fact that the problem of transfer pricing derives from an international level and the issues rising from multiple jurisdictions. Continuing, it would not be from a perspective of generality beneficial to view the problem from a domestic approach since the bilateral tax-treaties still would activate at least one more domestic jurisprudence. The same goes for instead of the international perspective, conducting a case study examining two or more set of jurisdictions and how the problem is handled from this multi-domestic perspective. The solution would, taken this kind of semi-international perspective, differentiate dependent upon which set of jurisdictions are being studied due to each countries' sovereignty and the bilateral agreements. Preferable is thus an international perspective, handling the problem from a point of view to try and find a internationally accepted solution.

The method of the chapter is by first introducing the problem, then the solution to that described problem and in this later sub-chapter describing the different sources of material to use in order to create a context and understanding for the uninvited reader. Furthermore, the materials accessible on this area are incredibly vast together with a large discussion regarding different interpretations of different legal aspects connected to the overall subject of the chapter. However, for reasons of relevance to the

subject and aim of this paper will only necessary and relevant facts be shed light upon in order to provide the reader with context.

Moreover, the fourth chapter describes all relevant aspects of transfer pricing. Most of the information has been gathered from the OECD Guidelines. It shall not be understood as an exact representation of the text both in content and in structure but as a rendering of relevant elements in a in my opinion more perspicuous structure. The arm's length principle is presented taking an international perspective. The sources used are primarily the OECD Model Convention together with the OECD Guidelines, OECD Commentary and doctrine. The legal implications of the sources deriving from the OECD and other international organs are discussed in chapter 3 and doctrine is used to provide context and practical implications. The sub-chapter 4.4.3. is in part written from an objective standpoint rendering the guidance provided by the OECD and what is suggested in doctrine. However, parts of the sub-chapter are also written with elements of subjective analysis. This is because of the necessity to provide the reader with some concluding notions that can be drawn from the OECD text. Where this is done, the text will provide guidance that the following is of subjective nature, e.g. *in my opinion, conclusions can be drawn*, etc.

It is in chapter 5, the analysis, that the questions are being answered and discussed. It is also here a conclusion is drawn and where my reflections come in to play. I use information that I have presented in chapter 3 and chapter 4 and investigate the questions and the subject in relation to the information in chapter 2.

In terms of determining the characteristics of the applied method one could argue that it is, at least in parts, similar to the traditional legal method (*SW: rättsdogmatisk metod*[4]). This would derive from the fact that the overall aim of the legal research and analysis is to use the primary sources for interpretation in order to determine how the arm's length principle should be interpreted.[5] However, in relation to the traditional legal method will in this paper the legal sources, i.e. the material used to determine the law, differ due to the international aspects of the questions asked. Furthermore, parts of the paper can be characterized by the notion of critical legal method (*SW: kritisk rättsdogmatiskt forskning*) where the researcher takes the act of determining the law one step further by also applying a critical perspective to it, in this paper in relation to the purpose behind the legislation.[6]

[4] Nääv & Zamboni (2018), 21ff.
[5] Nääv & Zamboni (2018), 21ff.
[6] Nääv & Zamboni (2018), 36ff.

1.4 Delimitation

This essay will make no attempt to discuss or analyse the mathematical proof of any of its referenced articles and all results in these are assumed to be correct. This is because the subject of this essay is more on a conceptual level and not to prove if the use of one specific solution is possible. Also no domestic regulations and variations to the arm's length principle or other areas of international tax law will be taken into account in the discussions and analyses conducted. Moreover, the solution will be assumed as mathematically correct and arrive at a business-optimal transfer price. Finally, the *Base Erosion and Profit Shifting* ("**BEPS**") project and its implications on the transfer pricing arena will not be analyzed or discussed in this paper.

1.5 Outline

The essay is divided upon 4 different chapters, i.e. chapter 2 - *The computation of the business-optimal transfer price,* chapter 3 - *An introduction to the problem of transfer pricing,* chapter 4 - *Transfer pricing* and chapter 5 - *Analysis.* The division is made by using chapter 2 - chapter 4 to prepare the reader with the necessary theoretical background to understand the analysis. Chapter 2 is structured by first presenting a brief, helicopter perspective, background of the seeking of an business-optimal transfer price. This is used to present the reader both with an understand to why this pursuit it legitimized. The following parts of the chapter will present key concepts such as the problem behind the search, the solution provided and how that solution has been developed. Chapter 3 aims to provide a reader that is new to transfer pricing with context to the problem and solution. Moreover, chapter 4 is used to present the reader with the necessary theoretical background on which the analysis is built upon. The arm's length principle and its connected concepts are presented where the beginning is very broad with intentions are presented and later narrowed down to specific regulations and examples. In the last chapter, chapter 5, an analysis is presented that aims to fulfill the subject of this paper and to answer the questions asked.

2 The computation of an optimal transfer price from a business standpoint

This chapter aims to provide the reader with the background of the search for a business-optimal transfer price from a business perspective and its close connection to decentralization. The chapter also aims to present the idea of transfer pricing as a bargaining problem and explain the premises of this notion. When this is achieved one particular solution deriving from game theory and the bargaining problem will be introduced and its premises and results discussed. In general, the chapter aims to as effectively and correctly as possible render the relevant content of its sources, through in some part summarisations and other parts quotations, thus in some areas risk excluding some non-relevant content.

2.1 Brief history

In 1956, Jack Hirshleifer tried to figure out how a business-optimal transfer price could be calculated for a mono-product, two divisional (manufacturing and sales) company. The goal was to find the transfer price that maximizes the whole company's profits[7] and Chandra Kanodia took this research further in 1979 by concluding that *decentralization* can lead to an optimization of the overall profits of the company when the managers of the separate division act in their own interests only under the circumstance when there are no internal transactions between the divisions. When there in fact are, a coordination is needed which he agrees upon the reasoning of Hirshleifer. However, different from Hirshleifer who assumes a world of certainty, Kanodia continues the research and tries to figure out a formula for calculating the business-optimal transfer price in an environment of uncertainty.[8] The research showed how central management could construct transfer prices that shares the risk of uncertainty between the managers of the divisions.

The biggest problem Kanodia identified in his presented solution and transfer pricing system is that it is not compatible with incentives which can be assumed to be on the grounds that he also assumed that the divisional managers communicated in total honesty.[9] Another approach to the transfer

[7] Hirshleifer (1956).
[8] Kanodia (1979).
[9] Kanodia (1979).

pricing problem is the one primarily taken by Hermann Enzer in 1975[10], and later continued by Peter Jennergren[11]. The research came to the conclusion that a linear programming method could be used to determine an average price that could be used to obtain a business-optimal transfer price to maximize the overall profits.

2.2 Transfer pricing bargaining problem and negotiated transfer pricing in multinational enterprises

It is commonly agreed that transfer pricing is a highly effective tool in order to coordinate the divisions of a company either undergoing or already completed decentralization.[12] The negotiated transfer pricing method can be described as a, in its purest form, a *laissez-faire*[13] system which means that all the divisional managers involved in an intra-divisional transaction needs to mutually agree on the terms. Managers are expected to negotiate in the interest of maximizing the profits of the division and here, the central management need to find alternative incentive schemes to at the same time facilitate a solution which acts in the entire companies interests.[14] In 1995, Edlin and Reichelstein came to the conclusion that information asymmetry, according to bargaining theory, when bilateral divisional managers bargain over transfer prices in a multinational enterprise will most likely result in an outcome that is both *unfair* and *inefficient*.[15]

In conclusion there has, as briefly explained above, been researched both how cooperative and noncooperative game theory combined with bargaining theory can provide quantitative solutions to the transfer pricing problem with a focus on negotiations between divisional managers in order to come up with a business-optimal transfer price.[16]

2.2.1 The Nash Bargaining Problem

The Nash bargaining problem studies how to split a sum of money A between two parties with opposing interest. Another way to describe the situation is to imagine two representatives of two different companies whereas the buyer want to buy the products to the lowest price and the seller

[10] Enzer (1975).
[11] Jennergren (1977).
[12] Edlin & Reichenstein (1995), 276.
[13] In the context of transfer pricing laissez-faire system indicates that the central management has no power to intervene with divisional managers intra-divisional trade and the determining of transfer prices.
[14] Edlin & Reichelstein (1995), 275-276, 287.
[15] Edlin & Reichelstein (1995), 287-288.
[16] Clempner & Poznyak (2017), 853-854.

wants to sell the products with the highest profit. The situation is analysed using game theory where both sides have a set of interests, preferences over outcomes and if the parties cannot reach an agreement, both are left only with their *BATNA*[17]s. The solution sought to reach the point within the range of acceptability for both parties and the question is, what outcome is fair and who should "win"?[18]

John Nash defined the problem in two parts; each party has a disagreement point whereas they will refer to if no agreement can be reached and a utility function regarding how the party in question feels about a specific outcome. Nash also decided a few rules for the fictive negotiation. He imagined a set of possible outcomes *F*, where the sum of x_1 and x_2 (the parties acquired share of the total sum) always adds up to *A* giving:

$$(x_1,\ x_2) = (x_1,\ A - x_1)\,.$$

Further, it is assumed that at least one outcome in *F* is better for both parties than the disagreement point (d_1, d_2) since otherwise bargaining would be excessive. Finally, the utility functions u_1 and u_2 describes the parties preferences over the outcomes in *F*.[19]

2.2.2 The Nash Bargaining Solution

John Nash proved that 4 axioms apply to any solution and provide a, in every situation, unique solution. The first axiom, *the Symmetry Axiom*, concludes that if:

$$(u_1 = u_2),\ (d_1 = d_2)$$

and *F* is symmetric then both players should get the exact same amount, which basically means that if the players in all different aspects of the negotiation are the same then:

$$x_1 = x_2\,.$$[20]

The second axiom, *the Pareto Efficiency axiom*, is about choosing the best solution of the alternatives. It states that a solution is not efficient if there is

