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**Research Report**

## The challenge of moving to a Common Consolidated Corporate Tax Base in the EU

IW-Report, No. 2/2019

**Provided in Cooperation with:**

German Economic Institute (IW), Cologne

*Suggested Citation:* Hentze, Tobias (2019) : The challenge of moving to a Common Consolidated Corporate Tax Base in the EU, IW-Report, No. 2/2019, Institut der deutschen Wirtschaft (IW), Köln

This Version is available at:

<https://hdl.handle.net/10419/191535>

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## **IW-Report 2/19**

# **The challenge of moving to a Common Consolidated Corpo- rate Tax Base in the EU**

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Cologne, 14.01.2019



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**JEL-Classification:**

H25 - Business Taxes and Subsidies

H26 - Tax Evasion and Avoidance

## Summary

The introduction of a Common Consolidated Corporate Tax Base (CCCTB) in the European Union (EU) would substantially change the rules of the game in international taxation. According to the proposal by the European Commission (EC), the profits of a Multinational Enterprise (MNE) would no longer be assessed by using the arm's length principles and (hypothetical) market prices, but split based on a formulary apportionment. This implies that an allocation key consisting of sales volume, number of employees and capital invested would be applied to distribute the taxable profits of an MNE.

From an economic perspective, the principle of taxing profits at source would be thereby abolished. However, due to the current difficulty for taxpayers and tax authorities to agree on adequate transfer prices, a radical change as proposed by the EC might be reasonable. Hence, the EC proposal for the CCCTB is a promising goal as it could lower the red tape burden for MNE as well as tax authorities. Furthermore, the adjustment of the debt bias and the encouragement of R&D as additional items of the EC proposal could stimulate economic growth.

A main obstacle for the implementation of a CCCTB would be the expected shifts in tax revenue which make a political agreement at the EU level very difficult. The application of a CCCTB would substantially redistribute corporate profits among the EU member states as a simulation by the German Economic Institute (IW) shows. Especially, Ireland, Luxembourg and Malta would receive significantly less tax revenue since sales volume, number of employees and capital invested are relatively small in these countries. France and Italy, in contrast, would be on the winning side. Germany would also benefit even though to a rather low degree. A main reason for this result is that the strongly exporting German corporations today pay a large proportion of their corporate taxes in Germany. With the application of the CCCTB, parts of the taxable profits would be allocated to foreign countries.

From a systematic point of view, the CCCTB is only convincing if there is a global commitment. A simulation of the tax revenue effects for the G20 countries when applying a CCCTB shows that the shift would also be drastic. The EU member states - even the big ones - would have to accept lower taxable corporate profits. Instead, the United States could increase the corporate tax base mainly because of the high consumption level. China and India would benefit due to the large number of employees. Thus, whether a country ranks among the winners or losers in terms of tax revenue depends foremost on the peer group.

## 1 Introduction

International tax competition has been an emerging issue for years. There are various political approaches to agree on common standards on a supranational level. In 2013, the OECD presented a first draft of its action plan against Base Erosion and Profit Shifting (BEPS), which has been eventually finalized. The final report was published in 2015. Based on the OECD outcome, the European Commission (EC) launched a renewed proposal of a Common Consolidated Corporate Tax Base (CCCTB) in October 2016. When in 2011 the EC had originally presented the idea of a CCCTB, it was lacking political support. This time, things might be different. Especially, the governments of France and Germany have reintroduced their idea of harmonizing their corporate tax law (BMF, 2018a).

The EC splits its renewed proposal into two stages. In a first step, a Common Corporate Tax Base (CCTB) shall be ratified by the member states, i.e. without any consolidation of profits. Subsequently, the consolidation of the CCTB shall be amended. For Multinational Enterprises (MNE) with an aggregated turnover of at least 750 million Euro, the application of the CCCTB is supposed to be obligatory.

The proposal focuses on harmonizing the accounting rules and hence the tax base. This shall be achieved by setting up common depreciation rules and, then, applying a profit split to allocate multinationals' profits to the countries involved. However, the initiative does not consider the harmonization of tax rates.

Compared to the prior approach in 2011, the concept has been essentially changed. A remarkable modification refers to pension allowances. The renewed proposal cedes the tax rules in this regard to the member states and resigns the determination of a fixed discount rate. Furthermore, the EC initiative addresses new issues which have not been included in the previous attempt. First, the preferential tax treatment of debt is challenged by the EC since this debt bias might distort investment decisions. Second, R&D incentives are regarded as crucial to boost innovation. Therefore, a common approach within the European Union (EU) is recommended to establish a level playing field.

There are still significant obstacles on the path to a harmonized corporate tax regime in the EU. The EC initiative would rather be a revolution than a reform in international tax matters. The impact on the distribution of tax revenue could be therefore significant. As tax regulation requires unanimity in the EU, changes are hard to achieve.

