

Transfer Pricing: General Model for Tax Planning

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Abstract

All MNEs generate their revenues through a business model which have a certain organization of functions performed, assets used and risks assumed. Nevertheless, the changes in economic environment have resulted into the situation, when all governments have been increasingly focused on raising revenues through taxation and conversely many MNEs have been focused on decreasing of their taxable business income with using various means. One possibility how to achieve it for both sides is a transfer pricing. The aim of the paper is to create a general model, under which the MNEs could decide for the best business model within the frame of the tax planning, but which would also enable to quantify the impacts on the state budget resulting from that tax planning strategy. Furthermore, the general model determinates more accurate arm's length transfer prices in the business model with respect to recommendations in OECD TP Guidelines, particularly functional and comparability analysis.

Keywords: *transfer prices, arm's length principle, tax burden, tax revenues, business model*

JEL Classification: F23, H21, K33, K33, H20

Introduction

The effect of worldwide crisis, recession and current slowly recovering of EU economy characterized by the budget deficits in EU Member states, resulted into the situation, when many entities are being restructured or transformed into the multinational entities (hereinafter as MNEs) with different business models. Furthermore, due to the above mentioned reasons and since MNEs often find out that it is impractical and inefficient to replicate a service function or capability within each of their legal entities, the need for reposition functions, assets and

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risks inside of the business models accelerates. This has an effect on the transfer pricing policy and on the overall effective tax rate of the consolidated organization. This reposition usually covers the relocation of high-value-added functions, risks and assets, as well as relocation of associated profit potentials to low tax jurisdictions with the transformation of a full-fledged manufacturer into a contract manufacturer or a toll manufacturer, the conversion of a full-fledged distributor into a limited-risk distributor or a commissionaire, the rationalization or specialization of operations, and the transfer of intangibles to a central entity.

Nowadays, the changes in economic environment resulted into the situation, when all governments are increasingly focused on raising revenues through taxation and simultaneously many MNEs are focused on decreasing of their taxable business income with application for various means. One possibility how to achieve the goal for both sides (tax authority, MNEs) represents transfer pricing. Therefore tax authorities see *transfer pricing* as a potential source of increase in tax revenues. As the practice shows, GlaxoSmithKline was assessed a USD 2.7 billion U.S. tax deficiency notice, arising from transfer pricing disputes in 2004. As a result of this situation, the MNEs are forced to adopt a more proactive stance which defends their transfer pricing policy which is in accordance with the rules laid down in the national income tax law, especially the arm's length principle.

The arm's length principle was established to protect the manipulation of transfer price and represents the principle used on international tax field. Under this principle, associated enterprises have to set transfer pricing for any intra-group transaction in the same amount as they would be conducted by unrelated entities and all other aspects of the relationship would be unchanged. The principles are laid down in Art. 9(1) of the OECD Model Tax Convention on Income and on Capital (hereinafter as OECD Model Treaty) and also in Art. 9 of the United Model Double Taxation Convention between Developed and Developing Countries (hereinafter as UN Model Treaty) in an identical form.

In order to apply the arm's length principle in practice, the OECD published the Transfer Pricing (TP) Guidelines for Multinational Enterprises and Tax Administrations (hereinafter as OECD TP Guidelines)¹ that provide guidance for the application of the arm's length principle to the pricing for tax purposes and to the cross-border transactions between associated enterprises. Namely the OECD TP Guidelines set forth a series of accepted methodologies how to determine the arm's length price – the comparable uncontrolled price method (hereinafter

¹ A limited update of OECD TP Guidelines was made in 2009, primarily to reflect the adoption of update of the *Model Tax Convention* in the 2008. In the 2010 edition, Chapters I – III were substantially revised and a new Chapter IX, on the transfer pricing aspects of business restructurings, was added.

as CUP), resale price method (hereinafter as RPM), cost-plus (hereinafter as COST+) method, profit split method and transactional net margin method (hereinafter as TNMM).

The aim of the paper is to create a general model, under which the MNEs could decide for the best business model within the frame of the tax planning, but which would also enable to quantify the impacts on the state budget resulting from that tax planning strategy. Empirical analysis based on dataset selected from the Amadeus Database is going to be performed in order to construe the general model. That type of model determinates more accurate arm's length transfer prices in the business model with central entrepreneur in EU with respect to recommendations in OECD TP Guidelines, particularly functional and comparability analysis. The result of this, is more accurate profit distributions among European jurisdictions covered into the controlled transactions between MNEs. In addition, the general model covers the manufacturing and distributing entities.

Theoretical Background and Methodology

As defines (Herksen, 2009), transfer pricing represents the specialization within the field of international and corporate tax law aiming to determine the arm's length transfer price for the products and services sold or rendered between associated companies.² The term *arm's length* means *fair value* or *market value* or a value that is not influenced upwards or downwards by the relation between the companies. The ability to set internal prices³ that differ from market prices represents a good indicator of such relationships. Further (Bronson, Johnson and Sullivan, 2010) mention that the transfer price has an effect on the taxable income reported by the legal entities involved in the transaction and on the overall effective tax rate of the consolidated organization. This occurs when business operations are shifted between the jurisdictions with different statutory tax rates, as mention (Tierney et al., 2009).

However, when MNEs set transfer prices for intercompany transactions they may seek to maximize their expected world income by adjusting the reported transfer prices upward or downward. As mentions (Swenson, 2001) the direction of adjustment for transfer prices depends on the tax system governing the MNEs, tax rate differential between the home and host country locations, and any relevant product tariffs.