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[17] *Best Alternative to a Negotiated Agreement* [BATNA] describes the best alternative outcome for a party of a negotiation if the parties cannot reach an agreement. According to Fisher, Ury and Patton (2011) a party's BATNA "*is the standard against which any proposed agreement should be measured. That is the only standard that can protect you both from accepting terms that are too unfavorable and from rejecting terms it would be in your interest to accept*".
[18] Nash (1950).
[19] Nash (1950).
[20] Nash (1950).

room for improvement by both players. An example of this is if the two representants make claims that does not add up to A . A solution is efficient if there is no point in F which is as good, or better for at least one of the players than the one chosen one.[21]

The third axiom, *Independence of Irrelevant Alternatives,* states that irrelevant alternatives does not have an impact on the most preferred option. Finally, the fourth axiom, *Invariance to Equivalent Utility Transformation,* is a way to determine the utility functions u_1 and u_2 which simplified states that the actual numbers does not impact the preference. An example of this is that the chosen currency does not have an impact of the preference for money. John Nash managed to prove a formula that both satisfies the axioms described above and provides a unique solution which was formulated according to the relationship:[22]

$$max\ (u_1(x_1) - u_1(d_1))(u_2(x_2) - u_2(d_2))$$

2.3 "Negotiating Transfer Pricing Using The Nash Bargaining Solution"

The research[23] seeks to find a business-optimal transfer price in accordance with the purpose described above. However, one important difference from the works already presented is that now international tax regulations are added as a factor to be calculated with and the purpose is to find the maximum company-wide profit surplus. The arm's length principle is introduced together with the insight regarding profit shifting through cross-border transactions amongst the divisions of multinational enterprises. The research provides a new solution where the divisions of a company cooperates to make decisions in order to maximize the global profits.[24] The main results of the paper was summarized as the quotation below:

- We propose a solution for computing the transfer pricing problem from the point of view of the Nash bargaining game theory approach.
- In this negotiation process, divisions cooperate and all necessarily improve their position at the end of the process.
- Divisions operate over sequential transfers in which central management provides the transfer price decision that enables maximization of operating profits.
- The transfer pricing model involves costs and taxes.
- The division's unit production cost is dependent on the production quantity.

[21] Nash (1950).
[22] Nash (1950).
[23] Clempner & Poznyak (2017).
[24] Clempner & Poznyak (2017), 854-855.

- The negotiation starts at the time that a division considers a disagreement point (status quo) which plays the role of a deterrent.
- We propose a framework and a method based on the Nash equilibrium approach for computing the disagreement point.
- The bargaining solution, which is a single-valued function, is the result of cooperation by the divisions.
- The final agreement is the most preferred alternative within the set of feasible outcomes which produces a profit-maximizing allocation of the transfer price between divisions.
- We propose an optimization for computing the bargaining solution method.
- The result of the optimization method is a simultaneous adjustment of quantity and the transfer price.[25]

2.3.1 Notable methodological aspects of the research done by Clempner and Poznyak (2017)

The transfer pricing model used in the research is based upon the organisational structure of a multidivisional company with a vertically integrated supply chain (*See Fig. 1*). It is not further specified if the vertically integrated supply chain is of upstream, downstream or balanced (both upstream and downstream) character. Moreover, it is specified, for the sake of the research, that all levels of the supply chain consists of one single division.[26] There are a certain amount of divisions selling intermediate goods from the start of the supply chain to the end making decisions about transfer prices jointly in order to maximize the global profits. The model takes into account the transfer prices decided by the divisions, the utility that is to be allocated between the divisions, taking into account both acquisition and production/processing costs.[27]

[25] Clempner & Poznyak (2017), 854-855
[26] Clempner & Poznyak (2017), 856.
[27] Clempner & Poznyak (2017), 856-857.

Fig. 1 illustrates a simplified version of a multinational enterprise with a vertically integrated supply chain. All levels of the supply chain are made up out of one single divisions (l_1, l_2, l_3 ... l_n).

The Nash bargaining solution does take into account that the divisions may be located in different geographical areas which has an effect on the demand. Also benefits coming from economies of scale are considered resulting in the assumption that production cost is dependent and thus relative to the quantity of production.[28]

The model also considers the taxes due for each division dependent on the *good.*[29] Further, different geographical areas and specifically different tax rates are taken into account to calculate the different division's utilities. Since consideration is given to the international regulation, specifically the arm's length principle, the model also use boundaries, p^1 and q^1, which defines maximum and minimum transfer prices that are legally authorized in accordance with the arm's length principle.[30] The research does not further discuss how these maximum and minimum transfer prices outh to be determined in regards to which model should be used and if it is even a possibility to use a range of figures constituting such boundaries. When one of the Authors of the research, Julio B. Clempner was contacted about the tax considerations, he replied:

> Establishing the bounds is an accounting or financial problem. The counter establishes the legal bounds for each company depending on the previous (history) of the max and min transaction costs.[31]

[28] Clempner & Poznyak (2017), 856.
[29] Clempner & Poznyak (2017), 856.
[30] Clempner & Poznyak (2017), 857.
[31] Julio B. Clempner - email response 04-02-2019.

3 An introduction to the problem of transfer pricing from a tax perspective

In order to understand the methodology of the principles guiding international taxation, i.e. transfer pricing legislation, a introduction is provided for reasons of context. The introduction is structured by first explaining the problem preceding the solution. The next sub-chapter aims to explain the solution of transfer pricing by explaining chronologically the considerations that have to be taken into account from a perspective of the relationship international sources of law to domestic law. Moreover, this chapter aims to as effectively and correctly as possible render the relevant content of its sources, through in some part summarisations and other parts quotations, thus in some areas risk excluding some non-relevant content.

3.1 The problem

Since a large proportion of the whole world's trade is made up by intercompany transactions by multinational enterprises, a problem is how to fairly and correctly conduct taxation on profits. The problem derives from the fact that the subunits of the multinational enterprise, often located in different countries, are transacting with each other without full autonomy and thus acting in a context that lacks market forces[32], which otherwise would have an impact on the agreed transfer price which can create opportunities to escape taxation.[33] This means that the power to determine the transfer prices lay upon the subunits of this multinational enterprise and in this power, multiple different reasons may provide a final answer as to how to price. The reasons relevant for this problematization are the tax aspects specifically regarding how multinational enterprises may decide upon transfer prices out of reasons for lowering the total tax obligation. An example of this is if the multinational enterprise have subsidiaries in a country with a high corporate tax rate, and also subsidiaries in a country with a significantly lower corporate tax rate. In this case the multinational enterprise may chose to price their intercompany transactions according to a specific price scheme in order to allocate as much of the profits in the country with the lowest corporate tax rate, shifting profits from one country

[32] The Oxford dictionary of business, Second edition, 1996, p. 312, defines market forces as "*the forces of supply and demand that in the free market determine the quantity available of a particular product or service and the price at which it is offered*".
[33] Henshall (2016), 3.

to another. Moreover, this opportunity for multinational enterprises to increase the overall net profit face to risk the tax revenues of the states by eroding the countries tax base.[34]

The contrasting, and also highly important, problem to what has been described above is the one regarding double taxation. Double taxation occurs when two or more associated enterprises conduct cross-border transactions where profits accrues that two or more different states have the right, according to the domestic tax legislation of said state, to claim tax on. Double taxation is undesirable both taking a state and corporate perspective since it can be assumed to contribute to stagnating international growth by inhibiting the free movement of capital and persons[35] and cross-border exchange of services and goods.[36]

3.2 The solution

The solution to the described problems is founded upon a large amount of cooperation between the countries of the world. It requires cooperation because solving the problem is not mainly dependent on *which* solution is used, it is more crucial that the countries use *the same* solution and consistently accept the consequences it brings.[37] The contemporary and generally accepted solution to the problem derives from the OECD in the form of *soft law* which is often used as a way of which international organisations can harmonize domestic legislation of member states and is called the arm's length principle[38].[39] For the purpose of this research, soft law is defined as:

> legally non-binding instruments which, nonetheless, are created with the intention of having an impact on the behaviour of states. Alternatively, the expression "soft law" may be used to refer to those instruments, even if legally binding, which are excessively vague or imprecise, or to those which lack formal enforcement mechanisms.[40]

3.2.1 The role of the OECD

The OECD obtains the right, by the capacity granted through Art. 5(a) of the *Convention on the Organisation for Economic Cooperation and*

[34] Vega (2012), 6-9.
[35] OECD Commentary, 9.
[36] Lodin (2017), 668.
[37] Vega (2012), 8.
[38] This principle will be expanded upon continuously throughout the paper. See the chapter on "*The arm's length principle"*.
[39] Vega (2012), 12-13.
[40] Vega (2012), 9.

Development, to make decisions of legally binding character in relation to its member states. The legally binding character of a decision deriving from the Art. 5(a) is out of international treaty law. This means that the state has pledged to follow the decision made by the power of this article. However, it is not to be misconceived as a direct source of domestic law since it is still dependent upon the method of implementation specified in the domestic constitutional source of law, e.g. constitution of the state.[41]

However, in relation to matters concerning tax regulation, the OECD has taken the approach to almost exclusively provide non-binding soft law as guidance in transfer pricing matters.[42] It can be assumed that this is the case because the solution to the problem requires a high amount of cooperation between the states and since only developed countries are members of the OECD[43], legally binding declarations does not impact others than the members, creating the need for governance through soft law.

