

Discussion Paper No. 03-53

**The Impact of ICT on Profit Allocation
within Multinational Groups:
Arm's Length Pricing
or Formula Apportionment?**

Anne Schäfer and Christoph Spengel

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Zentrum für Europäische
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Non-Technical Summary

Already today, the trade between affiliated companies is assessed to average out at more than 60 percent of the world trade. As this figure is supposed to further increase, the organisational form of affiliated groups becomes even more important. The increased use of information and communication technologies (ICT) leads to different changes within the organisational structures of groups of companies. First of all, an increase in the number of intragroup cross-border transactions can be observed. Besides, the products transferred or services rendered as well as the organisational structures of affiliated groups become more and more specific and, thus, less comparable. Furthermore, the importance of human capital and of mobile factors of production, such as intangible assets, increases. In addition, different hybrid forms of enterprise co-operation emerge. The contribution of each entity to the value added is often hard to identify.

The objective of this paper is to examine the consequences resulting from these economic changes on the allocation of profits within a group of companies. In a first step, it is analysed to what extent the currently valid methods of transfer pricing which are based on the arm's length principle are still applicable. These traditional transaction-based methods determine a transfer price for each intragroup transaction by comparing it to a comparable transaction taking place between third parties. In a second step, possible adjustments of the traditional transfer pricing methods, transactional profit methods as well as the alternative approach of formula apportionment are assessed regarding their suitability. According to the method of formula apportionment, the overall profits of a group of companies are allocated on the basis of a predetermined formula consisting of several value creating factors. In order to assess the different methods of profit allocation, the tax principles of inter-nation equity and feasibility serve as evaluation criteria.

We conclude that, in the light of the evaluation criteria, the method of formula apportionment is more appropriate than the arm's length principle as regards the economic structures changed by the use of ICT. This is due to the fact that the transfer pricing methods based on the arm's length principle seem to be less feasible, as comparable transactions often do not exist or are hard to identify. Besides, the arm's length principle can less often ensure an allocation of profits that is consistent with inter-nation equity, whereas the method of formula apportionment can better cope with this tax principle. In case of implementing a system of formula apportionment, the allocation formula shall include payroll and intangible property, provided that the latter can be evaluated and identified in practice. The method of formula apportionment constitutes a suitable alternative especially for company taxation in the European Union. Therefore, the proposals made by the European Commission regarding the method of formula apportionment are considered to be a good starting point.

The Impact of ICT on Profit Allocation within Multinational Groups: Arm's Length Pricing or Formula Apportionment?

ANNE SCHÄFER¹ and CHRISTOPH SPENGLER²

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Abstract

The use of information and communication technologies (ICT) within multinational groups leads to a rising number of intragroup cross-border transactions. At the same time, transactions and the organisational structures of affiliated groups become more and more specific and, thus, less comparable. The importance of human capital and of mobile factors of production, such as intangible assets, increases. The objective of this paper is to give an insight into the principal issues of profit allocation within multinational groups resulting from these economic changes. It is examined whether the traditional transaction methods based on the arm's length principle can be upheld and to what extent the alternative method of formula apportionment is more suitable. The tax principles of inter-nation equity and feasibility are used to evaluate the different methods of profit allocation. We conclude that, in the light of the two demanded principles, formula apportionment is more appropriate than the arm's length principle as regards the changed economic structures by use of ICT. As formula apportionment constitutes a suitable alternative especially in the European Union, the proposals made by the European Commission are considered to be a good starting point.

JEL-Classification: H21, H25

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1. Introduction

The trade between affiliated companies is assessed to average out at more than 60 percent of the world trade¹ and the amount of cross-border intragroup trade is expected to further increase in future years. Thus, the issues of *international transfer pricing* and *profit allocation* within economic entities, such as groups of companies, are already today one of the most frequently discussed matters in international taxation and are supposed to become more important.

The use of *information and communication technologies* (ICT) within groups of companies leads to noticeable changes of their organisational structures which also have an impact on the suitability of the methods of profit allocation. First of all, the products transferred or services rendered between affiliated companies as well as the organisational structures of groups of companies become more and more specific and, thus, less comparable. Besides, the importance of human capital and of mobile factors of production, such as intangible assets, increases. In addition, the conventional value added chains turn into value added networks with the contribution of each partner tending to be small and hard to identify. Furthermore, the companies' boundaries are blurring, as the creation of hybrid forms of enterprise co-operation becomes more frequent.

In order to allocate profits between different tax subjects belonging to a multinational group of companies and, thus, between different jurisdictions, the taxable base of each tax subject has to be determined. According to the current system of international company taxation, the *arm's length principle* in combination with the *separate entity approach* constitutes the prevalent method to allocate profits between different taxable entities. Pursuant to this approach, a transfer price for each separate intragroup transaction is determined on the basis of comparative data. The relevant benchmark consists of comparable transactions that are carried out on an arm's length basis. Besides, an alternative method to allocate profits between different taxable entities is the *formula apportionment* in combination with the *unitary method*. According to this approach, the entire economic entity is considered a single entity. Thus, profits are determined at the level of the economic entity with intragroup transactions being eliminated. The income is then attributed to the respective tax subjects on the basis of a formula that reflects the factors which are deemed to produce the income. In most countries of the OECD, the method of formula apportionment is currently regarded as a lower-ranked method in comparison to the arm's length principle.

In case the organisational structures of affiliated groups change as outlined above, it is *questionable* whether and to what extent the tax law which is based on the economic structures also has to be changed. The *objective* of this paper is to give an insight into the main issues of the above-mentioned methods of profit allocation resulting from the increased use of ICT. It is in a *first step* examined

¹ See Schneider, 2003: 53; Owens, 2002: 126; Commission of the European Communities, 2001: 263; OECD, 1996: 29-30.

whether and to what extent the traditional transaction methods of transfer pricing which are based on the arm's length principle are still an appropriate way to allocate profits. The evaluation of the current tax regulations is based on generally accepted tax principles. The first evaluation criterion is the principle of inter-nation equity which demands for an allocation of the international tax base in accordance with the economic allegiance. This means that the revenues shall be apportioned according to each jurisdiction's share in the profit-generating activity of the taxable entity. The second evaluation criterion is the principle of feasibility, meaning that the method of profit allocation has to be workable in practice, that it has to prevent manipulations and that it has to be cost-effective.

Based on these findings regarding the (in)appropriateness of the traditional transaction methods, in a *second step*, approaches for reforming the arm's length principle are discussed. Reform measures may consist in an adjustment of the traditional transaction methods, in the application of transactional profit methods or in the alternative approach of formula apportionment. The reform concepts should be conform to the international tax principles and, moreover, take into account considerations developed by other countries or by supranational institutions, such as the OECD. Special interest is devoted to the proposals of the Commission of the European Union (EU) regarding possible reforms of company taxation in the Internal Market.

2. Changes within the Organisational Structures of Affiliated Companies by Use of ICT

The increased use of ICT within groups of companies enables new forms of organisational structures and divisions of labour. As this paper focuses on profit allocation within economic entities consisting of different legal entities, the economic changes regarding different forms of such economic entities are outlined in the following.

The main group of economic entities are *groups of companies*.² Due to the strong economic relationship between the different legal entities of an affiliated group, it is economically considered one firm.³ It can be noticed that, as a result of the ongoing globalisation, the European integration and the use of ICT, the number as well as the scope of groups of companies have increased.⁴ Nowadays, they qualify as a standard organisational form. A group of companies consists of legally distinct but uniformly managed and economically linked enterprises. Generally, the parts belonging to such a group are more profitable than they would be if they were independent.⁵ Consequently, as an affiliated group can achieve economies of scope due to the economic interconnection, the *excess*

² The notions "group of companies" and "affiliated group" are used synonymously in this context.

³ See Sydow, 2002: 694; Sydow, 2001: 249; Theisen, 2000: 17-19.

⁴ See Doernberg et al., 2001: 81; Commission of the European Communities, 2001: 256, 263. In 2000, about 90% of the German Public Limited Companies and more than half of the German Partnerships had relations with an affiliated group or equal relations. See Theisen, 2000: 21.

⁵ See also Berry et al., 1992: 737.

profits achieved at the level of the economic entity have to be appropriately allocated to the respective companies. Often, the separate enterprises belonging to an affiliated group reside in different jurisdictions, thus creating a *multinational group of companies* (MNG).⁶ The use of ICT fosters the creation of MNGs, as the application of ICT facilitates an effective connection between the different parts of the group of companies.

In principle, all *products* can be subject to cross-border and intragroup transactions. Due to the segmented, international value added process, the share of intermediate goods in the world trade has increased.⁷ Besides, a shift from material products to *intangible assets*, such as know-how or digital products, can be observed. Moreover, there is also an increase in *services* rendered.⁸ These observations are due to the fact that the main factors relevant for the company's creation of value are nowadays human capital and intangible assets.⁹

Furthermore, an *organisational decentralisation* within groups of companies can be observed.¹⁰ The organisation of affiliated groups tends to be rather decentralised than based on a hierarchical structure. The basic unit considered is the economic process which includes the whole value added chain.¹¹ On the basis of those integrated processes, groups of companies are often organised in separate entities disposing of the decision making authority and responsibility for their own results, the so-called modules or profit centres.¹² Specific functions relevant for the whole economic entity are often centralised in a certain country.¹³ Possible functions performed in those so-called *shared service centres* are, for example, research, management or administrative services.¹⁴ Also the production and distribution of products may be centralised. The fields of activities of these service centres vary strongly due to the variant activities and structures of the different affiliated groups. The functionality of a decentralised organisation is achieved by the use of ICT, as ICT permit an effective exchange between the different parts of the organisation. Otherwise, the costs of the rise in transactions and the loss of control due to the decentralised structure would be too high. The organisational decentralisation in combination with the internationalisation leads to a *rise in intragroup cross-border transactions* regarding both frequency and volume.

As a consequence of the modularisation, *intra-organisational networks* between

⁶ See Li, 2001: 777; Theisen, 2000: 8.

⁷ See Oestreicher, 2000: 1.

⁸ See McLure, 2001: 334.

⁹ See also Brunsbach, 2003: 24-25; McLure, 1997: 861-862 with further quotations.

¹⁰ See Brunsbach, 2003: 23; Eicker, 2000: 121; Müller-Stewens, 1997: 35; Endres, 1996: 91-92.

¹¹ See Jacobs, 2003: 114-115; Picot et al., 2001: 231-232; Raupach, 1998: 72-74, 119. The different value creating chains are fragmented by the legal structure of the firm.

¹² See Brunsbach, 2003: 23; Picot et al., 2001: 230, 244-246.

¹³ See Jacobs, 2003: 117-118; Michel, 2001: 110-111; Theisen, 2000: 174-176; Müller-Stewens, 1997: 24-26; Gomez, 1992: 167.