² Associated companies/related persons should be defined as including two or more companies/persons that are owned or controlled, directly or indirectly, by the same interests.

³ These internal prices are called transfer prices.

All MNEs operating in the world generate their revenues through a business models, therefore in order to be successful it is very important to select a business model carefully. There are several business models, some are industry-specific and some are more general, for example *McDonald's* as a commercial business model for fast food chains or franchises, *Tupperware* as a specific business model for multi-level marketing organizations, *Richard Branson's Virgin Atlantic Airways* as a prize-fighter airline company, *IKEA* as a commercial business model for co-produced home furnishings and others models where are shared entrepreneurial risk or service provider models used in the telecommunications industry (Herksen, Nerudova and Solilova, 2012).

However, none of the business models is ever lasting, all business models are facing changes in economic environment. A business model that worked in the past will not remain successful forever. Therefore it is necessary for the company to constantly monitor the business model. As mentions (Bakker, 2009) all business models have a certain organization of *functions performed, assets used and risks assumed* in the value chain of getting the products to customer. And, as author states further, the essential functionalities of these business models can be divided into three categories: the manufacturer, the distributor and the service provider.⁴ The fact whether MNE operates within the multinational group as a manufacturer, distributor or service provider has the effect on the taxation of that entity and the group, and further on the transfer prices because within the business models it is possible to use the transfer pricing as a tax planning tool and to decrease the overall effective tax burden of the consolidated organization. Due to the fact that the current literature of business models provides a view which is limited just on its organizational structure, the paper tries to employ tax planning aspect into the business model and to create unique general business model for tax planning.

To reach the aim of the paper, the research was divided into six steps. Firstly, the business model with assumptions and limitations was determined. Further, to quantify the profit margin for distributing entity and the mark up on total costs for each of different forms of manufacturing entity from the business model, the data from the Amadeus Database⁵ were used. In addition, it was necessary to identify before the determination of the arm's length range itself, the form of the manufacturing⁶ subsidiary and the form of the distributing⁷ subsidiary. The

⁴ Description of individual types of business model for the transfer pricing purposes will be mentioned in chapter *Evaluation of controlled transactions*.

⁵ Amadeus database contains comprehensive financial and basic textual information on European companies across Europe (45 European countries). Amadeus database has a few modules: Very Large & Large, Very Large & Large & Medium size and the last one All companies.

above stated was followed by the determination of the arm's length ranges for manufacturing and distributing entities for the period of five or three years and by the identification of the average arm's length range. Consequently, the transfer prices for the different legal forms of subsidiaries (manufacturing and distributing) and their impacts on tax burden and tax revenues were determined. Finally, as the last step, the selection of the most suitable situation for each of participant was done.

Evaluation of Controlled Transactions and Business Models

It is recommended by the OECD TP Guidelines to apply for the evaluation of controlled transactions in case of manufacturers cost plus method (hereinafter COST+) or transactional net margin methods (hereinafter TNMM). The arm's length transfer price should reflect the actual functions performed, risks assumed⁸ and assets used.⁹ Those should be always analyzed together in order to determine how the business model (manufacturer, distributor) operates in practice. There are different types of manufacturers and distributors.

The toll manufacturer represents an entity with little or no risk which is not responsible for activities as production scheduling, procurement of raw material, quality control, logistics, consumer sales or collection of revenues. The toll manufacturer does not own valuable intangibles, operates on the basis of a guaranteed volume arrangement and does not have legal title to the raw materials, work-in-process and the final products manufactured. The principal (parent company) binds itself by manufacturing contract to buy a certain quantity of goods over a certain period of time for a certain price. As mention (Clark, Mitra and Mensch, 2008) this "certain price" is typically set as standard cost plus mark up. The toll manufacturer is considered as a service provider that is selling its services and manufactured products.

The contract manufacturer performs manufacturing functions on a contract basis for a principal company. It represents the form of outsourced manufacturing where the contract manufacturer is responsible for holding current technology requirements, machinery and procedures in order to preserve the competitiveness.

⁶ There are several types of manufactures: toll manufacturer, contract manufacturer or full-fledged manufacturer.

⁷ There are several types of distributors: the full-fledged distributor, the limited-risk distributor, commissionaire and commission agent.

⁸ Typical risks include inventory risk, market risk, operational risk, supply risk, warranty risk, credit risk, R & D risk, foreign exchange risk and liability risk.

⁹ The type of assets and nature of the assets are relevant factors. Important assets include working capital, plant and equipment and valuable intangible assets. The nature of assets used includes property rights, age, market value and so on.

The contract manufacturer is also considered as a service provider. There are no differences between the toll and contract manufacturers, however from a functional perspective, the toll manufacturer does not have legal title to final products and the contract manufacturer has more responsibilities.

As mention (Bakker, 2009; Bronson, Johnson and Sullivan, 2010), the full-fledged manufacturer assumes a process where the relevant elements are all handled by the manufacturing entity itself and performed for its own risk and reward.

Thus, manufacturing entities perform routine functions. A toll or contract manufacturers are usually remunerated on a cost plus basis (COST+ method) as mention (Bakker, 2009; Clark, Mitra and Mensch, 2008; OCED TP Guidelines). Furthermore (Mehta, 2005) mentions that the COST+ method is typically used for evaluation of rendering of services by the service provider to the service recipient, where the service recipients incurs limited economic risk in the transaction. However, in practice benchmarking difficulties may require the application of the cost-based TNMM method. This method is based on a modified COST+ method at the operating profit level, considering return on total costs rather than return on cost of sold goods which is measured if the COST+ method is applied at the gross profit level, as states (Wittendorff, 2010). Furthermore, as mentions (Bakker, 2009) in the case of full-fledged manufacturer not using valuable intangible assets,¹⁰ it is also possible to apply COST+ or TNMM methods. In general, it is considered that the mark up on total costs based on the TNMM¹¹ method is the most reliable indicator of the arm's length profits earned by independent manufacturers, as mention (Clark, Mitra and Mensch, 2008; Bakker, 2009).