3.2.2 The OECD model tax convention

The arm's length standard was an already existing alternative, suggesting a solution for the problem of transfer pricing mentioned in multiple conventions and drafts deriving from the League of Nations during the middle of the 20th century.[44] However, it was not until 1963 that the OECD released the OECD Draft Convention and its Art. 9 that codified the arm's length principle. Moreover, today's OECD Model Convention and its Art. 9 derives from the mentioned draft convention and is codifying the arm's length principle that is as of today used in most *tax treaties*[45] in force.[46]

A few notions can be made in order to explain the OECD Model Convention without diving to deep into its history and its role on the international arena. Firstly, it serves as a model convention that countries can use when negotiating and concluding bilateral tax conventions in order to achieve the solution of the problem described above by cooperation and the use of the same solution. The countries may use the model when negotiating these bilateral conventions and may reach a final agreement using either the convention as a whole, most, or nothing as a result.[47] Art. 9

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[41] "OECD Legal Instruments." *OECD*, www.oecd.org/legal/legal-instruments.htm. Accessed: 15-03-2019.
[42] Vega (2012), 12.
[43] Vega (2012), 13.
[44] Vega (2012), 14.
[45] Tax treaties are concluded either bilaterally or multilaterally mainly in order to separate tax claims by states to avoid double taxation.
[46] Vega (2012), 14.
[47] *Model Tax Convention on Income and on Capital: Condensed Version 2017.*

of the OECD Model Convention states the arm's length principle by which if used when reaching the final bilateral tax convention becomes binding upon the states.

3.2.3 The OECD Guidelines

The OECD Guidelines were first recommended by the OECD on the 13th of July, 1995. This means, by the power obtained through the OECD Convention Art. 5(b), that the OECD encourages the states to follow these guidelines. Moreover, this means that the guidelines are in no sense formally and legally binding upon any state because of international law and connected obligations towards the OECD.[48]

However, because of the OECD's status and the guidelines publicity it can be argued that they serve as a focal point around the question *how* behaviour should be coordinated, which gives the guidelines a status of somewhat binding character.[49] Also notable is that when the OECD Model Convention has been used to structure and conclude bilateral tax treaties, the guidelines can be used for interpretation.[50] This is because of a number of different aspects upon an international level. As an example, the signatory states may have included the notion in either preparatory work or other parts of the bilateral (or multilateral) tax treaty that their domestic transfer pricing legislation ought to be interpreted in accordance with the OECD Guidelines.[51] This would have the effect that the parties are obliged, when interpreting their domestic tax legislation, to do so because of international law of treaties.

Simply put, despite if no reference has been made in any preparatory works or other parts of either their bilateral (or multilateral tax treaties) it is arguably clear that the guidelines can be seen as part of the *OECD Commentary*[52]. This gives them an important role in the interpretation of the arm's length principle when interpreted as a part of domestic tax legislation. [53] The controversial and greatly debated question whether or not the arm's length principle can be accredited as a customary norm and *opinio juris,* will not be further discussed in this paper for reasons of relevance.

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[48] Vega (2012), 15.
[49] Vega (2012), 16.
[50] Vega (2012), 17.
[51] Vega (2012), 17.
[52] The OECD Commentary is also not legally binding upon the states but by reasons of international customary law it can be argued that states are obliged to follow them (see the reasoning of Vega (2012), 18).
[53] Vega (2012), 18.

Moreover, it is different on the domestic level. Some countries make the notion directly in their domestic tax legislation (or preparatory works) that the OECD Guidelines ought to be used for purposes of interpretation concluding them as a direct source of law.[54] Other countries refer to the OECD Guidelines in administrative circulars or other documentation deriving from the domestic tax agency obliging only them to follow the guidelines during interpretation and application which gives the guidelines an important role in the domestic legal system.[55] Finally, some countries also may make references to the OECD Guidelines through their actual application, i.e. in their domestic case-law.[56] Out of explanatory purposes, notable is that the formal effect of this, i.e. if the guidelines will be legally binding and to what extent, will amongst other things depend upon the legal system of the state, i.e. if the state uses a common law or civil law system. This will not be further expanded upon by reasons of relevance.

[54] Vega (2012), 19-21.
[55] Vega (2012), 21-15.
[56] Vega (2012), 25-27.

4 Transfer pricing

The chapter aims to provide the reader with the main theoretical background of the international regulation regarding transfer pricing. The arm's length principle is rendered from mainly the OECD Guidelines together with a chapter regarding its application. Moreover, the chapter presents a summarisation of the relevant framework of the transfer pricing methods deriving from the OECD Guidelines and present how taxpayers are expected to choose between the provided methods. Finally, the arm's length range and its connected aspects are rendered from the OECD Guidelines summarizing its content. Moreover, the entirety of the chapter aims to as effectively and correctly as possible render the relevant content of its sources, through in some part summarisations and other parts quotations. However, thus in some areas risk excluding some non-relevant content and using a different structure then its sources.

4.1 The arm's length principle

The arm's length principle codifies the commonly agreed international transfer pricing standard. The standard is defined in the paragraph 1 of Article 9 of the OECD Model Tax Convention[57] and declares that when *associated enterprises*[58] transact within the group it should be on the same terms and conditions as if it was between *independent enterprises*[59]. The discrepancy exists because of the lack of impact external market forces might have on the transactions completed between associated enterprises.[60]

If associated enterprises' transfer pricing when conducting business amongst the group is not at arm's length then, in order to protect the countries tax base from erosion, the profits of the associated enterprises may be adjusted in accordance with the principle. To do this, domestic tax authorities have to

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[57] *"[Where] conditions are made or imposed between the two [associated] enterprises in their commercial or financial relations which differ from those which would be made between independent enterprises, then any profits which would, but for those conditions, have accrued to one of the enterprises, but, by reason of those conditions, have not so accrued, may be included in the profits of that enterprise and taxed accordingly."*

[58] Defined in the OECD Glossary as "*two enterprises are associated enterprises with respect to each other if one of the enterprises meets the conditions of Article 9, sub-paragraphs 1a) or 1b) of the OECD Model Tax Convention with respect to the other enterprise".*

[59] Defined in the OECD Glossary as *"two enterprises are independent enterprises with respect to each other if they are not associated enterprises with respect to each other".*

[60] OECD Guidelines, Chapter I, section A, paragraph 1.2.

establish the terms and financial conditions of an *uncontrolled transaction*[61] under comparable circumstances and compensate for the distortion.[62] However, tax administrations are not to assume manipulation of profits by associated enterprises[63] and need to consider that in some cases a great deal of autonomy is granted amongst the associated enterprises resulting in an bargaining between the divisional managers much like the one between independent enterprises.[64] It is however stated that "*evidence of hard bargaining alone is not sufficient to establish that the transactions are at arm's length"*[65].

4.2 Application of the arm's length principle

The application of the arm's length principle revolves around the *comparability analysis* which describes a comparison between the conditions of a controlled transaction at hand and the conditions that would have applied in a uncontrolled transaction. In order to make such an analysis firstly one have to (1) *"identify the commercial or financial relations"*[66]and *"the conditions and economically relevant circumstances attached to those relations"*[67] between the associated enterprises and then (2) compare these with the the same aspects of a comparable uncontrolled transaction.[68]

(1) This analysis is done by first understanding the market and the sector in which the MNE is established, such as the supply chain, performance influencing factors, risks etc.[69] After this overview is achieved one has to study the MNE at hand and determine its role on the market and how it is conducting business (transacting) amongst the divisions. The general categories to study of the transactions between the associated enterprises amounts to five in total:
    (a) contractual terms[70],
        (i) The contractual terms relating to the transaction between the independent enterprises are in general the best way to start the comparability analysis. Most

[61] An uncontrolled transaction is the opposite to a controlled transaction which is defined in the OECD Glossary as a "*transactions between two enterprises that are associated enterprises with respect to each other"*.
[62] OECD Guidelines, Chapter I, section A, paragraph 1.3.
[63] OECD Guidelines, Chapter I, section A, paragraph 1.2.
[64] OECD Guidelines, Chapter I, section A, paragraph 1.5.
[65] OECD Guidelines, Chapter I, section A, paragraph 1.5.
[66] OECD Guidelines, Chapter I, section D.1. paragraph 1.33.
[67] OECD Guidelines, Chapter I, section D.1. paragraph 1.33.
[68] OECD Guidelines, Chapter I, section D.1. paragraph 1.33.
[69] OECD Guidelines, Chapter I, section D.1. paragraph 1.35.
[70] OECD Guidelines, Chapter I, section D.1. paragraph 1.36.

important areas of the transaction are often included such as the, intention of the parties, division and clarification of responsibilities, the transfer price agreed upon and other obligations and rights.[71]

(ii) If the economically relevant characteristics of the transactions cannot be determined using all legally relevant principles of contract interpretation, then other information is necessary in order to sufficiently conduct the comparability analysis.[72] Further, if there exists a discrepancy between characteristics of the transaction and the written contractual terms, the conduct och the parties should form the basis for the comparability analysis.[73] It should also be noted that the terms of a contract may change over time which creates the need to examine if the change reflects a new transaction or the original intention dating back from the already concluded transaction.[74]

(b) functions performed by the different divisions giving regards to *"assets used and risk assumed, including how those functions relate to the wider generation of value by the MNE group to which the parties belong, the circumstances surrounding the transaction, and industry practices."*[75]

(i) A functional analysis is required due to the fact that the transfer price in an uncontrolled transaction usually reflects assets used and risks assumed which adds up to the functions of performance by each party.[76] The easiest way to describe it would probably be that the functional analysis aspires to examine what the associated enterprises actually do, both in terms of decision making and legal rights and obligations in relation to the MNE as a whole, and more importantly value creation and each parties part in that. It is primarily the economic significance of each parties functions that are of importance.[77] Also here it is important to remember that deviations

[71] OECD Guidelines, Chapter I, section D.1.1. paragraph 1.42.
[72] OECD Guidelines, Chapter I, section D.1.1. paragraph 1.43.
[73] OECD Guidelines, Chapter I, section D.1.1. paragraph 1.45.
[74] OECD Guidelines, Chapter I, section D.1.1. paragraph 1.47.
[75] OECD Guidelines, Chapter I, section D.1. paragraph 1.36.
[76] OECD Guidelines, Chapter I, section D.1.2. paragraph 1.51.
[77] OECD Guidelines, Chapter I, section D.1.2. paragraph 1.51.

compared to independent enterprises may be justified where business considerations is the driving factor behind, such as for an example benefits relating to economies of scale etcetera.[78]

(c) what kind of property that has been transferred or the kind of services that has been provided,
    (i) The importance of this consideration depends on the chosen transfer pricing method[79] and will be extended upon under the discussion of each method.