¹⁴ See Jacobs, 2003: 116; Li, 2001: 778-780; Endres, 1996: 94, 96.

different business centres emerge.¹⁵ The conventional value added chain turns into value added networks with mutual business relationships.¹⁶ In an even further decentralised structure, intragroup networks between single persons who belong to different legal entities within the affiliated group emerge. In this case, services or know-how regarding a certain topic do not have to be centralised in one business centre.¹⁷ For example, several researchers belonging to different companies of one group and resident in different jurisdictions may work together in a network, thus forming an intragroup R&D network.¹⁸ Other examples are a data bank that is developed and accessed by employees working all over the world or global trading.¹⁹ The advantage of all these networks lies in the fact that the work can be done independently of time and place on a 24 hour basis. Without ICT, such forms of intragroup networks would not be effectively feasible. Under the constraint of a hierarchical structure, the benefits realised within those networks would not be that big.²⁰ As the contribution of each partner to those integrated networks tends to be very small and often consists in intangible assets such as know-how, it is hard to identify.²¹

Besides, the structure of each group of companies as well as the products transferred or services rendered become more and more *individual* and, thus, differ more and more in comparison to other affiliated groups.²² For example, the cost structure as well as the risk structure of companies doing business in the field of electronic commerce differ substantially from those of companies doing business in traditional fields. Given digital products, production and distribution costs are – contrary to material products – not proportional to sales.²³

In addition to the organisational form of groups of companies, there are also other *hybrid forms of enterprise co-operation*. They constitute a relationship between legally independent and – except for the co-operation – in general also economically independent companies.²⁴ The partners within these co-operations can be affiliated groups or separate entities. As the different forms of co-operation are often similar, one cannot determine a clear boundary between

¹⁵ See Herzig, 2001: 29; Becker et al., 1999: 19; Müller-Stewens, 1997: 35; Delfmann, 1989: 109.

¹⁶ See Strunk and Wichmann, 2001: 429; Oestreicher, 2000: 4.

¹⁷ See also Barth et al., 2002: 22.

¹⁸ See Jacobs (Ed.), 2002: 950; Li, 2001: 778. Such cases are also called “global development”, see Sydow, 2002: 697; Kaminski, 2000: 174. See also the example of the Ford Motor Company in Rayport and Sviokla, 1995: 79. Ford established a virtual team in order to develop a “global car”.

¹⁹ See Oestreicher, 2000: 43-44; Eicker, 2000: 122; Selling, 1998: 418; Häuselmann, 1997: 858; OECD, 1997: 9.

²⁰ See Gomez, 1992: 172.

²¹ See Picot, 1999: 5.

²² See Strunk and Wichmann, 2001: 429; McLure, 2001: 334.

²³ See Strunk and Wichmann, 2001: 428.

²⁴ As these forms of co-operation constitute a mixture between markets and hierarchies, the shift towards these forms is also called the “move-to-the-middle“. See Clemons et al., 1993: 13. This effect is due to the „electronic integration-effect“, meaning that the use of ICT leads to a creation of hybrid forms of co-operation. See Malone et al., 1987: 488.

them.²⁵ Again, ICT play an enabling role in making these kinds of co-operation effectively feasible.²⁶ A large share of these forms of enterprise co-operation is established in order to develop new technology.²⁷

One form of an enterprise co-operation between different affiliated groups is the *equity joint venture*. It constitutes a separate legal and organisational entity that is owned by the respective partners.²⁸ Generally, the equity joint venture is owned by each of the participating affiliated groups, but does not unite those different groups.²⁹ In a *contractual joint venture*, the partners do not set up a separate legal entity. They rather engage in contractual obligations only.³⁰ One form of a contractual joint venture is the so-called *strategic alliance*, a horizontal co-operation between two or more entities on the same level in the value adding process aimed at realising competitive advantages.³¹ Another form of a contractual, vertical co-operation are *extra-organisational networks*, i.e. networks between entities that do not belong to one affiliated group.³² A further development of networks between different legal entities consists in the *virtual organisation*, a virtual, dynamic, temporary network.³³ The link between the different network partners is realised solely by use of ICT.

To conclude, the majority of the developments outlined in this section is not completely new but has accelerated substantially in recent years, which is inter alia due to the increased use of ICT within economic entities. Consequently, the economic changes outlined above are nowadays supposed to have a greater impact on taxation of groups of companies than before.

3. Evaluation Criteria: Normative Criteria for an Optimal Taxation

In general, the current tax regulations as well as possible reform approaches have to be conform to normative criteria for an optimal taxation. In this paper, the underlying theoretical framework consists of two generally accepted tax principles which have to be fulfilled in order to achieve an optimal taxation.

²⁵ See Becker et al., 1999: 11; Lange, 1998: 446.

²⁶ See Müller-Stewens: 1997, 14, 30, 50; Picot et al., 1996: 78.

²⁷ The sectors most commonly involved are electronics, aerospace, telecommunications, computers as well as automobiles. See OECD, 1996: 44.

²⁸ See Jacobs (Ed.), 2002: 1198; Michel, 2001: 126.

²⁹ See Michel, 2001: 129; Theisen, 2000: 60.

³⁰ See Jacobs (Ed.), 2002: 1201; Michel, 2001: 134; Bogenschütz and Kestler, 2000: 860.

³¹ See Michel, 2001: 133; Ernsthaller and Gesmann-Nuissl, 2000: 2270; Backhaus and Meyer, 1993: 332.

³² See the example in Sydow, 2001: 241-243. See also the scenario of large networks between companies as a possible common organisational form in the future in Laubacher and Malone, 1997: 6-9.

³³ See the example of a virtual advertising agency in Matthäus, 2003. See also Li, 2001: 780; Byrne et al., 1993: 36-38; Davidow and Malone, 1992: 5-7. "Virtual" characterises the object as something that possibly exists, but that generates its existence not from the real physis but from ICT-based structures. See Fink, 1998: 15-16.

3.1. Inter-Nation Equity

The principle of inter-nation equity calls for an equitable allocation of the international tax base between different countries.³⁴ The apportionment of the taxable income is considered to be equitable if every country has the right to tax all profits having their *source* within its borders. The source of profits is defined as the location where the profits are created. The underlying principle for allocating the international tax base according to the creation of profits is the *principle of economic allegiance*. It implies that the country within whose borders the realisation takes place is entitled to tax those profits, as this country contributes to the generation of profits by providing its legal and economic system.³⁵ For example, due to the provision of infrastructure, education or a legal system, business entities are able to operate commercially.³⁶ Therefore, the profit allocation should take place according to each country's share in the profit-generating activities of business entities.³⁷

In order to determine the profits' source and, thus, the profit-creating factors, two concepts exist. According to the *supply approach*, the source of income is situated where the factors of production of the company generating that income operate.³⁸ Pursuant to this approach, a consumer market does not represent a factor contributing to the added value of the company. In contrast, the *supply-demand approach* states that profits are created through the interaction of supply and demand. Consequently, the demand jurisdiction as well has an entitlement to tax because of the provision of a consumer market.³⁹

There are several issues inherent in the supply-demand approach. First of all, it is in principle questionable whether the mere demand constitutes an income-producing factor and, as a consequence, whether a part of the taxable income shall be assigned to the demand jurisdiction solely for providing a consumer market.⁴⁰

Besides, in order to apply the supply-demand approach, feasibility problems arise. The *first* issue consist in the fact that it gets more and more difficult to determine the place of demand in an exact and, at the same time, cost-effective way. Generally, the place of demand is defined as the place of the destination of the product. Due to the rise in the use of ICT and the increased application of electronic commerce resulting thereof, problems of determining a product's place of destination emerge. For example, especially in case of the sale of digital

³⁴ Inter-nation equity is confined to revenue shares. See Musgrave, 2000: 54. The division of the "tax cake" is seen as the main practical function of international tax rules. See Bird, 1988: 297.

³⁵ See Avi-Yonah, 1997: 520-521; Zuber, 1991: 111; Musgrave and Musgrave, 1972: 71.

³⁶ See Fohr, 2001: 77; McLure, 2000: 11.

³⁷ See Musgrave, 1972: 400.

³⁸ See Oestreicher, 2000: 179; Musgrave, 1984: 234.

³⁹ It is worth mentioning that this entitlement of the demand jurisdiction goes far beyond the claim to tax profits on capital invested in the selling activity or attributed to labour in that activity, a claim that is also covered by the supply approach. See Musgrave, 1984: 234.

⁴⁰ See also the discussion in Oestreicher, 2000: 183-184, as well as Musgrave, 1984: 234, stating that there is no straightforward economic basis for answering this question.

products via ICT, the customer may remain anonymous and his place of residence may be hard to identify with reasonable effort. Although there are possibilities to trace the way and the final destination of data in the Internet, this is only achieved in a time-consuming and cost-intensive manner and, thus, is impracticable. Besides, another issue concerning the destination of sales arises. In the event that intermediate products of one company serve as an input for a final product of another company which then sells the final product to a customer, it is difficult to clearly define the destination of the first sale.⁴¹ The same issue comes into existence in the event that products are resold. As the share of intermediate products has risen due to the organisational decentralisation of a company, these problems are becoming more frequent.

Second, a taxation of the company's profits in the demand jurisdiction is generally only possible if the company disposes of a tax attribute in this jurisdiction.⁴² Otherwise, the company is not liable to taxation in the demand jurisdiction. As, due to the increased use of ICT, it becomes easier to do business in a certain country without establishing a physical presence there, a nexus of the company in the demand jurisdiction according to the current definition of a permanent establishment may often not be created. Consequently, the demand factor in the supply-demand approach can unfold its effect less often, as the underlying intention of attributing a portion of income to the demand jurisdiction cannot be realised. To conclude, due to those theoretical and practical issues inherent in the demand factor, the supply approach shall be preferred over the supply-demand approach.

3.2. Feasibility

Besides the criterion of inter-nation equity, the system of international company taxation has to be feasible. This means that the tax system has to be enforceable in practice and, thus, has to have the capacity to achieve its basic *objectives*. First of all, *inter-nation equity* can only be achieved if the tax system is feasible. Another main objective of the system of international taxation is to guarantee *equal law enforcement*. Therefore, possibilities of manipulation have to be avoided.⁴³ This implies for the profit allocation between different jurisdictions that the allocation method is not susceptible for profit shifting and that it does not lead to business operations which are solely effected by fiscal reasons and not by business reasons. Feasibility of a tax system also includes *cost effectiveness*. This means that the costs of the operation of a tax system are minimised. These costs consist of compliance costs for the taxpayer as well as administrative costs for the public authorities, such as control costs of the abuse of law.⁴⁴ Furthermore, another objective of taxation is that the income is taxed exactly *one time*, which means that a double taxation of the income has to be

⁴¹ See Oestreicher, 2000: 184.