On the other hand, in the case of distributing entities performing routine functions, as a commissionaire, agent or limited-risk distributor, the application of COST+ method and cost-based TNMM method is usually unsuitable. Thus, in that case should be applied resale price method (hereinafter RPM¹²) under which

¹⁰ In the situation, when the full-fledged manufacturer uses valuable intangible assets is better to apply the profit split method.

¹¹ Mark up on total costs or so-called cost-based TNMM (or Net profit mark up, net cost plus method) is determined as *Operating profit or loss/Total costs*. Total costs are calculated by subtracting *Operating profit and loss* form *Operating Revenue/Turnover*.

¹² Paragraph 2.21 OECD TP Guidelines states that the resale price method is probably most useful where it is applied to marketing operations however Art. 2(22) states, that where the reseller is carrying on a general brokerage business, where we can rank search activity and conducting business on behalf of a principal, the resale price margin may be related to a brokerage fee, which is usually calculated as a percentage of the sales prices of the product sold. The determination of the resale price margin should take into account whether the broker is acting as an agent or a principal. Moreover Art. 2(29) states, that the resale price margin is easiest to determine where the reseller does not add substantially to the value of the product.

the transfer price is determined after deducting the gross margin from the sales price, or sales-base TNMM method, under which the transfer price is equal to the selling price minus cost of sales and net profit margin (in the case of the commissionaire zero costs enter into the calculation as commissionaire never owns the goods, i.e. never purchase it).

Limited-risk distributor represents entity which takes over only lower risk of short-term transition of ownership, when the parent company provides a standard marketing support. Limited-risk distributor performs only sales with the use of its physical assets, where neither market risk, currency risk, credit risk, risk warranty nor the risk of unsalable stocks are born.

However, the limited-risk distributor trades on its own account, as well as negotiate the terms of sale for local customers. As mentions (Bakker, 2009) lower reward would belong also for these narrowly defined distribution activities of the company.

Commission agent or commissionaire performs distributing activities based on the commission contract. This contract is concluded by its name on behalf of principal (mother) sales contracts with customers. Basically, it is a providing of services to the commission, when most of the risk is still borne by a principal, as mentions (Bakker, 2009). In this situation the commission agent/commissionaire cannot realize a loss. Moreover, in case of commissionaire the ownership rights never passes unlike the distributor.

The full-fledged distributor as a strategic entity owns all the tangible assets necessary for selling products and supplies, and intangible assets necessary for the marketing. Thus the full-fledged distributor performs all the sale and distribution functions and bears all risks, for which he receives higher reward.

As states (Kratzer, 2008), for testing the arm's length principle under TNMM method, tested MNE needs to be selected. The selection process should be managed by the availability of the reliable data on the most closely comparable transactions. The tested MNE should only perform routine functions – e.g. a commissionaire or commission agent, limited-risk distributor, toll or contract manufacturer, or an enterprise responsible for contract research and development.

Profit Level Indicators under TNMM

There are available a number of different profit indicators for an arm's length test under TNMM. Namely, as states (Kratzer, 2008) *operating margin*, *Berry ratio*, *net cost plus*, and *return on operating assets*. The selection of the most suitable net profit indicator should be aimed at the selection of the most suitable method according to the circumstances of the case.

One of the most frequently used profit level indicators represents the operating (profit) margin, which is defined as

$$\text{Operating profit/Sales}^{13} \text{ or } \text{Operating revenue} * 100 \quad (1)$$

and is suitable for measuring profitability in case of distributors.

However, in case of service companies or toll/contract manufacturers different profit level indicator is suitable, namely the *mark up on total costs*, which can be defined as

$$\text{Operating profit/Total costs}^{14} * 100 \quad (2)$$

and measures the profitability of an enterprise to its total costs which can be defined as

$$\text{Operating Revenue/Turnover} - \text{Operating Profit or Loss}^{15} \quad (3)$$

or as

$$\text{Cost of goods sold} + \text{Operating Expenses} \quad (4)$$

The cost-based TNMM method is the most reliable indicator of the arm's length profits earned by independent manufacturers. However, cost-based indicators should only be used in cases where costs are a relevant indicator for the value of the functions performed, assets used and risks assumed by the tested party. In addition, the determination of costs, which should be included in the cost base, should be derived from a careful review of the facts and circumstances of the case. Total costs are often used when applying a cost-based TNMM, under which the net profit indicator is weighted against costs. These costs include all the direct and indirect costs attributable to the activity or transaction, together with an appropriate allocation and with respect to the overheads of the business (manufacturing, selling and administrative overheads).¹⁶

The sales-base TNMM method represents the most reliable indicator of the arm's length profits earned by independent distributors where it is not possible to use the RPM method.

¹³ In case that the states have defined an indicator of Sales (hereinafter SALES), which is more accurate because it includes only sales of goods sold and sales of own products and services, unlike and Operating revenue, it is necessary to use this indicator. In that case, United Kingdom or Denmark do not specify this indicator, therefore operating revenue, which is more comprehensive has to be used.

¹⁴ Hereinafter as Operating P/TC.

¹⁵ Hereinafter as Operating P/L.