(d) the contemporary economic circumstances of both the parties and the market[80], and
    (i) It is crucial to examine the contemporary economic circumstances in relation to the transaction due to its ever changing nature. This means that if the market on which the associated and the independent enterprises operates on deviates materially with an effect on price then necessary adjustments have to be made in order to compensate for the differences. Important circumstances that can be looked to is geographic location, market size, to what extent does competition exist on the market and how does the parties positions on said market relate to one another and others *et al.*[81]

(e) the different business strategies that the divisions apply.[82]
    (i) The example of the impact business strategies can have on the comparability analysis are endless. To serve as an example market penetration schemes is used. Both costs and prices can deviate from otherwise comparable transactions resulting in lower profit levels. In such cases, the business strategy of the firm justifies the lower profit levels and no adjustment should be made.[83]

Notable is that the natural way in which independent enterprises would evaluate terms of an transaction is to compare it to their alternatives and only accept an offer if the strongest supports their

[78] OECD Guidelines, Chapter I, section D.1.2. paragraph 1.52.
[79] OECD Guidelines, Chapter I, section D.1.3. paragraph 1.108.
[80] OECD Guidelines, Chapter I, section D.1. paragraph 1.36.
[81] OECD Guidelines, Chapter I, section D.1.4. paragraph 1.110.
[82] OECD Guidelines, Chapter I, section D.1. paragraph 1.36.
[83] OECD Guidelines, Chapter I, section D.1.5. paragraph 1.114-1.115.

commercial objective. This argument can further be used to support the notion that it is very important to delineate all the economically relevant circumstances since it is assumed that independent enterprises will take everything relevant into account when evaluating options.[84]

(2) The next part of the comparability analysis will be expanded upon in the chapter, *Transfer pricing methods*.

4.3 The arm's length range

The *Arm's length range is,* in the OECD Glossary, defined as:

> a range of figures that are acceptable for establishing whether the conditions of a controlled transaction are arm's length and that are derived either from applying the same transfer pricing method to multiple comparable data or from applying different transfer pricing methods.[85]

The OECD recognizes that practitioners will not in every case when applying the arm's length principle, end up with a price or margin that is of a single figure nature. This is explained by stating that transfer pricing is no exact science and that in these cases, using the most appropriate method, a range of figures that may have been produced is equally reliable.[86] However, arm's length ranges are not such an easy phenomenon as one might think. The OECD Guidelines continues on to state that where the transactions examined lacks relatively equal degree of comparability they should be eliminated but fails to define further guidance on how to determine relative comparability.[87] In cases where, despite every effort to eliminate transactions of lesser degree of comparability, after application of the methods chosen there still exist a range of figures with some comparability defects that cannot be adjusted for, the taxpayer should make use of statistical tools of central tendency[88] to enhance the reliability of the analysis.[89]

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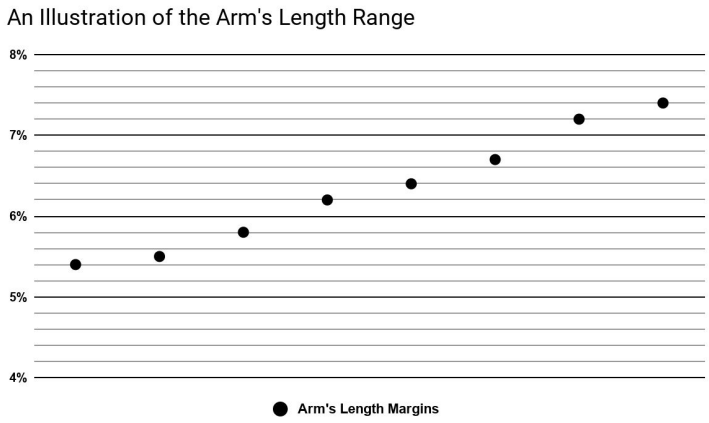
[84] OECD Guidelines, Chapter I, section D.1. paragraph 1.38.
[85] OECD Guidelines, Glossary - *Arm's length range*.
[86] One of the causes of such a range is explained in the OECD as there mere fact that the methods applying the Arm's length principle produces an approximation of what independent enterprises would have concluded under comparable circumstances and it is therefore natural if a range of choices is produced (since independent enterprises would not produce the exact same results in exact same transactions neither) (OECD Guidelines, Chapter III, section A.7. paragraph 3.55.).
[87] OECD Guidelines, Chapter III, section A.7. paragraph 3.56.
[88] Often also called *averages*.
[89] OECD Guidelines, Chapter III, section A.7. paragraph 3.57.

Another possible cause for the creation of a range of figures is the use of more than one method when evaluating a controlled transaction. A range of figures as the outcome is also natural according to the OECD Guidelines because of the mere nature of the different methods and the data used as input. The OECD fails to provide any generic approach to solve the matter but mentions that if ranges from different methods overlap this can indicate a more accurate transfer pricing and if no overlap is available the relative reliability should determine the most appropriate method depending the quality of the information used to apply the methods.[90]

The OECD in its Guidelines continues to make a few statements. The first can be summarized as that no adjustment should be made if the transfer price, margin etc. (relevant condition) derived from the controlled transaction is within the arm's length range.[91] The second is that if the transfer price, margin etc. (i.e. relevant condition), derived from the controlled transaction proves to be outside of the arm's length range argued by the domestic tax agency, the taxpayer should be provided the opportunity to argue a different arm's length range than the one asserted by the domestic tax agency. If the taxpayer fails to do so, an adjustment should be made matching a figure (i.e. point) inside the arm's length range.[92] Finally, the OECD acknowledge the argument that any of the points within the range could satisfy the arm's length principle and thus be used, but does not further comment on the matter. [93]

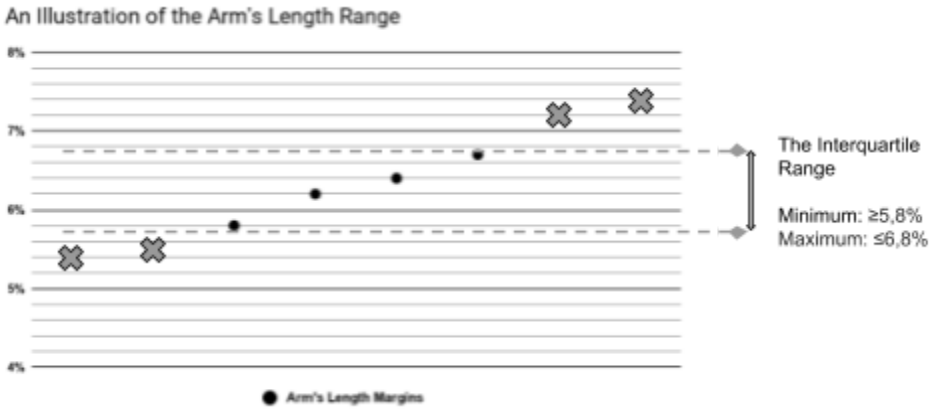


Dia. 1 aims to illustrate the arm's length range which ranges from the minimum detected margin in a comparable uncontrolled transaction (5,4%) to the maximum detected margin

[90] OECD Guidelines, Chapter III, section A.7. paragraph 3.58.
[91] OECD Guidelines, Chapter III, section A.7. paragraph 3.60.
[92] OECD Guidelines, Chapter III, section A.7. paragraph 3.61.
[93] OECD Guidelines, Chapter III, section A.7. paragraph 3.62.

(7,4%) in either another comparable uncontrolled transaction or because of the use of more than one method. The range between this maximum and minimum constitutes the arm's length range.

When the result of the application of the arm's length principle results in a range and every effort has been made to eliminate margins that is of a lesser degree of comparability, the taxpayer is supposed to make use of a statistical tool. One very common approach to this matter is to use an interquartile range (*"**IQR**")* to narrow the range down and enhance the accuracy of the range.[94] When doing this, the median margin is determined (in this case *6,3%*) and a upper half and a lower half is determined. Both these halves are then divided into two different ranges giving us a total of four (the lower bottom half, the upper bottom half, the lower top half and the upper top half). The lower bottom half and the upper top half is then eliminated as if they were of a lesser degree of comparability giving us a more centralized new range of arm's length margins.



Dia. 2 aims to illustrate the arm's length range after the determination of the IQR.

If the outcome of the transaction (the relevant condition, *e.g*. margin, margin *etc.*) is inside this range, no adjustment should be made. This means that for the purpose of this example, if the associated enterprises agree on using the margin *5,8%,* which is the lowest boundary in the centralized arm's length range, no adjustment should be made by the tax administration.

[94] OECD Guidelines, Chapter III, section A.7. paragraph 3.57.

4.3.1 "Resale Price and Cost-Plus Methods: The Expected Arm's Length Space of Coefficients"[95]

A research conducted by Alessio Rombolotti and Pietro Schipani applied the resale price method and the cost-plus method to a vertically integrated multinational enterprise[96] in order to prove that one single mathematical relationship could be derived in order to set benchmarked transfer prices. The research applies the cost-plus method from the manufacturers perspective (since their profits usually can be seen as a percentage of the manufacturing costs) and applying the resale price method from the perspective of the seller due to the fact that they are more likely to see profits as a percentage of their sales.[97]

The use of two methods is appropriate since they respond to different functions of the supply chain and their conformity with the arm's length principle would according to the authors rely *"on the choice of the discount and the markup coefficient levels"*[98]. When using more than one method over multiple transactions according to the authors, usually it ends up with an arm's length range of acceptable transfer prices that varies in magnitude. When using these methods, as stated above, the two chosen coefficients will determine the arm's length range.[99]

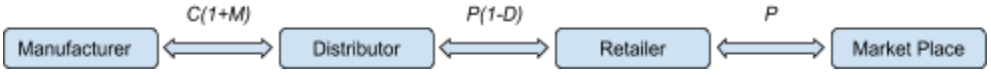


Fig. 2 illustrates an vertically integrated supply chain with the transactions set from the manufacturer and retailers perspective of pricing where *C* is the costs and *P* is the market price. *M* is the markup and *D* is the discount and together they make up the coefficients determining the arm's length range.