⁴² See Oestreicher, 2000: 182, 184; McLure, 1997: 863.

⁴³ See Utescher, 1999: 335; Schaumburg, 1998: 79; Theisen, 1990: 22.

⁴⁴ See Commission of the European Communities, 2001: 28; OECD, 1998: 4.

prevented.⁴⁵ To conclude, the requirement of a feasible system of international company taxation is of high importance, as it constitutes the basis for the achievement of several other objectives of international tax law.

4. Application of the Arm's Length Principle to the Changed Economic Structures

4.1. General Attributes of the Traditional Transaction Methods

In case several legal entities form an economic entity, such as a MNG, and transactions take place between these legal entities, they have common interests and do not act as third parties on markets. As a consequence, the issue of determining an adequate transfer price emerges, meaning that a benchmark has to be found which indicates a range of adequate transfer prices in terms of a bandwidth. According to the *arm's length principle* (ALP), the price that would have been negotiated between independent third parties constitutes the benchmark for determining an appropriate transfer price. The intention behind is that the valuation of economic relations between related parties shall not differ from the one between unrelated parties.⁴⁶ Thus, affiliated companies carrying out cross-border business must do so on market principles.⁴⁷ The separate entity approach in combination with the ALP is codified in Article 9 section 1 of the OECD Model Tax Convention as well as in section 1 of the German Foreign Transactions Tax Act.

The ALP is applied in three different traditional transaction methods. According to the *comparable uncontrolled price method* (CUPM), the price for goods or services transferred in a transaction between affiliated entities is compared to the price charged for the same goods or services transferred in a comparable transaction between independent parties.⁴⁸ A transaction is deemed to be comparable if there are no differences between the transactions being compared which could materially affect the respective conditions being examined, or that any such differences can be eliminated by reasonably accurate adjustments.⁴⁹ Attributes of a transaction that have to be comparable include the characteristics of the goods or services transferred, the functions performed, the assets used and risks assumed by the respective parties, the contractual terms, the economic circumstances of the parties as well as their business strategy pursued.⁵⁰ The underlying assumption of the CUPM is that, in case of an uncontrolled transaction, the buyer would not accept a price above the market price, whereas the seller would not accept a price below.⁵¹ As the CUPM is deemed to be the most direct and reliable method, it is preferred to all other methods.⁵² The *resale*

⁴⁵ See also Theisen, 1990: 22.

⁴⁶ See Oestreicher, 2000: 14.

⁴⁷ See Commission of the European Communities, 2001: 256.

⁴⁸ See OECD, 2001: 2.6.

⁴⁹ See OECD, 2001: 1.15.

⁵⁰ See OECD, 2001: 1.17-1.35 with further details and Musgrave, 1972: 403.

⁵¹ See Oestreicher, 2000: 110; Helbing, 1995: 65.

⁵² See Commission of the European Communities, 2001: 258.

price method (RPM) is based on the price at which a product that has been purchased from an associated enterprise is resold to an independent enterprise. First, the gross margin on a transaction between affiliated entities is compared to the gross margin of a comparable uncontrolled transaction. Then, the resale price to a third party is reduced by the resale price margin. The remainder constitutes the arm's length price for the original transaction between the associated enterprises.⁵³ The *cost plus method* (CPM) starts with the costs incurred by the supplier in a transaction between affiliated companies for products transferred or services provided to a related purchaser.⁵⁴ Then, a cost plus mark up that is consistent with mark ups in uncontrolled transactions is added to these costs in order to raise the price to the level that would have been concluded between unrelated parties.⁵⁵

4.2. The Impact of ICT on the Incidence of Transfer Pricing Issues

Due to the ICT-induced changes of the economic structures, it is questionable to what extent these changes have an impact on the incidence of transfer pricing issues. Generally, issues of profit allocation emerge if different legal entities are under common control and form an economic entity. Then, in case of a transaction, there is no divergence of interests between the two parties.⁵⁶ In order to narrow down all those cases in which issues of profit allocation occur, it has to be determined whether an economic entity exists and how this entity can be delimited. Therefore, one has to examine the *economic boundaries of the firm*. An economic entity is usually defined by the following criteria: a minimum holding quota (financial integration), an integration of central functions and the existence of economies of scope (economic integration), and a common control or a common management (organisational integration).⁵⁷ However, nowadays, these criteria do not always lead to a clear delimitation of an economic entity. Instead of boundaries that are clearly defined by attributes such as intercompany participation, ownership of property or a hierarchical organisation, these boundaries are quite blurry due to the emergence of *different hybrid forms of co-operation*, which constitute a complex network of relationships between different companies or different affiliated groups.⁵⁸ Thus, the boundaries of an economic entity are represented by a bundle of relationships. For these relationships, it is often difficult to find out whether the partners have divergent interests or not. Consequently, it becomes more difficult to determine the exact boundaries of an economic entity and also to determine whether an economic entity exists at all. To conclude, the emergence of hybrid

⁵³ See OECD, 2001: 2.14; Commission of the European Communities, 2001: 258.

⁵⁴ See OECD, 2001: 2.32.

⁵⁵ See Commission of the European Communities, 2001: 258.

⁵⁶ See also OECD, 2001: 1.29; McLure, 1984: 105.

⁵⁷ See also section 1 subsection 2 of the German Foreign Transactions Tax Act (AStG); Article 9 section 1 of the OECD Model Tax Convention.

⁵⁸ See also Sydow and Windeler, 2001: 134; Müller-Stewens, 1997: 46-49; OECD, 1996: 43-45; Ashkenas et al., 1995: 199-204; Badaracco, 1991: 295, 303; Moss Kanter and Myers, 1991: 329.

forms of co-operation between different affiliated groups increases the uncertainty regarding the boundaries of an economic entity and, thus, concerning the question whether problems of transfer pricing emerge. In the end, this question has to be answered on a case-by-case basis.

4.3. The Arm's Length Principle and Inter-Nation Equity

In the following, it is examined to what extent the ALP is consistent with the principle of inter-nation equity, given the economic changes by use of ICT. Pursuant to the ALP, market prices constitute the benchmark for profit allocation. Thus, the ALP is based on the economic assumption of *perfect market conditions*. They imply perfect competition with easily verifiable free market prices, no interdependencies between the respective parties of a transaction and homogeneous products.⁵⁹ However, it is questionable whether these basic assumptions underlying the ALP can be upheld. In principle, income allocation according to the ALP leads to reasonable results in those cases in which transactions between controlled parties take place under market conditions.⁶⁰ As in those cases, the allocation of profits between related parties is equivalent to the one between unrelated parties, the application of market prices results in an allocation of profits in accordance with the profit-generating activities of the members of a MNG. Consequently, the ALP is in accordance with the principle of inter-nation equity.

However, these situations are rather seldom. The reason for several companies to form a MNG is the possibility to gain *excess profits* which accrue on the level of the affiliated group and, thus, are not attributable to the legal entities.⁶¹ Thus, larger profits accrue to the affiliated group taken as a whole than would to each unit operating independently. The internal economies generated within a MNG may, for example, consist of an improvement of information flow, quality control, managerial efficiency or lower transactional costs.⁶² As such economies of integration resulting from the interconnections between different firms do simply not exist in case of transactions under market conditions, those economies of scope cannot be allocated correctly by means of separate accounting.⁶³ Consequently, the comparison of controlled transactions with uncontrolled transactions seems illogical and systematically inapplicable, as the ALP does not contain a rule for considering and allocating these excess profits.⁶⁴

Besides, another general difference between controlled and uncontrolled parties consists in the division of *functions and risks assumed* by the respective

⁵⁹ See Helbing, 1995: 65-66; Theisen, 1990: 24; McLure, 1984: 93.

⁶⁰ See also Oestreicher, 2000: 24; McLure, 1984: 93.

⁶¹ See Schneider, 2003: 54; Jacobs (Ed.), 2002: 875; Oestreicher, 2000: 20; Higinbotham and Levey, 1998: 235; Bird, 1988: 294; Musgrave, 1972: 403.

⁶² See Berry et al., 1992: 737.

⁶³ See also Newlon, 2000: 216.

⁶⁴ See also Jacobs (Ed.), 2002: 875-876; Schröer, 2002: 16; Oestreicher, 2000: 20; Herzig, 1998: 285; Portner, 1992: 865; de Hosson, 1991: 146; McLure, 1984: 94, 105.

parties.⁶⁵ This is due to the fact that in case of an integrated group, there may often be reasons for dividing the functions and risks in a ratio differing from the proportion between unrelated parties. For example, a high level of downstream autonomy may be desired and, consequently, a substantial decision-making autonomy is granted to the downstream subsidiaries.⁶⁶ Besides, contrary to third parties, in a MNG certain functions can be centralised in special service centres. As the determination of transfer prices depends on the functions and risks assumed, such differences have to be taken into account.

Furthermore, unrelated parties are co-ordinated via *contracts* whereas related parties are additionally regulated via a relationship under *company law*. This means that in case of a situation between uncontrolled parties, the divergence of interests ensures that the parties seek to hold each other to the terms of the contract and that the contractual terms are only ignored or modified if it is in the common interest of both parties.⁶⁷ The enforcement of the respective terms of the contract is possible only by means of the legal process. As this conflict of interest does not exist between related parties, contracts between them do not have to be legally enforced but may also be enforced by other means pursuant to the intention of the dominant company.⁶⁸ Besides, contracts between controlled parties can be altered easily. Therefore, associated enterprises can conclude a much greater variety of contracts and arrangements than unrelated enterprises.⁶⁹

To summarise, the ALP is in accordance with the principle of inter-nation equity in those cases in which transactions between third parties are carried out under market conditions.⁷⁰ However, often general differences between controlled and uncontrolled companies exist. Due to the use of ICT, those differences become more significant as well as more frequent, because ICT facilitate the creation of MNGs. Thus, it is necessary to take these differences into account. As the ALP ignores these fundamental differences, it does not lead to an allocation in accordance with the profit-generating activities of a company, but, instead, may lead to economic distortions. Accordingly, the ALP is then inconsistent with the principle of inter-nation equity.⁷¹

4.4. Feasibility of the Arm's Length Principle

Comparability of Controlled and Uncontrolled Transactions

One of the essentials of the ALP consists in the comparability of transactions between controlled and uncontrolled parties. Due to the increased use of ICT

⁶⁵ See Jacobs (Ed.), 2002: 876 with further examples.

⁶⁶ See Higinbotham and Levey, 1998: 238 with further details.

⁶⁷ See OECD, 2001: 1.29.

⁶⁸ See Jacobs (Ed.), 2002: 877.

⁶⁹ See OECD, 2001: 1.39.