¹⁶ Profit indicator is considered as net profit indicator because costs also include operating costs such as generally administrative expenses related to production function. Net profit does not mean net profit after taxation.

Identification of the Form of the Subsidiary

To identify the form of the manufacturing and distributing subsidiary, it is firstly necessary to select the manufactures and the distributors from the Amadeus database.¹⁷ The criteria as similar manufacturing process according to NACE classification, namely code 10, active companies operating in the EU-27 and with BvD independence indicator A+, A, A⁻¹⁸ were used for the manufacturers. Moreover, into the selection were covered following indicators: cost of goods sold, operating revenue, other operating expenses and operating P/L according to the state of headquarters. The same criteria were used for the distributors, only NACE codes were changed (on 461 code which is related to the activities of distributors) and other criteria as cost of employees were added. Based on the above mentioned conditions, the dataset of 174 manufactures and 78 distributors was created.

Furthermore, a deep research of all selected subjects in the Amadeus database was performed. In order to guarantee the validity of the indicators, it was checked that all the selected subjects do record the absolute values of indicators for all selected years (five years¹⁹). The subjects with a negative result of operating P/L in selected years were excluded. The reason behind is that any independent entity would not continue with its business activities if only losses would be generated. In order to obtain higher validity of the results, all extreme values were excluded.

It is also necessary to determine the form of the *manufacturing subject* – i.e. toll/contract manufacturer or full-fledged manufacturer. The determination was done by the application of the following indicators:

$$\text{Other operating expenses/total costs (hereinafter as OPEX/TC)} \quad (5)$$

$$\text{Total costs} = \text{operating Revenue} - \text{Operating P/L}^{20} \quad (6)$$

$$\text{Cost of goods sold/total costs (hereinafter as CGS/TC)} \quad (7)$$

$$\text{Cost of goods sold/operating Revenue (hereinafter as CGS/OPREV)} \quad (8)$$

The above calculated ratios were used to classify the subjects on the toll/contract manufacturer and full-fledged manufacturer. Based on the results of the correlation analysis (Table 1 below), which identified strong collinearity²¹ between

¹⁷ For the description of the date in Amadeus database see No. 7.

¹⁸ BvD Independence indicator presents the independence of the company, it means that none of shareholders of company having more than 25% of direct or total ownership.

¹⁹ Generally, under normal circumstances, it is sufficient to include the period from two to three years. However, due to worldwide crisis which has started in 2007 it is suitable to include a longer period with data covering also the crisis.

²⁰ Hereinafter as OPREV – Operating P/L.

²¹ Due to multicollinearity were excluded from the analysis OPEX/TC and CGS/TC indicators.

OPEX/TC and CGS/TC indicators and OPEX/TC and CGS/OPREV indicators, can be assumed that the classification of manufactures is more related to CGS/OPREV indicator. This is supported by the fact that OPEX/TC and CGS/TC are not statistically significant to Operating P/L/TC. Furthermore, there was also identified statistically significant negative correlation of CGS/OPREV indicator to Operating P/L/TC indicator. In addition, there was set the null hypothesis that value of CGS/OPREV indicator with relation to Operating P/L/TC indicator is similar in the case of all comparable subjects without consideration of functions performed and risk assumed. The null hypothesis will be tested through t-test.

Table 1

The Correlation Analysis of Manufacturers

Variables	The results of correlation analysis Statistically significant values are in bold, $p < 0.05000$ N = 94			
	Operating P/L/TC	OPEX/TC	CGS/OPREV	CGS/TC
Operating P/L/TC	1.000000	0.039133	-0.338472	-0.040520
OPEX/TC	0.039133	1.000000	-0.941482	-0.989493
CGS/OPREV	-0.338472	-0.941482	1.000000	0.950754
CGS/TC	-0.040520	-0.989493	0.950754	1.000000

Source: Own calculation and processing.

Furthermore, the multiple regressions was performed to research the relationship between independent variables. However due to the identified multicollinearity of some indicators, CGS/OPREV indicator and dependent variable Operating P/L/TC were researched through regression in details. The results of the regression analysis for manufacturers are stated in Table 2. As can be seen p-level is extremely small and R-Square reaches small value, but due to excluding multicollinearity of indicators represent R-Square higher validity. There was identified negative relationship between the indicator CGS/OPREV and dependent variable (Operating P/L/TC) which is statistically significant ($p = 0.00085$).

Table 2

The Multiple Regression of Manufacturers

Independent variables	The results of multiple regression with the dependent variable: Operating P/L/TC Statistically significant values are in bold. $R^2 = 0.11456327$			
	b	standard error from b	t(92)	p-level
Constant	15.82794	3.471277	4.55969	0.000016
CGS/OPREV	-0.15764	0.045690	-3.45015	0.000848

Note: R^2 means *R-Square*, also known as the *Coefficient of determination*. The *R-Square* value represents an indicator of how well the model fits the data (e.g., an *R-Square* close to 1.0 indicates that we have accounted for almost all of the variability with the variables specified in the model); Indicator "b" means coefficient of the multiple regression analysis; t(x) represents t-test.

Source: Own calculation and processing.