The authors concluded that when using these two methods, it was possible to extract an objective[100] expective arm's length range. The only condition relating to the transactions is that every party has to realize a profit and

[95] Rombolotti & Schipani (2012).
[96] See fig. 2.
[97] Rombolotti & Schipani (2012), 186.
[98] Rombolotti & Schipani (2012), 186.
[99] Rombolotti & Schipani (2012), 189.
[100] It does not depend on any specific transactions.

achievable is an expected space from where an arm's length range can be derived.[101]

4.4 Transfer pricing methods

4.4.1 The comparable uncontrolled price method

The basic idea of the method can be explained as a comparison of the transfer price charged in a controlled transaction with the price charged in a "comparable uncontrolled transaction in comparable circumstances"[102]. There are two conditions, whereas only one have to be met in order for the CUP method to be used: that if there exist differences between the controlled and the comparable uncontrolled transaction, these differences have no materially effects on the price or if there exist such differences, these differences can be eliminated through adjustments.[103] When trying these conditions one has to sought to examine the differences and similarities with all available factors similar to the comparability analysis. It is not uncommon that differences with an affect on the price exist in which it is important the required efforts are made to make the correct adjustments so that the CUP method can be used.[104] The method is the most direct and reliable method to determine the arm's length price and shall be preferred if possible.[105]

The OECD provides as an example an MNE which transacts commodities between its associated enterprises. These commodities are to be understood as physical products where independent parties on the market use a quoted price[106] as a reference in order to set their prices. When determining a quoted price and evaluate its appropriateness, one has to examine the commonality of the use of the information in negotiations between independent enterprises. However, it is encouraged by the OECD that the application of this method is consistent over time.[107]

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[101] Rombolotti & Schipani (2012), 188.
[102] OECD Guidelines, Chapter II, section B.1. paragraph 2.14.
[103] OECD Guidelines, Chapter II, section B.1. paragraph 2.15.
[104] OECD Guidelines, Chapter II, section B.1. paragraph 2.17.
[105] OECD Guidelines, Chapter II, section B.1. paragraph 2.16.
[106] The periodically determined price of the commodity gathered from either an international/domestic exchange market, governmental bureau of statistics or any other source which independent partis looks to in order to determine price.
[107] OECD Guidelines, Chapter II, section B.1.. paragraph 2.19-2.20.

4.4.2 The resale price method

This method is build upon the price a certain product (that has been purchased via a controlled transaction) is resold in a uncontrolled transaction (to an independent enterprise). From this price, a calculated gross margin, *the resale price margin,* is subtracted in order to determine the appropriate transfer price in the original controlled transaction. To calculate the resale price margin one has to figure out how much the reseller should demand in order to make an appropriate profit, i.e. how much to cover the costs and expenses (also here connected with the comparability analysis regarding assets used and risks assumed).[108] In order to seek guidance for the determination of the resale price margin tax payers may look to *internal comparable*[109] and *external comparable*[110] factors.[111]

In order for the method to be used, the same two conditions apply where only one has to be fulfilled; that if there exist differences between the controlled and the comparable uncontrolled transaction, these differences have no material effects on the price or if there exist such differences, these differences cannot be eliminated through adjustments.[112] A notable difference from the CUP method is that minor differences in product aspects are less likely to have a materially effect on profit margins compared to price which indicates that generally speaking, less adjustments may be necessary to make up for effects.[113] The time in between the reseller's purchase is crucial for the accuracy of the method. There is usually a relation between the more time that has passed and the amount of effect other factors have on the price.[114]

4.4.3 The cost plus method

The method is based upon the costs of the supplier where a cost plus markup is added in order to provide the supplier with the appropriate profit. The markup is calculated much like the other methods, taking into account the

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[108] OECD Guidelines, Chapter II, section C.1.. paragraph 2.27.
[109] That which the reseller itself usually profits from comparable uncontrolled transactions. The OECD guidelines notes that internal comparables both may have a "*more direct and closer relationship with the transaction under review than external comparables"* and also more easily accessible. However, it is not guaranteed that the internal comparables are more reliable and the five comparability factors are still to be satisfied in the same way as the external comparables in order to be used (3.27-3.28 OECD Guidelines).
[110] That which other independent enterprises profits from comparable uncontrolled transactions. (see 3.29 OECD Guidelines for more information).
[111] OECD Guidelines, Chapter II, section C.1.. paragraph 2.28.
[112] OECD Guidelines, Chapter II, section C.1.. paragraph 2.29.
[113] OECD Guidelines, Chapter II, section C.1. paragraph 2.29.
[114] OECD Guidelines, Chapter II, section C.1. paragraph 2.36.

functions performed and market conditions in order to arrive at an arm's length price. The OECD particularly recommends this method when "*semi finished goods are sold between associated parties, (...) or where the controlled transaction is the provision of services.*[115] In order to determine the cost plus markup the supplier should ideally use the internal comparable references but can use external comparable cost plus markups as a referencing guide.[116] Also using this method, the same two conditions apply where only one have to be fulfilled: that if there exist differences between the controlled and the comparable uncontrolled transaction, these differences has no materially affect on the price or if there exist such differences, these differences cannot be eliminated through adjustments.[117]

In the cost plus markup both direct and indirect production costs are included.[118] Further, also historical costs are recommended to be used to form a basis when calculating the markup.[119] To conclude, two factors have to be examined in order to calculate this cost plus markup to be added, which factors to consider to determine the cost plus markup and which level of profit is appropriate.

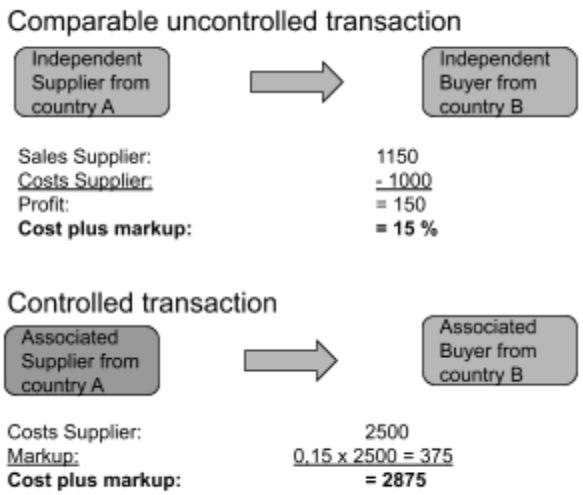

Fig. 3 illustrates transfer pricing according to the Cost plus method.

[115] OECD Guidelines, Chapter II, section D.1. paragraph 2.45.
[116] OECD Guidelines, Chapter II, section D.1. paragraph 2.46.
[117] OECD Guidelines, Chapter II, section D.1. paragraph 2.47.
[118] OECD Guidelines, Chapter II, section D.1. paragraph 2.51.
[119] OECD Guidelines, Chapter II, section D.1. paragraph 2.55.

4.4.4 Transactional net margin method

The transactional net margin method is a method designed to analyse the contemporary profit levels of the associated parties and not the transfer price of a certain transaction. This profit level[120] is related to an appropriate base such as *costs, sales* or *assets* that is realized from one or more controlled transaction. Ideally for the most reliable applicability, the net profit indicator in the controlled transaction(s) should be established referencing to uncontrolled comparable transactions. When determining the net profit indicator, it is important to use internal comparables[121], but where that is impossible, external comparables[122] can be used as guidance.[123]

When determining if the controlled and the uncontrolled transaction (both internal and external comparables) are comparable and the adjustments that might have to be made, the general functional analysis is required[124]. However, it is noted in the OECD Guidelines that net profit indicators are less likely to be affected by differences in functions and products. This does not mean that comparability is to be assumed and there are still many differences that can have an impact upon net profit indicators. Mentioned factors that may directly affect the net profit indicators are:

> Threat of new entrants, competitive position, management efficiency and individual strategies, threat of substitute products, varying cost structures (as reflected, for example, in the age of plant and equipment), differences in the cost of capital (e.g. self- financing versus borrowing), and the degree of business experience (e.g. whether the business is in a start-up phase or is mature).[125]

It is mentioned in the OECD Guidelines that these threats to the accuracy mentioned in the quote above may be mitigated by the use, and expansion, of the *arm's length range*[126]. However, the use of such a range may not account for factors unique to a specific tax payer and thus solve the problem of inaccuracy.[127] Also noted is the importance for measurement consistency in regards to the net profit indicators in relation to accounting differences across enterprises affecting the net profits (i.e. depreciation and reserves etc.).[128]

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[120] EBIT (*Earnings Before Interests and Taxes*) is the indicator used for profit according to the OECD Guidelines, Chapter III, section B.1. paragraph 2.64
[121] *Supra note, 58.*
[122] *Supra note 58.*
[123] OECD Guidelines, Chapter III, section B.3.3. paragraph 2.87.
[124] See chapter - *Application of the arm's length principle*.
[125] OECD Guidelines, Chapter III, section B.3. paragraph 2.77.
[126] See the chapter - *Arm's length range.*
[127] OECD Guidelines, Chapter III, section B.3. paragraph 2.79.
[128] OECD Guidelines, Chapter III, section B.3. paragraph 2.81.