⁷⁰ See also Oestreicher, 2000: 24, 124; Bird, 1988: 298; McLure, 1984: 93.

⁷¹ See Higinbotham and Levey, 1998: 237; McLure, 1984: 95-96. Besides, as regards the determination of the source of income, the ALP is consistent with the supply approach, as the demand factor is not considered an income producing factor and does not play any role for the apportionment of the tax base. See also Oestreicher, 2000: 180.

and the resulting changes in the organisational structures of MNGs, the comparability of controlled and uncontrolled transactions can be guaranteed less frequently. First of all, the characteristics of *goods transferred or services rendered* are often not comparable, as the value of the products transferred and services rendered within MNGs often results from their specific relevance for the respective parties.⁷² This effect is reinforced to a high degree by the fact that intangibles are becoming more frequent and, thus, more important within the economy.⁷³ Especially in case of intangibles, such as know-how or proprietary technology, the value of the intangible is unique to the relevant parties.⁷⁴

Besides, also the *functions* performed and *risks* assumed constitute decisive attributes for finding a comparable transaction. As, due to the increased use of ICT, the organisational structures of MNGs become more individual and differ from those of independent parties, also the allocations of functions and risks are less comparable.⁷⁵ In addition, the *business strategies* pursued constitute an attribute that has to be comparable. As a group of companies has a different economic potential and market position compared to a single company, it may have a different variety of business strategies. Consequently, also the business strategies pursued are often not comparable.

Identification of Transactions

Even if a controlled transaction is comparable to an uncontrolled transaction, still all relevant attributes have to be identifiable in practice. Due to the increased use of ICT, the identification of different attributes of a transaction becomes more and more difficult. First, the identification of the goods or services transferred poses a problem. As *digitised goods*, for example a software program, or other intangible assets, such as know-how, can be transferred via the Internet or an Intranet, these transactions are hard to identify. In contrast to a transaction that is performed physically, a transfer of digital products or other intangibles by means of ICT does not leave any marks. Besides, it may also be difficult to identify *services* which are rendered over the Internet or Intranet, as they do not leave any traceable attributes that are relevant for taxation.⁷⁶ Second, several transactions often form a *bundle* of transactions, for example if products are transferred in combination with the respective services rendered. Thus, it is hard to keep these transactions apart. In addition, the identification of separate transactions becomes more difficult, as they are a part of a *value added network* with mutual relationships between several parties. This is especially valid for the case of world-wide simultaneous co-operations, such as R&D networks or

⁷² See Oestreicher, 2000: 24; McLure, 1984: 93.

⁷³ See also Commission of the European Communities, 2001: 264.

⁷⁴ See also Newlon, 2000: 215-216; Herzig, 1998: 285; Möbus, 1992: 408.

⁷⁵ See for further details also section 4.3. and Wichmann, 1999: 196.

⁷⁶ Possible services rendered via means of ICT are the provision of IT support (such as software maintenance or web site hosting), information or data delivery (such as the exchange of R&D knowledge), or electronic access to professional advice (such as tax or legal consultancy).

global trading.⁷⁷ As a consequence, third, also the relevant *partners* of a transaction and, in connection with this, their functions performed and risks assumed are not always easily identifiable.

To conclude, as the scope for finding and identifying comparable uncontrolled transactions is diminishing, the traditional transfer pricing methods tend to be less reliable.⁷⁸ The extent of the different issues depends on the nature of the controlled transaction as well as on the respective standard transfer pricing method applied. The problems regarding comparability and identification especially have an impact on the CUPM, as it is directly based on comparable uncontrolled transactions.⁷⁹ Furthermore, the RPM as well as the CPM are impaired by the lack of comparables, as they are also based on comparable uncontrolled transactions in order to identify comparable margins. Consequently, the problems of feasibility immanent in the ALP constrain the applicability of all three methods.

Manipulation

Transfer pricing can be used to shift profits from countries with a high tax burden to those with a relatively low tax burden.⁸⁰ Profit shifting is achieved by stipulating licence fees and prices for products transferred or services rendered that are not commensurate. For the tax administration, it becomes more and more difficult to control the appropriateness of those transfer prices. The advent of ICT reinforces the issues regarding the manipulation of transfer prices as an instrument for profit-shifting, as ICT provide for a shift to highly mobile intangible assets and a new mobility of activities as well as products.⁸¹ It is difficult to assess the extent to which transfer prices are used to shift profits without economic reasons. At least, evidence of profit shifting by use of transfer prices can be found within the EU and the United States.⁸²

It has to be noticed that the incentive to shift profits to low tax countries depends on the specification of the *scope of taxation* in international tax law.⁸³ Generally, there are two possibilities to tax foreign income and to avoid double taxation. In case of taxation according to the *source principle*, the foreign profits generated in the source country are finally taxed according to the valuations of the source country. Under the tax exemption method, the income is exempted from taxation in the residence country. Taxation pursuant to the *residence principle* means that the world-wide income is finally taxed according to the valuations of the residence country. Under the tax credit method, the foreign income is included

⁷⁷ See Oestreicher, 2000: 43-44; See Kaminski and Strunk, 1999: 221; Wichmann, 1999: 195.

⁷⁸ See also Commission of the European Communities, 2001: 264; Doernberg et al., 2001: 312; McLure, 2001: 336; Portner, 2001: 93; Avi-Yonah, 1997: 546; Horner and Owens, 1996: 521.

⁷⁹ See Wichmann, 1999: 196.

⁸⁰ See also Commission of the European Communities, 2001: 261; Newlon, 2000: 216; McLure, 1997: 864.

⁸¹ See also Doernberg et al., 2001: 309-312.

⁸² See for further details Bartelsman and Beetsma, 2000; Newlon, 2000: 221-229.

⁸³ See for further details regarding the scope of taxation Schäfer and Spengel, 2002.

in the taxable base in the residence country and taxes paid in the source country are credited against the tax due in the residence country. Generally, the allocation of the taxable base is independent from whether the residence principle or the source principle is applied.⁸⁴ However, the incentive to shift profits to low-tax countries mainly accrues in case of taxation according to the source principle, as the advantage of a potentially lower tax burden can only be taken in case of a final taxation in the source country. Whereas, in case of taxation according to the residence principle, a possibly lower tax burden is overridden by the final taxation according to the valuations of the residence country. The benefit of shifting income to the source country then exists in deferring taxation, as the profits are not taxed until distribution.⁸⁵ This advantage is of a high importance in international tax planning.

Cost-Effectiveness

When applying the traditional transaction methods, the tax compliance costs on the side of the *taxpayer* include costs for finding comparables, documenting the respective transfer prices as well as defending these prices in audits. It is estimated that large MNGs incur compliance costs related to transfer pricing of approximately 4 to 5.5 million € a year.⁸⁶ With the advent of ICT, the tax compliance procedure regarding transfer pricing becomes even more cost-intensive. As necessary data for finding comparables is often not readily available, the costs of the search increase. Besides, the large scale of integration, the emergence of value added networks as well as the decreasing quantity of contributions to the value added imply that the identification and documentation of such small contributions to the creation of value tend to be unprofitable.⁸⁷ Furthermore, the substantial increase in the quantity of transactions and the rising number of entities taking part in a transaction accumulate the compliance costs to a great extent.

With regard to the *tax administration*, the costs concerning transfer pricing include costs of control and verification of transfer prices, prevention of manipulation as well as costs of transfer pricing disputes. As manipulation becomes more frequent, the countermeasures have to be intensified. Thus, costs are accumulated to a certain extent.⁸⁸ The costs of control might be lowered by increasing the documentation requirements that have to be met by the taxpayer. In recent years, the documentation duties were extended in several countries.⁸⁹ However, this measure does not lead to a more cost-effective taxation, as, in

⁸⁴ See Spengel, 2003: 315; Wissenschaftlicher Beirat beim BMF, 1999: 67-68.

⁸⁵ Additionally, a tax-free disposal of shares is possible. See Spengel, 2003: 302-303; Jacobs, 2003: 117; Jacobs (Ed.), 2002: 295-296; Newlon, 2000: 217-218.

⁸⁶ See Commission of the European Communities, 2001: 267.

⁸⁷ See also Gummert and Trapp, 2001: 127; Strunk and Wichmann, 2001: 429.

⁸⁸ See Commission of the European Communities, 2001: 262. The incidence of transfer pricing audits in Europe increased significantly between 1999 and 2001. See Ernst & Young, 2001: 21.

⁸⁹ See Commission of the European Communities, 2001: 263; Ernst & Young, 2001: 17. Regarding the new German documentation regulations in case of cross-border transactions contained in the law for the reduction of tax privileges (StVergAbG) see Kroppen and Rasch, 2003.

turn, it increases the costs on the side of the taxpayer.

Prevention of Double Taxation

Another problem of the ALP is the one of double taxation, as the transfer prices determined by the two jurisdictions involved in a cross-border transaction often differ.⁹⁰ For example, one jurisdiction may adjust a given transfer price because the price is deemed as not being at arm's length. In most cases, the other jurisdiction does not make a corresponding adjustment. Generally, the taxpayer does not qualify for a respective adjustment. However, according to the EU tax arbitration convention, an agreement between the respective jurisdictions is obligatory, which constitutes a good means to avoid double taxation.⁹¹

To summarise, an increasing number of cases emerge in which the ALP is not feasible due to several reasons. As a consequence, a tax system that is not feasible cannot comply with other tax principles, such as inter-nation equity.

4.5. Interim Result

In order to conclude, first, there are still cases in which the ALP works, that is if intragroup transactions are conducted under market conditions and if a market price can be found. Due to the increased use of ICT within groups of companies, the issues inherent in the ALP, especially the problems with the principles of inter-nation equity and feasibility, are accumulated to a great extent and now raised in a new dimension.⁹² As mentioned above, the tax system always has to be consistent with the underlying economic structure. Due to the increased use of ICT and the above-mentioned problems resulting thereof, the ALP tends to be not in conformity with the underlying organisational structures of MNGs. The more often these issues occur, the more important it gets to consider alternative approaches which address and overcome these problems.⁹³ Such alternatives might, on the one hand, consist in modifications of certain attributes of the ALP. On the other hand, the separate entity approach may be replaced by an alternative method of profit allocation, such as formula apportionment.

5. Possible Reform Approaches

5.1. Selected Adjustments of the Traditional Transaction Methods

In order to cope with several of the above-mentioned issues of the ALP in the light of feasibility, different approaches exist. One feasibility problem of the traditional transaction methods is that several transactions are so closely linked that they cannot be evaluated adequately on a separate basis. Consequently, one suggestion is to *bundle* several transaction and to assess them together using the

⁹⁰ See Ernst & Young, 2001: 22-24, showing that incidence of double taxation arising from an adjustment amounts up to 47%. See also Newlon, 2000: 220, 221; Herzig, 1998: 282-283, 286.