Based on the results of the multiple regressions and t-test, the null hypothesis can be rejected. This means that the indicator CGS/OPREV does not reach the similar value in case of all comparable subjects. Therefore it can be used for the classification of different forms of manufactures – e. g. relatively higher value reaches the indicator in case of the toll/contract manufacturer. This is connected mainly with the fact that the toll manufacturer does not own the raw materials, property rights for products/inventory or any specific intangible assets and does not bear any specific functions. He only performs the production function, produces pre-agreed number of customized products with little or no risk and generates stable operating profit. Thus, the indicator CGS/OPREV reaches higher value (including almost all incurred costs) and indicator Operating P/L/TC should reach lower value. The reason for that is that the cost of goods sold, represents almost all incurred costs and revenues reflecting the compensation for functions performed and risk borne connected with generating stable operating profit.²²

For the determination of the form of the *distributing subject* – full-fledged distributor, limited-risk distributor, commission agent or commissionaire, other indicators were added to the previous indicators:²³

$$\text{Material cost/total costs (hereinafter as MC/TC)}^{24} \quad (9)$$

$$\text{Cost of employees/operating Revenue (hereinafter as CE/OPREV)} \quad (10)$$

The above calculated ratios, namely CE/OPREV, OPEX/TC, CGS/OPREV were used for classification of distributors. Correlation analysis (Table 3 below) revealed statistically significant negative correlation between CE/OPREV and Profit margin indicators. Furthermore there was identified strong collinearity between OPEX/TC and CGS/OPREV indicators and OPEX/TC and CE/OPREV indicators.²⁵ Based on these results, it can be assumed that the classification of distributors is related only with CE/OPREV due to excluding of others indicators with identified multicollinearity and statistically not significant correlation to Profit margin. In addition, there can be set the null hypothesis that the value of

²² The toll manufacturer does not own the raw materials, property rights for products/inventory or any specific intangible assets and does not bear any specific functions. He only performs the production function with little or no risk and generates stable operating profit.

²³ For the determination of distributing subject are needed the previous indicators (5) (6) and (8).

²⁴ Material costs have defined only some European countries namely Bosnia, Croatia, Finland, France, Lithuania, Serbia (including the item cost of goods sold) and the Czech Republic, Germany, Netherlands, Belgium and Italy (not including the item cost of goods sold) and other states (not at all defined item). However, in our case this indicator is not defined, so it is not used.

²⁵ Due to multicollinearity were excluded from the analysis OPEX/TC and CGS/OPREV indicators.

CE/OPREV indicator with relation to Profit margin is similar in the case of all comparable subjects without consideration of functions performed and risk assumed. This null hypothesis will be tested through t-test.

Table 3

The Correlation Analysis of Distributors

Variables	The results of correlation analysis Statistically significant values are in bold, $p < 0.05000$ N = 56			
	profit margin	OPEX/TC	CE/OPREV	CGS/OPREV
Profit margin	1.000000	-0.194267	-0.441039	-0.006324
OPEX/TC	-0.194267	1.000000	0.810660	-0.968771
CE/OPREV	-0.441039	0.810660	1.000000	-0.700907
CGS/OPREV	-0.006324	-0.968771	-0.700907	1.000000

Source: Own calculation and processing.

Furthermore, the multiple regressions was performed to research the relationship between independent variables (OPEX/TC, CGS/OPREV and CE/OPREV) and dependent variable Profit margin. As was already mentioned above, some of the indicators were excluded due to the multicollinearity, therefore only indicator CE/OPREV and dependent variable (Profit margin) were researched. The results of the regression analysis are stated in Table 4 below. As can be seen p-level reaches extremely small value as well as R-Square. Due to the elimination of the multicollinearity, R-Square represents higher validity. The analysis revealed negative relationship between CE/OPREV and dependent variable (Profit margin) and it is also statistically significant ($p = 0.0006$).

Table 4

The Multiple Regression of Distributors

Independent variables	The results of multiple regression with the dependent variable: Operating P/L/operating revenue (Profit margin) Statistically significant values are in bold. $R^2 = 0.19451501$			
	b	standard Error from b	t(54)	p-level
Constant	11.22994	2.976647	3.77268	0.000403
CE/OPREV	-0.36837	0.102009	-3.61114	0.000668

Note: R^2 means *R-Square*, also known as the *Coefficient of determination*. The *R-Square* value represents an indicator of how well the model fits the data (e.g., an *R-Square* close to 1.0 indicates that we have accounted for almost all of the variability with the variables specified in the model); Indicator "b" means coefficient of the multiple regression analysis; t(x) represents t-test.

Source: Own calculation and processing.

Based on the results of multiple regressions and t-test, the null hypothesis can be rejected. This means that the indicator CE/OPREV does not reach the similar value in case of all comparable subjects. Therefore it can be used for the

classification of different forms of distributors (e. g. relatively lower value of CE/OPREV indicator refers to the commission agent/commissionaire). This is connected mainly with the fact that commission agent/commissionaire performs only the distribution function with little or no risk through minimum numbers of employees and generates stable operating profit.

In addition, as mentions (Mehta, 2006) limited distributors and commission agent may have interchangeable forms of doing business. The primary difference between these two forms of distribution is the choice of handling of finished goods (while a distributor would take title to the goods, a commission agent would not do so). The limited distributor's remuneration will basically be a margin on sales of goods, the limited distributor enjoys a margin that it earns as the difference between purchase and sales cost. Consequently, the margins of a commission agent would be lower than those of a distributor as mentions (Mehta, 2006). This fact should be taken into account when the profit margin is calculating.