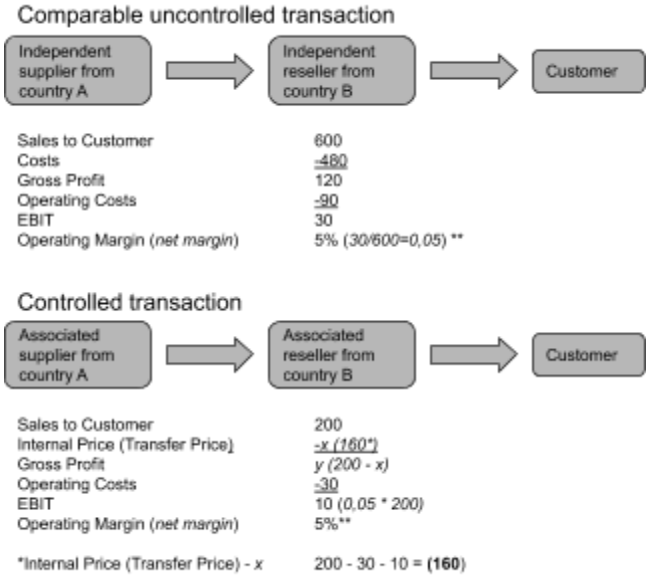

Fig. 4 illustrates transfer pricing according to the Transactional net margin method. Inspiration gathered from the Swedish Tax Agency guidance on the (SV: *Nettomarginalmetoden)*.

4.4.5 Transactional profit split method

The guidance on this method has been revised by the OECD in June of 2018 in the wake of the BEPS project (BEPS Action 10).[129] The contingent legal implications of the revision will not be analyzed in this paper. This because of it being a highly debated question and for clarity reasons will be not have an effect on the exposée provided below. However, to provide the reader with some insight, the OECD summarized the changes to the guidance on the transactional profit split method as following:

> The revised guidance retains the basic premise that the profit split method should be applied where it is found to be the most appropriate method to the case at hand, but it significantly expands the guidance available to help determine when that may be the case. It also contains more guidance on how to apply the method, as well as numerous examples.[130]

[129] "OECD Releases New Guidance on the Application of the Approach to Hard-to-Value Intangibles and the Transactional Profit Split Method under BEPS Actions 8-10." *OECD*, www.oecd.org/tax/transfer-pricing/oecd-releases-new-guidance-on-the-application-of-the-approach-to-hard-to-value-intangibles-and-the-transactional-profit-split-method-under-beps-actions-8-10.htm. Accessed: 15-04-2019.
[130] "OECD Releases New Guidance on the Application of the Approach to Hard-to-Value Intangibles and the Transactional Profit Split Method under BEPS Actions 8-10." *OECD*,

The method is conducted by firstly determining the relevant profit (the profit that has incurred due to the controlled transaction[s]) and secondly dividing the relevant profit (or losses) in a way that mirrors how independent enterprises would have expected to incur profits (or losses) in a comparable uncontrolled transaction.[131] It is worth noting in this that the OECD clarifies that:

> the combined profits are to be split between the associated enterprises on an economically valid basis that approximates the division of profits that would have been anticipated and reflected in an agreement made at arm's length.[132]

There are in general two different ways to use the Transactional profit split method, i.e. the *contribution analysis* and the *residual analysis*. The first mentioned way to split the profits values the contributions made by each party in a way that independent parties would have valued the contribution. The secondly mentioned way to split the profit is to separate the relevant profit in to two different parts. The first part is composed of the contributions for which there exist reliable comparable uncontrolled transactions for valuation. The rest of the contributions are valued according to the contribution analysis using the rest of the incurred relevant profits.[133]

4.5 How to select transfer pricing method

The selection of transfer pricing method depends on *appropriability* under the given circumstances which means that all methods are to be assessed on a case-by-case basis. Appropriability is determined by examining the OECD recognised methods strengths and weaknesses especially in regards to the functional analysis, the amount of available reliable information in order to perform the selected method and how comparable the circumstances of the transaction are (the comparability analysis).[134]

According to the OECD Guidelines, the transactional profit methods are more indirect in their nature in relation to the traditional transaction methods.[135] In my opinion this because of the fact that the former analyse the profit level derived from either the one transaction or multiple, rather

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www.oecd.org/tax/transfer-pricing/oecd-releases-new-guidance-on-the-application-of-the-approach-to-hard-to-value-intangibles-and-the-transactional-profit-split-method-under-beps-actions-8-10.htm. Accessed: 15-04-2019.

[131] OECD Guidelines, Chapter III, section C.1. paragraph 2.114.

[132] OECD Guidelines, Chapter III, section C.3.1. paragraph 2.122.

[133] OECD Guidelines, Chapter II, section C.3.1. paragraph 2.121-2.122.

[134] OECD Guidelines, Chapter II, section A. paragraph 2.2.

[135] OECD Guidelines, Chapter II, section A. paragraph 2.3.

than looking at the transfer price (or other relevant condition) itself. The OECD explains it by stating that

> any difference in the price of a controlled transaction from the price in a comparable uncontrolled transaction can normally be traced directly to the commercial and financial relations made or imposed between the enterprises, and the arm's length conditions can be established by directly substituting the price in the comparable uncontrolled transaction for the price of the controlled transaction.[136]

Another possibility is to divide the different methods into two groups, *one-sided* and *two-sided* methods. The two are differentiated by the OECD dependent upon if only one, or both parties' functions of the transaction are being analyzed.[137] The resale price method, the cost plus method and the transactional net margin method are all one-sided methods and the transactional profit split method, are usually referred to as a two-sided method.

Using this insight, the OECD recommends the seeker to take into account four criteria to determine appropriate method to use.[138] The rendering below is summarized in a way that is according to me more easy accessible. The content chosen is rendered from the OECD Guidelines dependent upon relevance and by me presented as following:[139]

i. Strength and weaknesses of the methods

The Comparable Uncontrolled Price method[140]	
Strengths	Weaknesses
- Very direct and accurate method when reliable comparable uncontrolled transactions exist. - Specifically reliable when the product sold in the uncontrolled transaction are the exact same as the one of the uncontrolled transaction	- In many cases it is hard to find comparable transactions that does not require a high amount of adjustments for comparability.

[136] OECD Guidelines, Chapter II, section A. paragraph 2.3.
[137] "TRANSFER PRICING METHODS". *OECD*, www.oecd.org/tax/transfer-pricing/45765701.pdf. Accessed: 15-03-2019.
[138] OECD Guidelines, Chapter II, section A. paragraph 2.2.
[139] Inspiration gathered from: "TRANSFER PRICING METHODS". *OECD*, www.oecd.org/tax/transfer-pricing/45765701.pdf. Accessed: 15-03-2019.
[140] OECD Guidelines, Chapter II, section B.1. paragraph 2.13-2.16.

(e.g. commodities).	
The Resale Price method[141]	
Strengths	Weaknesses
- As already stated, minor product differences must not have an impact on price margin reducing the need for adjustments. - Easier to apply when the reseller does not add much value to the product itself or to the intangible property of an associated enterprise.	- Since product differences are less of a focal point, more weight is put on the other parts of the comparability analysis, e.g. functions performed, assets used and risks assumed. - On the contrary difficult to use when when the reseller add value to the product sold or cares for intangible properties. - The more time that has passed since the reseller's purchase of goods, the less accurately can the method be assumed to conform.
The Cost Plus method[142]	
Strengths	Weaknesses
- Most accurate when the associated parties are transacting semi-finished goods, under long-term buy-and-supply agreements and service agreements. - Minor product differences must not have an impact on price margin reducing the need for adjustments.	- In practice sometime hard to apply when there exist no direct link between price and costs (driven by competition). - Havely dependent upon internal comparables.
Transactional Net Margin method[143]	
Strengths	Weaknesses

[141] OECD Guidelines, Chapter II, section C.1. paragraph 2.30-2.36.
[142] OECD Guidelines, Chapter II, section D.1. paragraph 2.45-49.
[143] OECD Guidelines, Chapter III, section B.2.

- The method emphasizing profit indicators is relatively to price less affected by differences deriving from the transaction. - Might also be less affected to differences is function since it is often represented inside the operating expenses. - It is a transactional one-sided method which indicates that only one party's financial indicators have to be analyzed which is highly beneficial when one party is complex and the other relatively straight forward.	- A number of aspects may influence the financial indicator different from the methods using price or gross margins. - It may be even more difficult to obtain reliable comparables that can be attributed to the controlled transaction at the time of the pricing.
Transactional Profit Split method[144]	
Strengths	Weaknesses
- It may be applied to highly integrated and complex operations due to its character as a two-sided method. - Contrasting to the Resale Price method it can be applied when more than one of the parties make valuable contributions to the transactions. - Since the method views the transaction as a whole, a higher degree of flexibility is offered by the different factors that can be taken into account. - Both parties of the transaction are being evaluated minimizing the risk of extreme results, e.g. when analyzing intangible property	- Not appropriate when only one of the parties make valuable contributions to the transaction. - Difficult in its practical application since the process of gathering information may be increasingly difficult in cross-borders situations both for taxpayers and tax agencys.