⁹¹ See European Communities, 1990: 10-24. The EU Tax Arbitration Convention is preferred compared to Mutual Agreement Procedures. See Commission of the European Communities, 2001: 275-278.

⁹² See also Wichmann, 1999: 194; Horner and Owens, 1996: 519.

⁹³ See also Herzig, 1998: 286; Musgrave, 1984: 237; Musgrave, 1972: 403, 407.

most appropriate arm's length method.⁹⁴ Eligible for aggregation are those transactions which are so closely linked or continuous that they cannot be assessed adequately on a separate basis, as for example in case of global trading or electronic commerce. Even if this package deal might reduce some feasibility issues of the traditional transaction methods, it does not constitute a remedy for other problems regarding feasibility, such as the lack of comparables.⁹⁵

Advance pricing agreements (APAs) constitute another method to cope with the issues of feasibility regarding the proceeding of the transfer pricing negotiations. In advance of controlled transactions, companies conclude APAs with the tax administration in order to specify an appropriate set of criteria for the determination of the transfer price, such as the transfer pricing method to be applied to those transactions over a fixed period of time.⁹⁶ However, it is questionable whether APAs can render taxation more *effective*, as they may also be cost-intensive and time-consuming. On the side of the taxpayer, the costs of providing information are very high, as the documentation requirements are extensive.⁹⁷ On the side of the tax administration, the conclusion of APAs requires a lot of resources as well.⁹⁸ The high costs on both sides are also caused by the long duration of the negotiation of APAs which generally lasts at least two years, in case of a multilateral APA even longer.⁹⁹ It is therefore questionable whether a proceeding that causes such a high administrative effort can cope with the complicated exchange of products and services between related enterprises.¹⁰⁰ As regards the *prevention of double taxation*, unilateral APAs cannot prevent double taxation and, thus, are inadvisable.¹⁰¹ The conclusion of bi- or multilateral APAs represents a suitable method to prevent double taxation, but it is more complex and time-consuming.¹⁰² Thus, bi- and multilateral APAs can, in principle, be regarded as a suitable means of enhancing the mutual agreement procedure.¹⁰³ However, APAs do not constitute a means of coping with the other issues of the ALP regarding the principle of feasibility, such as the lack of comparables and the difficulties of identification.

⁹⁴ See OECD, 2001: 1.42; Herzig, 1998: 285; Vögele et al., 1997: 145.

⁹⁵ See also Herzig, 1998: 285-286.

⁹⁶ See OECD, 2001: 4.124.

⁹⁷ Thus, the costs for double taxation and fines have to be compared to the costs of the APA. See Herzig, 1997: 116. One suggestion to cope with the high administrative effort is to develop simplified administrative procedures in the form of a "mini-APA" available for small and medium-sized enterprises on de minimis grounds. See Commission of the European Communities, 2001: 355-356.

⁹⁸ See OECD, 2001: 4.151; Commission of the European Communities, 2001: 356.

⁹⁹ See Herzig, 1997: 116-117.

¹⁰⁰ See Jacobs (Ed.), 2002: 1086.

¹⁰¹ See also OECD, 2001: 4.148; Herzig, 1997: 115.

¹⁰² See Jacobs (Ed.), 2002: 1085; OECD, 2001: 4.131, 4.143; Herzig, 1997: 115.

¹⁰³ See OECD, 2001: 4.146; Herzig, 1997: 119; Bergquist, 1992, 387-402, illustrating Apple's positive experiences with APAs in the United States. Regarding the use of APAs in practice, see the findings in Ernst & Young, 2001: 28. In 2001, 15% of the parent companies and 17% of the subsidiaries had previously used an APA.

To conclude, these two forms of adjusting the traditional transfer pricing methods are intended to reduce only selected issues in the light of feasibility and they cannot address the severe problems of the ALP in the light of inter-nation equity. Therefore, more extensive reform measures have to be considered.

5.2. Transactional Profit Methods

The profit based transactional methods were mainly developed to cope with the issues immanent in the traditional transfer pricing methods and to handle more complex cases, such as those involving intangible property.¹⁰⁴ According to the OECD, both methods are deemed to be consistent with the ALP, but only applicable in case the traditional transaction methods cannot reliably be applied.

Pursuant to the *transactional profit split method* (TPSM), the combined profit that arises from a controlled transaction between associated enterprises is, in a first step, identified. In a second step, the profit is split among the relevant parties on a basis reflecting the division that would have been concluded between uncontrolled parties.¹⁰⁵ As this division is made according to the contribution of the two parties, the functions performed and risks undertaken have to be determined and assessed for each transaction in a functional analysis. The TPSM does not directly rely on closely comparable transactions.¹⁰⁶ Therefore, it is deemed to be useful in those cases in which no such transactions between uncontrolled parties can be found, as in case of interrelated transactions or unique intangibles.¹⁰⁷ The *transactional net margin method* (TNMM) examines the net profit margin relative to an appropriate base that a taxpayer realises from a controlled transaction and compares this figure to the net profit margin between uncontrolled parties.¹⁰⁸ Thereby, costs, sales or assets may serve as a base. The appropriate transfer price is then calculated by either subtracting the net profit margin or by adding it to the total costs. Thus, the TNMM operates in a manner similar to the CPM and the RPM, with the difference that the TNMM compares net margins, the two latter gross margins.¹⁰⁹ The TNMM does not require the same amount of detailed information concerning the cost base.¹¹⁰

When evaluating the transactional profit methods in the light of *inter-nation equity*, the same implications as for the traditional transaction methods arise, as all methods are somehow based on the ALP. Consequently, transactional profit methods do not constitute a remedy for these issues. As regards the *principle of feasibility*, especially the TPSM does not require the same degree of comparability as the traditional transfer pricing methods. Consequently, for certain transactions, the transactional profit methods can better cope with the

¹⁰⁴ See Horner and Owens, 1996: 520.

¹⁰⁵ See Jacobs (Ed.), 2002: 941-943; Commission of the European Communities, 2001: 258; OECD, 2001: 3.5; Li, 2001: 784; Oestreicher, 2000: 67-70; Avi-Yonah, 1997: 546.

¹⁰⁶ See Oestreicher, 2000: 66.

¹⁰⁷ See OECD, 2001: 3.6; Commission of the European Communities, 2001: 258.

¹⁰⁸ See Jacobs (Ed.), 2002: 938-939; OECD, 2001: 3.25.

¹⁰⁹ See Jacobs (Ed.), 2002: 940; Commission of the European Communities, 2001: 258.

¹¹⁰ See Commission of the European Communities, 2001: 258.

principle of feasibility. However, the general issue of collecting data of uncontrolled transactions, such as the profit split or the allocation of functions and risks, still exists.¹¹¹ Besides, when applying the TPSM, a double taxation of profits can only be prevented if all countries use identical methods of profit determination.¹¹²

To sum up, transactional profit methods may, in certain cases, constitute an improvement compared to traditional transaction methods, as the required amount of comparable data is deemed to be less extensive. However, the data required still has to be identifiable. Besides, they cannot cope with the issues regarding the principle of inter-nation equity. Other important issues regarding the transactional profit methods are that, in practice, independent parties rarely establish their prices based on a profit method. Furthermore, profit margins or splits can be effected by factors that are irrelevant to the determination of transfer prices, such as management inefficiencies.¹¹³ As a consequence, it has to be examined whether indirect methods of profit allocation represent an alternative.

5.3. Formula Apportionment

5.3.1. General Attributes

According to the *unitary method*, the whole economic entity is considered one taxable entity.¹¹⁴ It is assumed that the economic entity, such as a MNG, is divided into legal entities for formal reasons only, such as the organisational structure.¹¹⁵ The profits are supposed to be generated on the level of the economic entity through transactions with third parties.¹¹⁶ So far, the unitary method in combination with *formula apportionment (FA)* has not been applied between countries but only between local taxing jurisdictions, such as between the federal states in the United States, the provinces in Canada and – regarding the trade income tax – the federal states in Germany.¹¹⁷ However, these forms of indirect methods of profit allocation are becoming increasingly important, as in 2001 the European Commission released a study regarding Company Taxation in the EU which contains different approaches of allocating profits in an indirect way. According to the OECD, an indirect method of profit allocation is only applicable in case of a permanent establishment.¹¹⁸ For allocating profits between separate legal entities, the method of FA is clearly rejected, as it is not deemed to be consistent with the ALP.¹¹⁹ However, from an economical point of view, an affiliated group representing one economic entity can be considered as

¹¹¹ See OECD, 2001: 3.8, 3.30; Kaminski, 2000: 156; Avi-Yonah, 1997: 547.

¹¹² See Kaminski, 2000: 152.

¹¹³ See Commission of the European Communities, 2001: 258.

¹¹⁴ Thus, the (legal) independence of each company is ignored. See Jacobs (Ed.), 2002: 947.

¹¹⁵ See Oestreicher, 2002: 348.

¹¹⁶ See Oestreicher, 2000: 125.

¹¹⁷ See OECD, 2001: 3.58; Oestreicher, 2000: 126-157; McLure and Martens Weiner, 2000: 251.

¹¹⁸ See Article 7 section 4 of the OECD Model Tax Convention.

¹¹⁹ See OECD, 2001: 3.63-3.74.

being comparable to an individual enterprise disposing of a permanent establishment.

In order to implement the unitary method in combination with FA, in a first step, the scope of the unitary business has to be defined. Then, the income of the whole group of companies is consolidated with intragroup transactions being eliminated.¹²⁰ The income is then allocated to the respective jurisdictions by reference to a predetermined formula, which attributes a fraction of a company's total income to the taxing jurisdiction equal to the weighted average of the jurisdiction's share in the economic activities of the company.¹²¹ The factors included in the formula which are deemed to represent the source of income are typically property, payroll and sales.¹²²

The development and use of the unitary method in combination with FA is due to the fact that the ALP cannot adequately capture the many subtle and largely not quantifiable transfers of value taking place between the different parts of an affiliated group. As outlined above, particularly due to the increased use of ICT within the economy, the issues regarding the ALP have aggravated. It is in the following examined whether and to what extent the method of FA can better cope with the principles of inter-nation equity and feasibility. The focus is on the issues which arise due to the increased use of ICT. As the concept of FA is elaborated the most in the United States, the respective regulations are taken as an example for the analysis.