A Determination of Arm's Length Range

The determination of arm's length range represents the last step in the transfer pricing methodology. As mention (Tierney et al., 2009) return-on-sales or cost-plus mark-up are determined based on factors such as the type of the services or activities performed and the level of risk assumed, and can vary across industries and companies as the nature of the underlying determining factors may differ slightly or widely. Therefore, entities perform a comparability analysis which compares the entity's transfer pricing return-on-sale or cost-plus percentage with those of its competitors, in the same or similar industry or with similar functional profiles. Based on the results of the comparability analysis, a range of acceptable percentages is provided and is called an arm's length range. In addition, as mention (Kratzer, 2008) the application of interquartile range is required by many tax administrations and also recommended, because it eliminates extreme results and increases the reliability of the comparison of the results. The interquartile range represents a range from the 25th to the 75th percentile of the results derived from the uncontrolled transactions – only those 50% of observations which are closest to the median are considered as a reliable range of arm's length results. However, it is suitable to determine the 10% percentile and 90% percentile (outliers as extreme values are excluded) but the rest of the observations are kept to avoid the loss of 50% of the observations. If the margin of the tested party (in this case the mark up on total costs and profit margin) falls within this determined range, it can be concluded that the arm's length principle is met.

Results and Discussion

The determination of the net mark up on total costs of manufacturers and net profit margin of distributors through comparability analysis represents the crucial fact for the calculation of the arm's length transfer prices. Amadeus Database was used as data source for quantifying the net mark up on total costs and the net operating profit margin. It was necessary to filter the data, mainly to select the companies of similar manufacturing and distributing process²⁶ according to *NACE classification code, active companies operating in the EU, the independency of subjects (BvD indicator) and the availability of the necessary financial data (operating P/L, other operating expenses, cost of employees and cost of goods sold)* under the methodology already described above. Further, the financial indicators were determined and consequently, the different forms of manufacturers and distributors were identified under the methodology already described above. Finally, the arm's length range was determined for toll/contract manufacturers, full-fledged manufacturers and manufacturers (without consideration of functional profile). In this case the ratio in the form of net mark up on total cost was used, which is typical for evaluation of the profitability of manufacturing entities. The result is summarized in the Table 5.

Table 5

The Average Arm's Length Range for Manufacturer*

Net mark up total costs = net operating profit/total costs (%)			
	toll/contract manufacturer	full-fledged manufacturer	manufacturer***
10% percentile	0.90	-2.54**	-1.61
1. quartile	1.68	0.96	1.26
Median	3.04	4.18	3.90
3. quartile	4.90	7.86	7.15
90% percentile	6.80	12.34	11.19

* Data in the database were for the period 2005 – 2009. ** Negative result of net mark up total costs occurs due to data covering also the crisis. *** Manufacturer without consideration of functions performed, assets used and risk assumed.

Source: Amadeus Database; own processing.

Furthermore, the arm's length range was used to categorize different types of distributors on commission agent/commissionaire, limited-risk distributors, full-fledged distributors and distributors (without consideration of functional profile). The methodology for categorization of different form of distributors with consideration of functional profile was applied by (Nerudova and Solilova, 2011). The result is summarized in the Table 6.

²⁶ The companies of similar manufacturing and distributing process are important for performing comparability analysis that compares entities from similar industry (the same NACE code) and with similar functional profiles.

Table 6

The Average Arm's Length Range for Distributor*

Net profit margin = net operating profit/operating revenue ²⁷ (%)				
	commission agent/ commissionaire	limited-risk distributor	full-fledged distributor	distributor***
10% percentile	0.04	0.83	-2.81**	-0.87**
1. quartile	0.36	2.85	-0.25**	0.66
Median	0.92	3.77	2.79	2.88
3. quartile	1.90	6.14	6.54	5.37
90% percentile	3.10	8.81	11.64	8.67

* Only accessible data in the database were for the period 2007 – 2009. ** Negative result of net profit margin occurs due to data covering also the crisis. ***Distributor without consideration of functions performed, assets used and risk assumed.

Source: Amadeus Database; own processing.

As can be seen in Table 5 and 6, partial results of the average arm's length range for manufactures and distributors are very different.

Our business model consists of a central entrepreneur with different forms of the manufacturing subsidiary (toll/contract manufacturer or full-fledged manufacturer)²⁸ distributing its own products through different forms of distributing subsidiary (commission agent/commissionaire, limited risk-distributor or full-fledged distributor).²⁹

Before consideration of individual impacts of different arm's length transfer prices on the tax burden of the group, including the effects of the different arm's length transfer prices on the tax revenues, there is need to determine the assumptions and limitations of the model.

The assumptions of the model:

- parent company as a central entrepreneur performs only specific functions;
- parent company transferred necessary functions, asset used and risk assumed, to the subsidiary;
- in case of the subsidiary situated in low-tax country, parent company selects for determination of the arm's length transfer price an upper limit (90% percentile) from the arm's length range (for details see Table 3 and 4);
- in case of the subsidiary situated in high-tax country, parent company selects for determination of the arm's length transfer price a lower limit (10% percentile) from the arm's length range (for details see Table 3 and 4);

²⁷ In case that the states have defined an indicator of Sales (hereinafter SALES), which is more accurate because it includes only sales of goods sold and sales of own products and services, unlike an Operating revenue, it is necessary to use this indicator. If some states do not specify this indicator, therefore operating revenue, which is more comprehensive, has to be used.

²⁸ Manufactures were selected from NACE code 10.

²⁹ Distributors were selected from NACE code 461.

- based on the calculated arm's length range for the manufacturer, the tax authorities expect that net operating mark up on total costs should oscillate around 3.90%;³⁰
- based on the calculated the arm's length range for distributor, the tax authorities expect that profit margin should oscillate around 2.88%;³¹
- the activities of the commissionaire in the state of the distributing subsidiary do not constitute permanent establishment for parent company;
- the more functions performed, assets used and risks borne by distributor, the higher profit/loss is generated;
- double international taxation is eliminated due to the existence of Tax Treaties between states where subsidiaries are situated;
- parent company applies all the accessible tools for tax planning in order to decrease the tax liability;
- parent company and its subsidiaries operate in the perfect market competition.