[144] OECD Guidelines, Chapter III, section C.2.

etc.	

ii. The content of the functional analysis

➢ Appropriability is also dependent upon the functional analysis and that consistency exists between which party is tested in the functional analysis and the transfer pricing method. Appropriate is most the party that will include the least complex functional analysis.[145]

Method	Tested party and financial indicator
The CUP method	N/A.
The Cost Plus method	- seller - mark-up on costs of said seller
The Resale Price Margin method	- buyer - resale margin
The Transactional Net Margin method	- either seller - net profit on costs or assets - or buyer - net profit on sales
The Transactional Profit Split method	iii. both parties iv. the division of profits

v. The available information (internal and external comparables)

➢ Important in terms of appropriability is the available comparables. In general, dependent upon which information is available this will encourage the use of different methods. However, as already stated, just because comparables are hard to come by it does not exclude the appropriateness of one method.[146]

[145] "TRANSFER PRICING METHODS". *OECD*, www.oecd.org/tax/transfer-pricing/45765701.pdf. Accessed: 15-03-2019.
[146] "TRANSFER PRICING METHODS". *OECD*, www.oecd.org/tax/transfer-pricing/45765701.pdf. Accessed: 15-03-2019.

vi. "*the degree of comparability between controlled and uncontrolled transactions, including the reliability of comparability adjustments that may be needed to eliminate material differences between them.*"[147]

- ➢ This factor needs to be weighted together with the other factors using professional judgement in order to determine which method is the most appropriate. The objective i always to use the most reliable comparables but sometimes needs to prevail to other factors.[148]

As a matter of good practice, the OECD Guidelines does not recommend that the domestic tax administrations analyses all cases in order to determine if the most appropriate method has been used since all mentioned methods are recognized by the OECD. [149] Further, it is not forbidden for multinational enterprises to use other methods to satisfy the arm's length principle. However, the OECD Guidelines specifically states that other methods than the five mentioned are not to be used as substitutes and in cases where an multinational enterprise has chosen to use another method, documentation as to why the recognized methods could not be used are to be accompanied with the the other documentation required.[150]

4.5.1 Combine or separate controlled transactions?

In some cases it is not reasonable that transactions are analysed on a case-by-case basis which is otherwise, out of accuracy reasons, ideally out of an arm's length perspective. This fact can derive from a number of different reasons but mentioned in the OECD Guidelines is that the separate transactions are closely linked[151] or continuous[152].[153] However, the OECD Guidelines is sending out a warning about making *package deals* where multinational enterprises seek to combine multiple transactions that may not need to be analysed together in order to determine if the conditions are at arm's length. Therefore, taxpayers should always be prepared to show that transfer pricing calculated upon combined transactions are appropriate.[154]

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[147] OECD Guidelines, Chapter II, section A. paragraph 2.2.
[148] "TRANSFER PRICING METHODS". *OECD*, www.oecd.org/tax/transfer-pricing/45765701.pdf. Accessed: 15-03-2019.
[149] OECD Guidelines, Chapter II, section A. paragraph 2.8.
[150] OECD Guidelines, Chapter II, section A. paragraph 2.9.
[151] E.g. products on a product line.
[152] E.g. long-term manufacturing/supply of commodities/service contracts or long term supply of vital raw materials to an associated manufacturer.
[153] OECD Guidelines, Chapter III, section A.3.1. paragraph 3.9.
[154] OECD Guidelines, Chapter III, section A.3.1. paragraph 3.12.

4.5.2 The possibility to use more than one method

It is directly stated in the OECD Guidelines that in order to fulfill the requirements of the arm's length principle, tax payers are not required to use more than one method for one specific transaction. A reasonable assumption is that this approach is taken from the taxpayers perspective due to the costly and timely burden it brings. This lack of requirement is applicable both on the taxpayer and domestic tax administration.[155]

[155] OECD Guidelines, Chapter II, section B. paragraph 2.12.

5 Analysis

This chapter aims to fulfill the overall subject and purpose of the paper. The first part will discuss whether or not the Nash bargaining solution can be in accordance with the arm's length principle. The second part will attempt to discuss other relevant elements and in the third part of the chapter, a conclusion will be drawn.

5.1 The Nash bargaining Solution and the arm's length principle

As explained, the Nash bargaining solution provided by the research completed by Clempner and Poznyak ("**the solution**"), sought to find a business-optimal transfer price in order to coordinate the divisions and maximize the global profits of a decentralized multinational enterprise. The primary legal aspects of this pursuit was focused around the tax considerations considered when calculating the solution and its relationship with the arm's length principle. The legal question at hand when determining under which circumstances the Nash bargaining solution can fulfil the requirements of the arm's length principle is primarily related to the maximum and minimum legally authorized boundaries required in the solution. In the words of one of the authors, Clempner, "*Establishing the bounds is an accounting or financial problem*", making it the primary legal question at hand up for discussion.

The article mentions the two boundaries p^1 and q^1 as maximum and minimum legally authorized boundaries in accordance with the arm's length principle. The question thus arises whether or not the arm's length principle can admit that any of the figures within a range $(x_p - x_q)$, under the premise $(x \geq p^1 \ \& \ x \leq q^1)$, can be acceptable to use as a transfer price for tax purposes. In the seeking of an answer to this, attention is brought to the arm's length range that amongst other things, the OECD has recognized because of the illusive nature of the arm's length principle in regards to the (in practice) finding of one single acceptable price. However, no matter the acknowledgement by the OECD of the relative validity of the argument that any of the points within the range could theoretically satisfy the arm's length principle, some requirements persists in order for the solution to use a range of figures within a maximum and minimum that constitutes legally authorized boundaries.

The OECD has stated that the use of a range of figures can be appropriate if there, after the application of either one or more of the recognized pricing methods, still persists a range of pricing options that are of equal comparability to each other. A common cause, and also acknowledged in the OECD Guidelines, for this to occur is when more than one of the transfer pricing methods is used to determine the transfer pricing in an controlled transaction. A good example of this is the study conducted by the practitioners Alessio Rombolotti and Pietro Schipani, where they applied the resale price method and the cost-plus method to a multinational enterprise with a vertically integrated supply chain - similar to the structure of the solution up for discussion. As presented in the rendering of the research, the use of two methods can sometimes be appropriate in this kind of vertically integrated supply chain since different perspective exists in regards to the different divisions of the multinational enterprise providing different information forming the basis of the analysis. Since manufacturers' profits often are seen as a percentage of the manufacturing costs, the cost-plus method is appropriate to use because of the high likelihood for internal comparables and reliable information. On the other hand, the selling division's perspective of profits will be based upon the sales of the division, i.e. the application of the resale price method could be appropriate since the profit is the relevant base for the analysis according to this method. When applying two or more methods, the OECD acknowledges and deems it appropriate that a range of figures of equal relative comparability can persist and thus create an argument that the range of figures (the arm's length range) can be used when calculating the maximum and minimum legally authorized boundaries in the presented solution.

Another way of which this can be the case is when only one single method has been used but still results in a range of figures of equal comparability. This may be due to a number of different aspects but are often out of reasons connected to the comparability analysis. In the first step, the subject for the analysis is the controlled transaction and its associated parties. It is in the second step of this analysis where multiple different factors can argue in favour of the use of a range of figures with equal relative comparability. Sometimes associated enterprises are transacting with commodities and independent enterprises are using a quoted range of prices in order to determine their pricing in an comparable uncontrolled transaction. In this case the CUP might be deemed as the most appropriate method using the quoted range of prices to reflect an appropriate arm's length range. The presented facts can deem it appropriate to use the range of figures to set maximum and minimum legally authorised boundaries reflected by the

arm's length range in accordance with the solution. Another way for an arm's length range to persist is if the CUP method presents more than one transfer price according to the pricing of multiple comparable uncontrolled transactions and thus create a natural range of figures of equal relative comparability.

Another way the use of a range of figures could be deemed appropriate is when the resale price method is used and instead of one resale price margin being found, a multiple of different margins are found of equal relative compatibility creating an arm's length range. The use of the resale price method may be appropriate due to the use of an integrated supply chain as assumed in the solution. This may be the case because of identified big differences in products aspects when conducting the comparability analysis. It can also be the case because of the reseller adding no value to the product or because of the reseller is the least complex party to the transaction. If the use of this method arrives at a range of equally comparable margins and after the use of statistical tools of central tendency, the range may be used as a maximum and minimum legally authorized boundary for purposes according to the solution.

The same goes for a multinational enterprise that chooses to price in accordance with the cost plus method, i.e. when a range of markups of equal relative comparability still persists after the use of a statistical tool of central tendency. If less external comparables exists, this method can be preferable due to its reliability on internal comparables. Also, when the vertically integrated supply chain of the multinational enterprise are transacting semi finished goods this method is recommended according to the OECD.

Since the solution states that the divisions operate over sequential transfers, transactional profit methods might be more appropriate to use. This would be because the method analyse the profit levels of the associated enterprises and not separate transactions providing a solution accounting for context (i.e. more factors are being accounted for). An example of this is when the transactional net margin method is used and the net profit indicator, although less likely to be affected by differences in functions and products than the other methods, still shows a lower rate of accuracy than desired. In this case, the OECD acknowledges that the problem can be mitigated by the use of an, or the expansion of the, arm's length range. Another time a range might be the result of the comparison is when the transactional profit split method has been used and a range of equal relative comparability has emerged. This could be because of the usage of more than one economically valid basis of equal relative comparability to apply the method. Similar to

what has been discussed above both of these ranges can reflect a maximum and minimum legally authorized boundary to use in the solution after the use of a statistical tool of central tendency.

To conclude, no matter which method a multinational enterprise aspire to use in order to optimize their global profits with the solution, an arm's length range can under certain circumstances emerge with figures of equal relative comparability. In these instances, as already mentioned, the OECD encourages the use of a method of central tendency (e.g. the IQR) to narrow the range and create a higher accuracy compliance with the arm's length principle. After this, a range is left which could be translated into, for the solution specific, maximum and minimum legally authorized boundaries to insert in the calculations of the solution.

Which method that should be used to determine the range can in this analysis not be determined because of the generality of the solution and no specific premises other than the fictive structure of the divisions of the multinational enterprise is provided. However, some of the relevant considerations have been lifted above and discussed in the light of the practical implications of the solution. Another notable fact is that the notion made by Clempner about the usage of historical data in order to set the legally authorized boundaries will be rejected as an incomplete solution. This is a simplification of a more complex problem and the usage of historical data to set transfer prices is not a recognized method by the OECD. However, it can provide important information in the comparability analysis and the eventual benchmarking process which will not be further discussed in this analysis.

5.2 Discussion

To continue on the same note, the main legal aspect of the solution is related to the setting and usage of maximum and minimum legally authorized boundaries which has been discussed above. However, considering the structure and intention of the solution a few concepts emerge, that for reasons of further development of similar solutions to calculate the business-optimal transfer price are worth being discussed.

The first concept up for consideration is the usage of the maximum and minimum legally authorized boundaries in order to comply with the arm's length principle. The question to discuss is whether or not this is a fundamental element in regards to compliance with the arm's length

principle or if the structure and form of a solution to the one presented itself could ensure arm's length prices.