5.3.2. The Impact of ICT on the Scope of a Unitary Business

Basically, the application of the unitary method presupposes that the *scope* of the unitary business, i.e. of the economic entity, is defined. The general criteria for defining an economic entity were already outlined in section 4.2. Also in practice, different concepts for defining the unitary business exist. In the United States, for example, there is no clear definition of a unitary business for state tax purposes. In contrast, there are generally four tests which have been developed by the courts and which all combine the above-mentioned criteria in a slightly different way.¹²³ Even though the unitary method has already been applied for a certain time in the United States, a clear cut benchmark for the existence of a unitary business has not been established yet. Quite the contrary, it is stated that almost overwhelming problems exist in attempting to define with any degree of precision what constitutes a unitary business.¹²⁴ Consequently, already before the increased use of ICT, defining a unitary business was extremely difficult and

¹²⁰ See also Schön, 2002: 282; McLure and Martens Weiner, 2000: 253.

¹²¹ See McLure and Martens Weiner, 2000: 251.

¹²² See Miller, 1984: 132-136. See for the United States Multistate Tax Commission, 2001: Reg. IV.9.(a); Oestreicher, 2000: 149. For Germany see sections 28-31 and 33 of the German Trade Tax Act (GewStG). In Canada, only a two-factor formula that includes payroll and sales is used.

¹²³ See for further details McLure and Martens Weiner, 2000: 264-265 and the comparative table in Oestreicher, 2000: 136-139.

¹²⁴ See Coffill and Wilson, 1993: 1114.

constituted a major source of administrative complexity.¹²⁵ Nowadays, with the advent of ICT, the problem of defining the scope of the unitary business becomes even bigger. As the use of ICT leads to an increase in hybrid forms of enterprise co-operation, the boundaries of an economic entity and, thus, of a unitary business are blurring. The issues of determining the scope of a unitary business are comparable to those of the separate entity approach regarding the question outlined in section 4.2. whether or not a transfer pricing problem exists.

5.3.3. Valuation Regarding Inter-Nation Equity and Feasibility

Inter-Nation Equity

The unitary approach is not based on comparable data, but considers just the unique economic reality of one economic entity. Consequently, it is not presumed that transactions between controlled parties are comparable to those between uncontrolled parties. The basic essentials immanent in a unitary business – the existence of economies of scope due to the close integration between the different parts of the commonly owned business – are taken into account.¹²⁶ Thus, regarding inter-nation equity, the unitary method is deemed to be based on a methodically correct theoretical background, as it considers the economic reality of a unitary business and does not compare it to others. However, when implementing the unitary method combined with FA in practice, it depends on the scope of the unitary business and the formula used whether the objective of inter-nation equity can be achieved.

Feasibility

The intention behind the implementation of FA was to provide a pragmatic solution of profit allocation among jurisdictions in order to better cope with the feasibility issues inherent in the ALP. First, in those cases in which the ALP is simply not feasible because the comparable data does not exist or cannot be identified, FA shall represent a more workable solution.¹²⁷ Second, regarding the benchmark for profit allocation, the complex search for comparables and their identification is replaced by a simple, generalised mathematical formula. Due to the simplicity of the formula, the application of FA is supposed to be more cost-effective in practice than the ALP. Third, FA is intended to prevent income shifting, as the issues regarding manipulation by use of transfer prices shall be dissolved.¹²⁸ Forth, the unitary method shall prevent the risk of double taxation inherent in the separate entity approach. Whether the unitary approach in combination with FA can really provide for a feasible taxation depends again on the respective determinants, which are the definition of the unitary business as well as the allocating formula.

¹²⁵ See Luttermann, 1996: 944.

¹²⁶ See Coffill and Willson, 1993: 1114, who consider that the unitary business concept implies far more than mere common majority ownership or simply a mechanical rule.

¹²⁷ See McLure, 1989: 246.

¹²⁸ See, regarding the United States and Germany, Jacobs (Ed.), 2002: 949; McLure and Martens Weiner, 2000: 267; McLure, 1997: 864; McLure, 1989: 245.

5.3.3.1. The Definition of a Unitary Business

One criterion for defining a unitary business is a reasonable minimum holding quota that may amount up to 75% or even 95% or 100%.¹²⁹ In the light of the *principle of feasibility*, a realisation of such a *legal test* would be workable, cost-effective and would provide for a clear cut solution. However, a minimum holding quota can be circumvented, as it allows companies to arrange its business structure in order to avoid taxation.¹³⁰ In the range of *economic criteria*, common control constitutes one prerequisite of a unitary business. Besides, another fundamental characteristic is the existence of economies of scope or other economic interdependencies. These interdependencies must be substantial, so that an allocation based on separate accounting does not provide a reliable result and is practically impossible.¹³¹ The fact that such interdependencies are becoming more frequent due to ICT encourages the inclusion of economic factors in the definition of a unitary business as the main criteria. However, economic criteria are less feasible, as they require a high administrative effort, are rather subjective and do not provide legal certainty. The use of ICT reinforces these issues, as economic interrelations are hard to identify.¹³²

Besides, an allocation of profits according to the source of profits is only consistent with the principle of *inter-nation equity* if the scope of the attributable profits includes all relevant sources according to the supply approach. This can, in general, better be guaranteed by economic criteria than by the legal criterion of a minimal holding quota, as the allocating factors in the formula are also based on economic criteria.

In order to summarise, in theory, the definition of the scope of the unitary business shall consist of economic criteria, as it depends just on economic criteria whether a unitary business exists.¹³³ However, in case these criteria do not represent a sufficient level of legal certainty or shall turn out to be impracticable, a minimum holding quota can provide for a workable solution.

5.3.3.2. The Factors Included in the Apportionment Formula

Sales Factor

As implemented in the United States, the sales factor includes all gross receipts of the taxpayer from the sale of tangible and intangible property as well as from the performance of services. Generally, sales are sited at their destination. As deduced in section 3.1. in the context of *inter-nation equity*, the supply approach

¹²⁹ See also Schön, 2002: 281; Commission of the European Communities, 2001: 374; Lodin and Gammie, 1999: 292.

¹³⁰ See Martens Weiner, 2001: 383; Coffill and Willson, 1993: 1114. Such a test may be inconsistent with the economic reality, as a company may control a corporation without majority ownership.

¹³¹ See also McLure and Martens Weiner, 2000: 266; McLure, 1984: 106-108, proposing a similar approach, the so-called three-stage test.

¹³² See also sections 4.2. and 5.3.2.

¹³³ See also McLure, 1984: 90.

shall be preferred over the supply-demand approach in order to determine the source of income. Consequently, as the sales factor represents the demand side in the apportionment formula, the latter shall generally not be included in the formula in terms of inter-nation equity.

The practical experience in the United States also shows general concerns regarding the demand factor, as the sales factor is the most difficult to calculate and to administer.¹³⁴ The valuation of sales and the determination of the demand location often pose problems.¹³⁵ Especially with the increase in digital transactions, the location of sales becomes more complex. According to the regulations in the United States, the income is excluded if sales cannot be attributed.¹³⁶ Due to ICT, these exclusions are deemed to occur more often. Furthermore, the attribution of income from intangibles poses problems in practice: Generally, sales resulting from intangibles are according to the regulations in the United States assigned to the state in which the income-producing activity is performed, or, if these activities are performed in multiple states, in which the greatest proportion is performed based on costs of performance.¹³⁷ Thus, the income is not attributed to the demand jurisdiction, but to the jurisdiction where the supply is located. Besides, in case the company is not taxable in the country of destination, a “throwback” rule is applied according to the current regulations in the United States, attributing the income to the state of origin.¹³⁸ As all the aforementioned examples occur more often due to ICT, the sales factor cannot unfold its impact and is not workable. In addition, the fact that the sales factor is mobile and not easily determinable entails the incentive to manipulate this factor.¹³⁹ Contrary to these *feasibility* problems immanent in the sales factor, in the United States, a tendency towards an increased weight of the sales factor can be observed, which is due to political reasons. As at the same time the payroll and property factors are decreased, business investments shall be attracted.¹⁴⁰

To conclude, the theoretical concern about including a demand factor is largely affirmed when considering the practice in the United States: An inclusion of the sales factor is neither consistent with the principle of inter-nation equity nor with feasibility, especially when considering the ICT-induced organisational changes within the economy. Consequently, the implementation of the sales factor in an apportionment formula is not recommendable.¹⁴¹

¹³⁴ See Martens Weiner, 2001: 385; Coffill and Willson, 1993: 1109.

¹³⁵ See Coffill and Willson, 1993: 1109; Musgrave, 1984: 241.

¹³⁶ See Multistate Tax Commission, 2001: Reg. IV.18.(c)(3).

¹³⁷ See Multistate Tax Commission, 2001: Reg. IV.17.

¹³⁸ See Multistate Tax Commission, 2001: Reg. IV.16.; McLure and Martens Weiner, 2000: 271.

¹³⁹ See also OECD, 2001: 3.65 with further examples.

¹⁴⁰ See Martens Weiner, 2001: 385; Coffill and Willson, 1993: 1106.

¹⁴¹ It is also stated that a non-integration of a sales factor would coincide with the basic understanding of “source” immanent in the separate entity approach. See Oestreicher, 2000: 180, 182-183; Musgrave, 1984: 240. Holding a different view, see Avi-Yonah, 1993: 1513, suggesting a formula solely based on sales.

Property Factor

The underlying idea of including property in the apportionment formula is that the jurisdiction in which a company's property is located shall be entitled to tax a portion of the income generated by use of the property, as the source of profits is within the jurisdiction's borders. The definition of the property factor currently used in the United States includes all real and tangible property of the taxpayer, such as land, buildings, machinery, stocks of goods or equipment.¹⁴² The property is measured at original costs.¹⁴³ Besides, equal productivity is presumed.¹⁴⁴ However, even more severe problems occur in case of intangibles, their treatment is even called the "Achilles heel" of FA.¹⁴⁵

In the United States, intangible assets are excluded from the property factor due to practical problems. When this rule was established in the 1950s, a manufacturing age, income from intangibles was not deemed to be significant. However, due to the use of ICT, intangible assets are becoming more important for the generation of profits, whereas the importance of tangible assets is relatively decreasing. In order to comply with the *principle of inter-nation equity*, the property factor has to comprise the relevant parts of a company's property. As a consequence, intangibles have to be included in the property factor in order to obtain an apportionment of profits that is consistent with inter-nation equity. Otherwise, a decisive income producing factor is missing in the formula and, consequently, the income is not allocated to its sources.¹⁴⁶

The *principle of feasibility* is fulfilled if the valuation as well as the location of the income generated by use of a company's property is workable in practice. However, including intangible assets in the property factor entails several issues, above all the valuation as well as the location of intangibles.¹⁴⁷ In theory, a *valuation* according to the actual fair market value is preferable, which is determined by the discounted value of the anticipated income inflow the property will generate.¹⁴⁸ However, in the majority of cases, these figures cannot be measured properly.¹⁴⁹ Contrary to the market price, more often, the costs for creating and maintaining an intangible can be determined. Taking the example of patents or know-how, the costs of R&D could be used to determine the value of the respective intangible.¹⁵⁰ Certainly, the use of costs for determining the

¹⁴² See Multistate Tax Commission, 2001: Reg. IV.10.(a).