The limitations of the model:

- identification of the form of the manufacturing and distributing subsidiary is based only on the external data from the Amadeus Database which does not enable the verification³² of the model;
- the subjects of transfers are indifferent and homogeneous goods;
- total costs are different for each form of the manufacturer. The more functions performed, assets used and risks borne, the higher total costs are incurred.³³

Based on the previous results, Table 7 presents more precise arm's length transfer prices for different types of manufactures and distributors. As can be seen from the Table 8 below, there are different effects of the arm's length transfer prices on the side of taxpayer (on tax burden) and consequently on the side of tax authorities (on the tax revenues of the state budget) in case of manufacturers and distributors.

³⁰ The consideration of functional profiles is not used in practice if the profit transactional method is applied. Furthermore, the tax authorities prefer using the value that oscillates around the median. It means, that the arm's length price should be determined as $\text{Total costs} + \text{Total costs} * 3.90\%$ and consequently, the tax burden as $\text{Total costs} * 3.90\% * \text{tax rate}$.

³¹ The consideration of functional profiles is not used in practice if the profit transactional method is applied. Furthermore, the tax authorities prefer using the value that oscillates around the median. It means, that the arm's length price should be determined as $\text{Operating Revenue} - \text{Cost of Sales} - \text{Operating Revenue} * 2.88\%$ and consequently, the tax burden as $\text{Operating Revenue} * 2.88\% * \text{tax rate}$.

³² As a data set was used on-line version of Amadeus database, which does not allow the verification for the data are changing (new entities are constantly added while entities in bankruptcy are deleted). It results on the fact, that arm's length ranges are different. Consequently, the determined arm's length transfer prices are also affected by this fact.

³³ For example, the full-fledged manufacturer performs all functions, uses more assets and bears all risks thus its total costs reach significantly higher value than in case of toll/contract manufacturer who bears little or no risk and its total costs are significantly lower.

Table 7

The Arm's Length Transfer Prices

Subsidiaries	The arm's length transfer price	
	low-tax country	high-tax country
Tool/contract manufacture*	$TC + TC \times 6.80\%$	$TC + TC \times 0.90\%$
Full-fledged manufacture	$TC + TC \times 12.34\%$	$TC + TC \times (0\% \text{ to } 0.96\%)**$
Commission agent/ Commissionaires	$OPREV^{***} \times 3.10\%$	$OPREV \times (0.04\%)$
Limited-risk distributor****	$OPREV - OPREV \times 8.81 - CS$	$OPREV - OPREV \times 0.83 - CS$
Full-fledged distributor	$OPREV - OPREV \times 11.64 - CS$	$OPREV - OPREV \times (0\% \text{ to } 2.79\%)\text{*****} - CS$

* The arm's length transfer prices for manufacturers are determined as TC plus mark up on total cost.

**Due to the crisis a lot of losses were generated by independent manufacturers, so the range of the possible arm's length net mark-up total costs is -2.54% to 0.96% . However, associated entities would accept rather profits than losses, thus the minimum of net mark up total costs is 0% and maximum is 0.96% .

*** The consideration of functional profiles is not used in practice if the profit transactional method is applied. Furthermore, the tax authorities prefer using the value that oscillates around the median. It means, that the arm's length price should be determined as Total costs + Total costs * 3.90% and consequently, the tax burden as Total costs * 3.90% * tax rate.

**** The arm's length transfer prices for distributors are determined as selling price minus cost of sales (hereinafter CS) and net profit margin.

***** Due to the crisis a lot of losses were generated by independent distributors, so the range of the possible arm's length of profit margin is -2.81% to 2.79% . However, associated entities would accept rather profits than losses, thus the minimum of profit margin is 0% and maximum is 2.79% .

Source: Own calculation and processing.

Effects in Case of Manufacturers

The *first situation* represents the tool/contract manufacturer, which is situated in low-tax jurisdiction. Parent company prefers to transfer higher payments in order to tax higher amount of profit in low-tax jurisdiction in the state of manufacturer. There were identified positive effects for both the state of manufacturer as well as the parent company. The state of manufacturer would receive higher amount of the tax revenues (by 2.90%) than expected. Furthermore, the parent company would record higher expenses (by 2.90%) in its accounting resulting into a lower amount of taxable income and therefore to the lower tax revenues for the tax authority (by 2.90%) in domestic state. The *second situation* represents the tool/contract manufacturer, which is situated in high-tax jurisdiction. The parent company prefers to transfer lower payments due to higher tax rate in the state of manufacturer and to tax higher amount of taxable income in the domestic state. There was identified the positive effect for parent company due to the transfer of lower amount of taxable income to the state of manufacturer (by 3.00%) and due to higher tax revenues for the tax authority in the domestic state. On the other hand, this is also connected with the negative effect for the state of manufacturer, which would receive lower tax revenues (by 3.00%) than expected. The *third situation* represents the full-fledged manufacturer, which is

situated in low-tax jurisdiction. The parent company prefers to transfer higher amount of taxable income into the state of manufacturer due to the lower tax rate. There were identified positive effects for both sides – the parent company and the state of manufacturer. The state of manufacturer would receive higher tax revenues (by 8.44%) than expected and the parent company would record lower taxable income in the domestic state. The *last (fourth) situation* represents the full-fledged manufacturer, which is situated in high-tax jurisdiction. The parent company prefers to transfer lower payments due to the higher tax rate. There was identified positive effect for parent company due to the transfer of lower amount of taxable income to the state of manufacturer (by 2.94 – 3.90%). On the other hand, the negative effect is arising for the state of manufacturer which would receive lower tax revenues (by 2.94 – 3.90% less) than expected.