As noted, the OECD Guidelines do acknowledge that it is not forbidden for multinational enterprises to use other methods than the ones recognized by the OECD to satisfy the arm's length principle. However, when another method has been used, documentation as to why the recognized method could not be used is required to accompany the other mandatory documentation. If we disregard this lastly presented fact in order to discuss the contingent arm's length structure of the solution for reasons of future development of the arm's length principle some notions can be made.

The first concept is the tension between the intention behind the seeking of a business-optimal transfer price and the intention behind the transfer pricing legislation. As stated, the original intention behind the transfer pricing legislation can be summarized as an intention to prevent multinational enterprises to shift profits and erode countries tax revenues. However, the intention behind the search of a business-optimal transfer price is not by default in direct contradiction to the one of the transfer pricing legislation. The OECD does acknowledge that tax administrations are not supposed to assume manipulation of profits by associated parties and that commercial reasons sometimes may drive certain considerations and consequently have nothing to do with tax. In specific, this can indicate that when companies undergoing decentralization and globalisation where the use of transfer pricing is a key tool in their arsenal to enable an increased amount of coordination between the divisions of the firm, the use of a solution like the one presented may be out of commercial reasons and not connected to tax avoidance.

Moreover, the OECD also acknowledges that the divisions of a multinational enterprises sometimes are granted a degree of autonomy similar to the one of independent enterprises resulting in a bargaining with the same characteristics of a bargaining conducted between associated parties - at arm's lengths distance. At first glance, the structure of the solution seems to directly contradict the notion about the degree of autonomy simply because of the fact that the solution depends on the full cooperation and the sharing of information between the divisions in order to maximize the global profits of the firm. However, the high degree of objectivity of a mathematical formula to provide a quantitative solution should not be overseen and could serve as a focal point for the discussion regarding alternative methods to arrive at arm's length prices.

The argument derives from the fact that although the full cooperation between the different divisions of a multinational enterprise and the includment of central management could never be seen as identical (not even similar) to how independent enterprises would conduct business, the right mathematical formula could provide results of equal results of equal relative comparability. This would originate from the high degree of objectivity deriving from the game theoretical approach of the original Nash bargaining solution. To further expand on this theoretical discussion, the origin of the solution needs to be discussed in the light of the intentions behind the arm's length principle.

As described, the negotiated transfer pricing method can be viewed as a laissez-faire system. The negotiators in this game theoretical approach mutually need to agree on all relevant terms of a negotiation showing similarities to an actual negotiation between independent enterprises. To reach all the way back to the description of the problem, similarities to an uncontrolled transactions and the connected negotiation emerge. Both parties aims to create a deal that to the highest degree possible fulfills both their opposing and overlapping interests and will not, in general, accept a deal that is worse then their BATNAs. This creates a range of possible outcomes between the parties' BATNAs from where different ratios of the respective party's interests are fulfilled. If we analyse this together with how an uncontrolled transaction is negotiated multiple similarities can be spotted, all deriving from the structure of the game theoretical approach and the premises/axioms set by John Nash.

The game theoretical approach do require that all information is shared by the parties to a controlled transaction in direct contradiction to how an actual uncontrolled transaction would be conducted. However, it can be argued that the reasons behind this fact is to enable a quantitative solution that calculates how independent parties would have negotiated under comparable circumstances, resulting in a solution of equal relative comparability to one of a recognized method. The structure of the problem together with the presented axioms by John Nash do argue in favour of this solution based in the actual outcome and not the applied method. A game theoretical approach using the John Nash bargaining solution take in regard both the parties BATNAs, their utility curve over preferred outcomes and the axioms as already presented providing a fictive framework for calculating an objective outcome for how independent parties would negotiate. This is the origin of the argument that the game theoretical approach and a solution to the transfer pricing problem emerging from the John Nash bargaining solution

can result in a similar outcome (transfer prices) to the methods acknowledged by the OECD.

However, provided that the utility functions and other aspects of the game theoretical approach can be relatively accurately assumed and thus calculated it may not result in a solution of equal comparability to how independent enterprises actually would price their goods i.a.. Although the intentions behind seeking a business-optimal transfer price may not be by default in direct contradiction to the intentions behind the transfer pricing legislation, and the argument originating from an objective mathematical standpoint determined by game theory, it can be argued that without the limitation of legally authorized boundaries similar to that of the solution, the results would in most cases appear to erode the tax revenues of countries with higher corporate tax rates, i.a. and result in an outcome that contradicts the purpose of the arm's length principle.

The conclusion derives from the assumption that if no legally authorized boundaries would be included in the solution, taking advantage of the differences in tax rates between countries could enable a larger maximization of the global profits of a multinational enterprise than the effect of the decentralization. This is a fact because the calculation presented in the solution strives for an outcome that maximizes the global profits of the firm and will always be determined in parts by the tax the multinational enterprise is obliged to pay.

However, it is not argued, that a method to calculate the transfer pricing of a controlled transaction, deriving from a game theoretical approach using the John Nash bargaining solution, cannot lead to an outcome that is of equal relative comparability to any of the methods recognized by the OECD. It goes beyond the scope of this paper to fully analyse if a quantitative approach like that could serve as an alternative to the methods recognized by the OECD because as of right now, no mathematical research has been done to provide backup for an analysis of this nature. In the light of the reasoning above, it would be interesting for future research to conduct a interdisciplinary research where it is analysed if there could be an alternative way to satisfy the arm's length principle by calculating the transfer prices using the John Nash bargaining solution.

5.3 Conclusion

To conclude, this research shows that the solution presented by Clempner and Poznyak in 2017, could under specific circumstances and under multiple prerequisites be accepted from a transfer pricing tax perspective.

The argumentation mostly derives from a use of the arm's length range together with statistical methods of central tendency that can be converted to a maximum and minimum legally authorized boundaries to insert in the computation of the solution. Without the maximum and minimum legally authorized boundaries the structure and approach of the solution in itself can not be determined to conform to the arm's length principle. Although the intentions are not in direct contradiction, the arm's length characteristics of the formula is compromised since the intention of the solution is to maximize the global profits and not to calculate a transfer price that is in accordance with the arm's length principle.

6 Bibliography

A. Articles

Clempner, Julio B. and Alexander S. Poznyak. "Negotiating transfer pricing using the Nash bargaining solution." *International Journal of Applied Mathematics and Computer Science* 27.4 (2017): 853-864.

Edlin, Aaron S. and Stefan Reichelstein. "Specific investment under negotiated transfer pricing: An efficiency result." *Accounting Review* (1995): 275-291.

Enzer, Hermann. "The static theory of transfer pricing." *Naval Research Logistics Quarterly* 22.2 (1975): 375-389.

Hirshleifer, Jack. "On the economics of transfer pricing." *The Journal of Business* 29.3 (1956): 172-184.

Jennergren, L. Peter. "The divisionalized firm revisited—A comment on Enzer's “the static theory of transfer pricing”." *Naval Research Logistics Quarterly* 24.2 (1977): 373-376.

Kanodia, Chandra. "Risk sharing and transfer price systems under uncertainty." *Journal of Accounting Research* (1979): 74-98.

Nash Jr, John F. "The bargaining problem." *Econometrica: Journal of the Econometric Society* (1950): 155-162.

Rombolotti, Alessio and Pietro Schipani. "International-Resale Price and Cost-Plus Methods: The Expected Arm's Length Space of Coefficients-In this article, the resale price and cost-plus methods are considered from the perspective of the manufacturer and the seller, and it will be shown that these two perspectives, in fact, lead to one single framework underlying the setting of transfer prices." *International Transfer Pricing Journal* 19.3 (2012): 186.

Vega, Alberto. "International governance through soft law: The case of the OECD transfer pricing guidelines." *Working Paper of the Max Planck Institute for Tax Law and Public Finance* No. 2012-05 (2012).

B. Literature

Anthony, Robert Newton, Vijay Govindarajan and John Dearden. *Management control systems*. Vol. 9. Boston, MA: Irwin McGraw-Hill, (1998).

Fisher, Roger, William L. Ury and Bruce Patton. *Getting to yes: Negotiating agreement without giving in.* Penguin, (2011).

Henshall, John. *Global transfer pricing: principles and practice*. Bloomsbury Publishing, (2016).

Lodin, Sven-Olof, Gustaf Lindencrona, Peter Melz, Christer Silfverberg and Teresa Simon-Almendal. *Inkomstskatt–en läro-och handbok i skatterätt - Del 2.* 16u. Studentlitteratur Lund (2017).

Nääv, Maria, and Mauro Zamboni. *Juridisk metodlära.* Studentlitteratur, 2nd Ed. (2018).

The Oxford dictionary of business, 2nd Ed., (1996).

C. Legal Sources and Preparatory Works

Convention on the Organisation for Economic Cooperation and Development, Paris 14th December 1960.

Model Tax Convention on Income and on Capital: Condensed Version 2017.

D. Online Resources.

Neighbour, John. (2002) "Transfer pricing: Keeping it at arm's length", *OECD Observer No 230*. Accessed 02-04-2019, Available online: [www.oecdobserver.org/news/archivestory.php/aid/670/Transfer_pricing:_Keeping_it_at_arms_length.html].

OECD Releases New Guidance on the Application of the Approach to Hard-to-Value Intangibles and the Transactional Profit Split Method under BEPS Actions 8-10. OECD, Accessed 02-04-2019, Available online: [www.oecd.org/tax/transfer-pricing/oecd-releases-new-guidance-on-the-application-of-the-approach-to-hard-to-value-intangibles-and-the-transactional-profit-split-method-under-beps-actions-8-10.htm].

OECD Legal Instruments OECD. Accessed 02-04-2019, Available Online: [www.oecd.org/legal/legal-instruments.htm].

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT - TRANSFER PRICING METHODS JULY 2010, OECD. Accessed 02-04-2019, Available online: [www.oecd.org/tax/transfer-pricing/45765701.pdf].