¹⁴³ See Multistate Tax Commission, 2001: Reg. IV.11.(a).

¹⁴⁴ Both facts have been criticised a lot. See for example McLure and Martens Weiner, 2000: 269. As these issues are severe but not especially related to ICT, they are not considered here.

¹⁴⁵ See McLure, 1997: 865.

¹⁴⁶ Certainly, this statement is based on the assumption that omitting intangibles affects the apportionment percentage. While this still has to be proved, so far, it seems likely that an omission would have an impact. See also the discussion in McLure, 1997: 865-867; Coffill and Willson, 1993: 1107-1108.

¹⁴⁷ See also OECD, 2001: 3.70; McLure and Martens Weiner, 2000: 270.

¹⁴⁸ See also McLure, 1997: 866.

¹⁴⁹ See McLure and Martens Weiner, 2000: 269.

¹⁵⁰ The costs of R&D include the labour costs as well as costs for materials, accessories etc. They

value of intangibles may be problematic, as there is not necessarily a link between the costs of creating and maintaining the intangible assets and their actual fair market value.¹⁵¹ This problem especially holds for highly profitable intangibles. However, as the costs incurred may serve as a workable approximation, a valuation at costs seems to be the relatively best solution for the time being, especially against the background of feasibility. In any case, in terms of inter-nation equity, such an approximation is better than the total exclusion of intangibles.

In addition, the *location* of intangibles is necessary in order to assign them to a certain jurisdiction. In case the intangibles are valued at the costs of creation and maintenance, the intangibles would be located where the majority of the creation and maintenance activities takes place. For example, in case of R&D, this would be the jurisdiction where the biggest part of R&D is conducted. Whereas this approach may fit well in cases of creating an intangible by means of R&D, the valuation and location may not be that clear in case of other intangible assets, such as trademarks, whose value is driven by various factors.¹⁵² Whatever factor is used for valuation, due to ICT, it is difficult to separate the respective contributions performed in different jurisdiction.

It has to be noticed that an inclusion of the intangibles in the formula increases the risk of *manipulation*. As intangible assets are generally mobile and as their location cannot readily be determined – especially from the perspective of the tax administration –, intangibles can quite easily be relocated to low tax countries solely for tax purposes.¹⁵³ To summarise, compared to the separate entity approach, intangible property again constitutes the main problem that has to be addressed. As the importance of intangibles is deemed to increase further, the issues related to intangibles will also become even more important.¹⁵⁴

Payroll Factor

The payroll factor accounts for the contribution of labour to the generation of income. The principle of *inter-nation equity* demands that all relevant sources of the generation of income are included in the apportionment formula. Thus, due to the increased importance of human capital as an income-producing factor, it gets even more necessary to include the payroll factor in the formula.

In the current practice of the United States, “payroll” includes all kinds of compensation paid to employees, such as salaries, commissions, and bonuses.¹⁵⁵ As these figures can be determined quite easily, the *valuation* of the payroll factor is deemed to be *feasible*. However, the problem immanent in the payroll

shall be calculated on a cumulative basis, not on current expenditure. See McLure, 1997: 869.

¹⁵¹ See OECD, 2001: 6.27. For more details regarding the R&D-example, see McLure, 1997: 866.

¹⁵² See OECD, 2001: 6.4; McLure, 1997: 867.

¹⁵³ See also OECD, 2001: 3.65; McLure, 1989: 245.

¹⁵⁴ In case the feasibility issues of including intangibles in the property factor cannot be solved, intangibles might be considered in the payroll factor, as a main part of the value of intangibles is created by human capital. See also the discussion in McLure, 1997: 865.

¹⁵⁵ See Multistate Tax Commission, 2001: Reg. IV.13.(a); McLure and Martens Weiner, 2000: 270.

factor is that it is based on the assumption of equal productivity of labour in all jurisdictions, whereas, in practice, the wage levels of the various countries differ. Due to the increased mobility of companies, the difference in the wage levels may be used even more intensively nowadays. Even if the alternative of calculating the labour costs per product unit is deemed to be more reasonable, it does not seem to be workable in practice.¹⁵⁶ The aforementioned valuation problems could be avoided by using the number of employees instead of payroll. However, potential distortions may occur, as the employees' wages may differ significantly. Consequently, for the time being, the above-mentioned definition of payroll is the relatively best alternative in terms of feasibility.

Besides, the "*location*" of payroll has to be determined. According to the current practice in the United States, the payroll is assigned to a country if the majority of the employee's services are performed within the jurisdiction. Thus, a localisation of payroll is in most cases possible. If services are performed in several states, which may often be the case due to ICT, a kind of a tie-breaker rule is applied. The payroll is attributed to the state in which a part of the services is performed and where the employee's base of operations is located, where the services are directed or controlled or where the employee's residence is located.¹⁵⁷ This tie-breaker rule is deemed to be reasonable, as in the end stable criteria are used to locate the services performed.

Consequently, as the payroll factor is feasible in practice, it is the least controversial of all three factors.¹⁵⁸ The Workshop on the Experimental Application of "Home State Taxation" to Small and Medium-Sized Enterprises in the EU recommended to use payroll as the sole factor, if a simple formula is sought to allocate profits between the Member States.¹⁵⁹ Also in Germany, the payroll factor currently constitutes the only factor used.¹⁶⁰ However, a formula based solely on payroll may entail problems in case a company has a nexus, for example a permanent establishment, in a certain jurisdiction, but no employees who are working there. This may be the case if a server is maintained in a certain country without any company staff.¹⁶¹ Then, no tax revenues would be attributed to this jurisdiction by a mere payroll formula, although the company generates profits through this fixed nexus. However, these cases are rather seldom and the amount of profits generated in such a permanent establishment is deemed to be not that high. To sum up, the payroll factor shall constitute a factor in the apportionment formula, as its inclusion is feasible and consistent with inter-nation equity.

As regards the *manipulation of the three factors*, the incentive to manipulation

¹⁵⁶ See the further discussion in Oestreicher, 2000: 184-190, concluding that differences in the wage level do not lead to a substantial disadvantage of jurisdictions with a relatively low wage level.

¹⁵⁷ See Multistate Tax Commission, 2001: Reg. IV.14.(1); Martens Weiner, 2001: 385.

¹⁵⁸ See Coffill and Willson, 1993: 1107.

¹⁵⁹ See Commission of the European Communities, 2002: 6.

¹⁶⁰ See section 29 subsection 1 of the German Trade Tax Act and Oestreicher, 2000: 145-148.

¹⁶¹ See also Commission of the European Communities, 2002: 6.

exists primarily in case of taxation according to the source principle. Thus, the same effect occurs as in the case of manipulation of the ALP.¹⁶² If all countries apply the same formula, no *double taxation* occurs. Otherwise, a double taxation or an under-taxation results.¹⁶³ Again, an agreement procedure would then be necessary to ensure a one-time taxation of the companies' profits. Consequently, every participating jurisdiction should use the same formula when implementing FA.¹⁶⁴ However, a standard apportionment formula may produce an arbitrary apportionment or even inequities.¹⁶⁵ As the factors of production vary in importance for different industries, it has to be further analysed whether different formulae for different industries are preferable regarding the tax principles.¹⁶⁶ Besides, it has to be examined in more detail which effects different formulae have on the distribution of income between the jurisdictions.¹⁶⁷ In addition, it is questionable whether all profits shall be allocated according to FA or, for example, only those profits which cannot be allocated according to the ALP.¹⁶⁸

5.3.4. Interim Result and Comparison to the Arm's Length Principle

Inter-Nation Equity

Regarding the principle of inter-nation equity, a fundamental difference between the two approaches can be noticed. On the one hand, it has been shown that the ALP can only comply with the principle of inter-nation equity if transactions are conducted under market conditions. Otherwise, the basic essentials of affiliated groups are not considered and, consequently, the allocation of profits cannot be carried out according to the source of profits. As perfect market conditions are less likely to be found, the ALP can guarantee inter-nation equity less often. On the other hand, the unitary method in combination with FA takes into account the fact that several legal entities form an economic entity and it is not based on comparability. The essentials of groups of companies, such as economies of scope, are considered. This implies that FA has the potential to allocate profits in accordance with inter-nation equity. As a consequence, in contrast to the ALP, the unitary method combined with FA is based on a methodically right approach. However, in case of implementing FA in practice, the regulations regarding the scope of a unitary business as well as the apportionment formula have to be consistent with inter-nation equity in order to comply with this

¹⁶² See section 4.4. Regarding the incentives of manipulation for different allocation formulae, see Pethig and Wagener, 2003: 12-15.

¹⁶³ See OECD, 2001: 3.64, 3.66; Oestreicher, 2000: 150-151; Luttermann, 1996: 945.

¹⁶⁴ This again depends on the possibility of a political consensus. See also Herzig, 1998: 282.

¹⁶⁵ See also OECD, 2001: 3.67; McLure and Martens Weiner, 2000: 258-259.

¹⁶⁶ See also the discussion in Martens Weiner, 2001: 385; McLure and Martens Weiner, 2000: 259; McLure, 1997: 861; McDaniel, 1994: 710-711.

¹⁶⁷ See the overview of effects in Martens Weiner, 2002: 18; Martens Weiner, 2001: 382-383.

¹⁶⁸ See also Commission of the European Communities, 2001: 420, stating that in the United States, only up to 19% of the income is allocated according to a formula, in Canada up to 37%, which may be due to several reasons.

principle in practice. To conclude, if no perfect market conditions within a MNG exist, the unitary method is preferable to the ALP in the light of the principle of inter-nation equity.¹⁶⁹

Feasibility

Concerning the *feasibility in general*, in practice, the ALP is in many cases not workable. Regarding the implementation of FA, its feasibility depends on the design of the formula as well as on the definition of a unitary business. If the above-mentioned proposals regarding these two aspects were considered, a feasible solution could be reached. Besides, the general feasibility of the unitary method in combination with FA depends on the fact whether it is politically realisable. The implementation of FA would require a high degree of co-operation between the participating jurisdictions.¹⁷⁰ As regards the ALP, this political consensus has already been reached. To conclude, it depends on several aspects whether FA is more feasible than the ALP. However, once the system of FA is implemented, it seems to be more feasible than the ALP, as it does not contain so many cases in which it is not workable.

Regarding the incentive to *manipulation*, it has been shown above that the separate entity approach in combination with the ALP gives the incentive to shift profits to low tax countries by use of transfer pricing. However, also a FA approach based on intangible property and sales may entail the incentive to manipulation. Thus, the unitary method in combination with FA does not constitute an overall remedy for the issues of profit shifting inherent in the ALP. As the degree of incentives to manipulate depends on the respective kind of implementation, it cannot generally be determined which of the two concepts is more susceptible to manipulation. However, especially in case the FA method is based on payroll, the opportunities for manipulating the tax base occur less frequently. For both concepts, it has to be noticed that the incentive to manipulation depends on whether the residence or the source principle applies.