Effects in Case of Distributors

In case of distributors, the *first situation* represents the commissionaires, who are situated in low-tax jurisdiction. The parent company prefers to transfer higher payments due to the fact that higher amount of profit would be taxed by lower tax rate in the state of distributor. There were identified positive effects for both, the state of distributor and the parent company. The state of distributor would receive higher amount of tax revenues (by 0.22%) than expected. Furthermore, the parent company would record higher expenses (by 0.22%) in its accounting resulting into a lower amount of taxable income and therefore into lower tax revenues for the tax authority (by 0.22%) in the domestic state. For the *second situation* which represents the commissionaires situated in high-tax jurisdiction and the *fourth* and *sixth situations* which represent the limited-risk distributor and full-fledged distributor in high-tax jurisdiction were identified same effects. The parent company prefers to transfer lower payments due to higher tax rate in the state of distributor and to tax higher amount of taxable income in the domestic state. There is arising the positive effect for parent company due to the transfer of lower amount of taxable income to the state of the distributor (by 2.84%, by 2.05% and by 2.88% to 0.09%) and for tax authority in the domestic state due to higher tax revenues obtained. On the other hand, there is arising the negative effect for the state of distributor which would receive lower tax revenues (by 2.84%, by 2.05% and by 2.88% to 0.09%) than expected. Furthermore, the analogous positive effects is arising in case of the *third* and *fifth situation*, when distributors are situated in low-tax jurisdiction, but in contrary to previous situation the positive effects were identified for parent company and state of distributor due to the transfer of higher amount of taxable income to the state of distributors (by 5.93% and 8.76%).

Table 8
The Impact of Arm's Length Transfer Prices on the Tax Burden and Tax Revenues*

Subsidiaries	Tax burden expected by tax authorities**		Model Tax burden B		Differences between A and B tax burden		
	low-tax country	high-tax country	low-tax country	high-tax country	low-tax country	high-tax country	
Tool/contract manufacturer	TC × 3.90% × t***		TC × 6.80% × t	TC × 0.90% × t	+2.90 % ¹	-3.00% ²	
Full-fledged manufacturer			TC × 12.34% × t	TC × (0% to 0.96%) × t	8.44 %³	Positive effect	Positive effect
Commission agent	OPREV × 2.88 × t		OPREV × 3.10% × t	OPREV × 0.04 × t	+0.22% ¹	-2.84% ²	
Commissionaire			OPREV × 8.81% × t	OPREV × 0.83% × t	+5.93% ³	Positive effect	Positive effect
Limited-risk distributor			OPREV × 11.64% × t	OPREV × (0% to 2.79%) × t	+8.76% ⁵	Positive effect	Positive effect
Full-fledged distributor							

* I.e. on the side of taxpayer and on the side of state (tax authority).

** Expected tax burden in case when the tax authorities would not consider of functional profiles in the individual business model.

*** t – tax rate.

¹ to ⁴ represents individual situations in case of manufacturers.

¹ to ⁶ represents individual situations in case of distributors.

Source: Own calculation and processing.

With respect to the tax planning strategy of the company, in order to decrease the tax burden, the parent company would prefer the third situation in case of manufactures and the fifth situation in case of distributors as these situations have the positive impact on the total tax liability of the group. Furthermore, with respect to the tax revenues of the tax authority of the parent company in domestic state, the fourth situation in case of manufactures and the sixth situation in case of distributors would be preferred. On the other hand, the third situation would be preferred by the tax authority of the manufacturer and the fifth situation in case of the tax authority of the distributor. As the best overall tax planning strategy for the company, can be considered (based on the results of our general model), a business model with central entrepreneur that includes a full-fledged manufacturer and a full-fledged distributor in low-tax countries, because more than 17% of its taxable income would be transferred and taxed in low-tax jurisdiction.

Conclusion

Present changes in economic environment forced governments and MNEs to focus on the more accurate arm's length transfer prices and more successful business models. The research and the above created general model show that arm's length transfer prices have significant impact on both the taxable income (and therefore on the tax burden) of entities and tax revenues of participating states in comparison with the arm's length transfer prices determined without consideration of functional profiles. As the created general model shows, the MNEs can decide for the most suitable business model within the frame of the tax planning. In our case the best overall tax planning strategy for the company can be considered a business model with central entrepreneur that includes a full-fledged manufacturer and a full-fledged distributor in low-tax countries. Based on this strategy more than 17% of taxable income would be transferred and taxed in low-tax jurisdiction. In addition, created general model quantifies the impact of the tax planning strategy on the state budget (it enables more accurate profit distribution among the involved states).

However, as was mentioned in the previous chapter, the created model faces difficulties with the verification. Firstly, the on-line version of Amadeus database does not enable the verification of the model for the data are constantly changing (new entities are added while entities in bankruptcy are deleted from the database). Consequently, the determined arm's length ranges and arm's length transfer prices are different. Secondly, the accessibility of real company data in the field of transfer pricing policy and used internal margins is nearly zero. The

only accessible data in that respect are publicly available data from the financial statements, based on which new transfer prices (according to the model) can be determined. However, as transfer prices and internal margins are part of business secrets it is not possible to perform the comparative analysis.

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