As regards the *cost-effectiveness* of the two concepts, it can be stated that the ALP turned out to be cost-intensive, as, especially due to ICT, it creates high costs for the taxpayer as well as for the tax administration. Also the method of FA may be cost-intensive, as, for example, the determination of a company's property may be complex and may require a relatively high effort.¹⁷¹ Again, it depends on the kind of apportionment formula whether FA is less cost-intensive. However, the FA approach does not have to cope with such a high quantity of separate transactions. Thus, even if precise figures are difficult to quantify, FA seems to be more cost-effective than the ALP.

Besides, a *double taxation* of profits occurs in case of taxation according to the ALP if transfer prices are adjusted by only one jurisdiction. Then, double taxation can be prevented by the EU tax arbitration convention. In case of FA,

¹⁶⁹ In a competitive equilibrium ALP and FA lead to the same allocation. See Oestreicher, 2000: 181.

¹⁷⁰ See also OECD, 2001: 3.66.

¹⁷¹ See also OECD, 2001: 3.69.

double taxation occurs if the participating countries do not all apply the same formula. Consequently, it depends on these conditions whether the risk of double taxation is higher in case of FA than in case of an application of the ALP.

To conclude, it can be stated that FA is not a cure for all the problems inherent in the ALP. It seems as if both concepts have to cope with the same issues: While the ALP is criticised regarding its inability to cope with intangibles, comparable issues arise with the FA approach, although to a minor degree.¹⁷² Thus, the problems are shifted from the determination of transfer pricing to the determination of the factors in the formula.¹⁷³ In case transactions are conducted under market conditions, the ALP is still applicable, but the number of those cases is decreasing due to ICT. In the light of the two required tax principles, it seems that the FA approach can better cope with the economic structures changed by ICT, especially if the recommendations regarding its implementation are considered. As a consequence, to conclude, FA shall be preferred regarding the special issues of the changed economic structures.¹⁷⁴ This is especially valid when considering future developments, because the impact of ICT on the economy is supposed to further increase.

5.3.5. Formula Apportionment in the European Union

Especially for the EU, the implementation of a harmonised FA approach can represent a suitable alternative of profit allocation within MNGs. This is due to the widespread use of *ICT* across Europe as well as to the ongoing *European integration* regarding economic and financial markets. The number of MNGs within the EU is quite high and a lot of intragroup cross-border transactions are taking place. Up to now, this level of integration has not been achieved in the field of taxation. Currently, 15 different company tax systems are coexistent – and soon, there will even be 25 national tax systems. As a consequence, the aforementioned issues of the ALP regarding the ICT-induced organisational changes are raised to a great extent and it is worth considering the implementation of FA in the EU.

In a study issued by the *European Commission* in 2001 regarding company taxation in the Internal Market, transfer pricing issues turned out to be one of the main current tax obstacles in the EU. Based on these results, the European Commission has made different suggestions of reforming and harmonising company taxation in the EU which are all based on an indirect approach of profit allocation.¹⁷⁵ The concept with the lowest level of harmonisation is the concept of *Home State Taxation* (HST). Pursuant to this approach, MNGs compute their taxable base according to only one single tax system, the tax code of their home

¹⁷² See also Coffill and Willson, 1993: 1108. In principle, the same reasons cause effects in the same fields, but to different extents.

¹⁷³ See also Jacobs (Ed.), 2002: 282.

¹⁷⁴ See also Doernberg et al., 2001: 380; Musgrave, 1972: 403, 407.

¹⁷⁵ See for the different concepts Commission of the European Communities, 2001: 373-378.

state. The Member States administrations accept, under a form of mutual recognition, the tax codes of the other Member States. A second proposal consists in a *Common Consolidated Base Taxation* (CCBT). The difference compared to HST lies in the fact that the tax base of the MNGs is calculated according to an optional new code which is adopted across the whole EU. Thus, the Member States agree on a set of common rules. In both concepts, the tax rate is set by the individual Member States. The third approach is the so-called *European Union Company Income Tax* (EUCIT), which requires the draft of a new, single corporate tax code with a single tax rate to be applied across the EU. Thus, Member States have to give up an element of their fiscal sovereignty. The fourth suggestion of the European Commission consists in a *Single Compulsory Harmonised Tax Base* (CHTB). According to this approach, a single corporate tax code would replace the existing 15 or 25 domestic tax codes and would be applied to all enterprises within the EU.

In order to assess the approaches according to their appropriateness, in general, the implications deduced above regarding the implementation of the unitary method combined with FA are again valid. In case of all four concepts, the problems concerning *transfer pricing* can be resolved, as the method of separate accounting is replaced by an indirect method of profit allocation.¹⁷⁶ The issues of *manipulation* and *double taxation* can be reduced as well.¹⁷⁷ Besides, the *compliance costs* can be decreased, as the enterprises mainly have to deal with only one tax code. However, differences exist: Under the concept of HST, no additional tax system has to be introduced, whereas in case of the other concepts, the costs for the tax administration may even increase due to the operation of two tax codes.¹⁷⁸ Furthermore, the concepts differ regarding the feasibility of a *political consensus*: A mutual recognition may be easier to achieve than a harmonisation of the different tax codes. Especially for the EUCIT and the CHTB, a political consensus is hard to achieve, as individual Member States are not supposed to give up their fiscal sovereignty easily.¹⁷⁹

As regards the *scope* of the unitary business, the concepts differ concerning the level of harmonisation. The HST approach is based on the definition of a unitary business in the home state. Thus, differing definitions of the unitary business might lead to inconsistencies and double taxation. The other three concepts are based on an Europe-wide definition of the unitary business. They are deemed to be preferable, as they allow for a new, uniform European definition of the unitary business which can comply with the tax principles.

Concerning the *revenue allocation*, the European Commission has suggested three different methods of apportioning the income: FA or an allocation

¹⁷⁶ See Commission of the European Communities, 2001: 388. An approach based on harmonisation should resolve obstacles to a greater extent than an approach based on mutual recognition.

¹⁷⁷ See Commission of the European Communities, 2001: 378.

¹⁷⁸ See Commission of the European Communities, 2001: 398.

¹⁷⁹ See also Schön, 2002: 283-284; McLure and Martens Weiner, 2000: 271. In particular, the need to reach unanimity in tax matters represents an obstacle for an implementation of FA in the EU.

according to the value added as two forms of allocating profits on a micro level, and an allocation on the macro level, i.e. based on economic data at the level of the Member States.¹⁸⁰ Generally, there is no difference between the four concepts concerning the apportionment of profits. As regards the method of FA, the results outlined above are again valid. Within the EU, the incentive to manipulate the factors could be lowered to a certain extent by imposing minimum and maximum rates in order to limit the spread between the tax rates.¹⁸¹ Besides, an allocation according to the value added may constitute an alternative. The necessary data is already recorded and collected within the EU for value added tax purposes. It is presumed that it is more difficult to manipulate an apportionment based on the value added and that it is easier to detect.¹⁸²

There are some other general *caveats* concerning the implementation of FA in the EU which still require further research. For example, it has to be clarified how the allocation of profits between Member States and third countries should be organised.¹⁸³ Besides, an agreement regarding the basic rules for a uniform tax base has to be achieved. Here, the set of International Accounting Standards may serve as a common basis which has to be modified adequately for tax purposes.¹⁸⁴

To conclude, the concepts suggested by the European Commission are considered to be a good starting point for reforming the company taxation in Europe, as they are based on the indirect method of profit allocation which turned out to be more suitable in case of the specific ICT-induced changes within the organisational structures of MNGs. Regarding the differences between the approaches, further research is still necessary which one is preferable from an economic point of view and, at the same time, can be implemented in practice from a political point of view. In general, the more likely a political consensus for an approach can be achieved, the less preferable it is under economic aspects.¹⁸⁵ Perhaps the CCBT can constitute the alternative that complies best with these two requirements in a medium-term. All in all, it seems that FA has a promising future for company taxation in the EU.

6. Conclusions

- (1) The use of *ICT* within the economy leads to a rising number of cross-border transactions. At the same time, transactions and the organisational structures of companies become more and more specific and, thus, less comparable. The importance of human capital and of mobile factors of production, such as intangible assets, increases. Besides, different forms of

¹⁸⁰ See Commission of the European Communities, 2001: 407-415.

¹⁸¹ See also McLure and Martens Weiner, 2000: 263.

¹⁸² See Commission of the European Communities, 2001: 414.

¹⁸³ See McLure and Martens Weiner, 2000: 259.

¹⁸⁴ See for further details Spengel, 2003a.

¹⁸⁵ Concerning a summary of the pros and cons of the four concepts see Mors, 2002: 22-23.

enterprise co-operation emerge. The contribution of each entity to the value added is often hard to identify.

- (2) The *ALP* can only comply with the principle of *inter-nation equity* if intragroup transactions are conducted under market conditions. Due to the use of ICT, these cases exist less often. This is valid for traditional transaction methods as well as for transactional profit methods.
- (3) The *ALP* encounters difficulties regarding the *feasibility* in practice, as comparable transactions necessary for its implementation exist less often. Besides, it tends to be cost-intensive and entails the incentive to manipulation. In addition, a double taxation of profits can occur under the *ALP*. Possible adjustments, such as *APAs* or transactional profit methods, can mitigate the feasibility issues only to a limited degree.
- (4) When considering *FA* as an alternative, it cannot be recommended to include the sales factor in the *formula*. As regards the consideration of the property factor, especially intangible assets shall be included, provided that their identification and valuation is possible. Besides, the payroll factor is considered a suitable element of the formula. The scope of a *unitary business* shall in theory be defined according to economic criteria. If they do not provide certainty in practice, legal criteria should be used.
- (5) As regards the special issues of the changed economic structures due to ICT, the *FA* approach – on the basis of the above-mentioned recommendations – is preferable over the *ALP* in the light of the principle of *inter-nation equity*. This is due to the fact that the unitary method in combination with *FA* takes into account the essentials of an economic entity and can provide for an allocation according to the source of profits. Besides, *FA* tends to be more *feasible* than the *ALP* approach, as it is not based on separate comparable transactions. Thus, it is deemed to be more cost-effective and less susceptible to manipulation. However, the political consensus necessary for an implementation of *FA* may be hard to achieve.
- (6) Based on this outcome, *FA* may constitute a suitable alternative of profit allocation especially for the *EU*. For this purpose, the proposals made by the European Commission are considered to be a good starting point. Still further research is necessary in order to decide which concept shall be preferred from an economic as well as a political point of view.

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