## 2 Current international tax scheme

### 2.1 The arm's length principle

A major part of international transactions take place within MNE. These intercompany transactions determine the profit level of each subsidiary of the company group. Therefore, the respective internal prices for goods and services traded within an MNE are highly relevant in international tax issues. By now, the so called arm's length principle is unambiguously the worldwide standard in transfer pricing legislation. According to this principle, payments for goods, services and intangibles within an MNE have to be in line with market prices. Economic theory suggests that the higher the added value in a value chain, the higher the corresponding internal transfer price. The consequences for international business are straightforward. Since intellectual property (IP) such as specific knowledge and technology in terms of patents and trademarks is regarded as key for a company's success, the main share of the generated profits is allocated to the subsidiaries where IP is registered. As a consequence, other steps in the value chain, e.g. production and distribution, are valued less. This leads to the remarkable result that production and distribution entities – despite their high number of employees – only receive a small share of the total profit generated in the value chain of an MNE. While the arm's length principle, which was established by the OECD (OECD, 1979), is theoretically convincing and widely accepted among tax experts, it lacks support in the public debate. For policy makers, it seems hard to explain why MNE with significant sales volumes and numerous employees in a country only pay low taxes.

Besides this political argument, there are several practical pitfalls by applying the arm's length principle. It is impossible to precisely determine market prices for all (intermediate) goods and services. Market conditions differ between locations, i.e. in terms of purchasing power, consumer preferences and degree of competition in the market. Especially, the determination of a market price for intangible assets is challenging. At the same time, intangibles are getting more and more important in a digitalized world. Thus, the application of the arm's length principle often fails or, at least, the resulting internal transfer prices are subject to severe discussions between taxpayers and tax authorities. The existing scheme leaves the door open for a broad scope of discretion for MNE when determining transfer prices.

### 2.2 Profit shifting and tax avoidance

Due to the broad scope of discretion, governments suspect that MNE do not pay their fair share in taxes. Therefore, the recent initiative against BEPS starts from the insight that profit shifting and tax avoidance is a major issue for public finances (OECD, 2015). As there is no doubt that MNE search for possibilities to shift profits to low tax countries or to use tax loopholes, the



extent of profit shifting and tax avoidance is unknown.<sup>1</sup> However, there are various studies to estimate the magnitude.

The OECD (2015) estimates that the worldwide corporate tax losses from profit shifting and tax avoidance by MNE amount to 4 to 10 percent of corporate tax revenues, i.e. 100 to 240 billion US Dollars per year. The wide range indicates that a solid guess can be hardly made. Other findings in the literature do not provide any robust results and highly differ from the OECD results. For instance, a study by the European Parliamentary Research Service (2015) estimates the total fiscal effect for every EU country using a macroeconomic approach with national account data. The corporate tax loss for the EU is estimated to amount to 50 to 70 billion Euros per year, i.e. 17 to 24 percent of corporate tax revenue. The EU study predicts that approximately 30 to 35 billion Euros of the EU tax loss are accounted for by Germany, which would be equal to more than 40 percent of Germany's tax revenue paid by corporations. Still, both approaches are based on questionable assumptions and might overestimate the actual extent (Beznoska/ Hentze, 2016).

A recent study concludes that MNE annually shift 40 percent of their profits or 600 billion US-Dollar to tax havens (Torslov et al., 2018). By using macroeconomic data, the authors show that corporate tax revenue in relation to the national income is higher in tax havens than in other countries. This is explained in the paper by the ability of MNE to use interest payments and royalty fees to artificially increase the profits before tax in tax havens to the harm of non-havens. The authors characterize intercompany transactions as profit shifting even if the applied transfer prices, i.e. the interest rate for loans or the royalty rate for trademarks and licenses, are in line with the international standards and not challenged by tax authorities. The authors simply do not acknowledge the possibility of MNE to relocate intangible assets or to found a finance company. Furthermore, they presume that foreign-controlled companies are as profitable as local companies, which seems rather restrictive as synergies or efficiency gains are disregarded.

In fact, from a German perspective there is evidence that the public purse benefits from the existence of MNE. According to empirical evidence, global player contribute to a larger extent to the tax revenue than companies that exclusively do business in Germany (Hentze, 2015). Furthermore, MNE pay higher effective tax rates than local companies (Watrin/Thomsen, 2016). However, these results do not imply that profit shifting can be neglected.

There is strong evidence in the empirical literature that tax rates are a determining factor for the relocation of businesses and investments (Benassy-Quéré et al., 2005; Devereux/Freeman, 1995; Hines, 1996). Thus, tax differentials influence company decisions and constitute tax competition between countries. The average corporate tax rate in the EU is equal to 23 percent with the lowest one in Bulgaria and the highest one in Malta (Figure 2-1). The initiative by the EC focuses on a consolidated common corporate tax base but not on harmonizing corporate tax rates. By now, the main obstacles for a fair tax competition are not extremely low nominal cor-

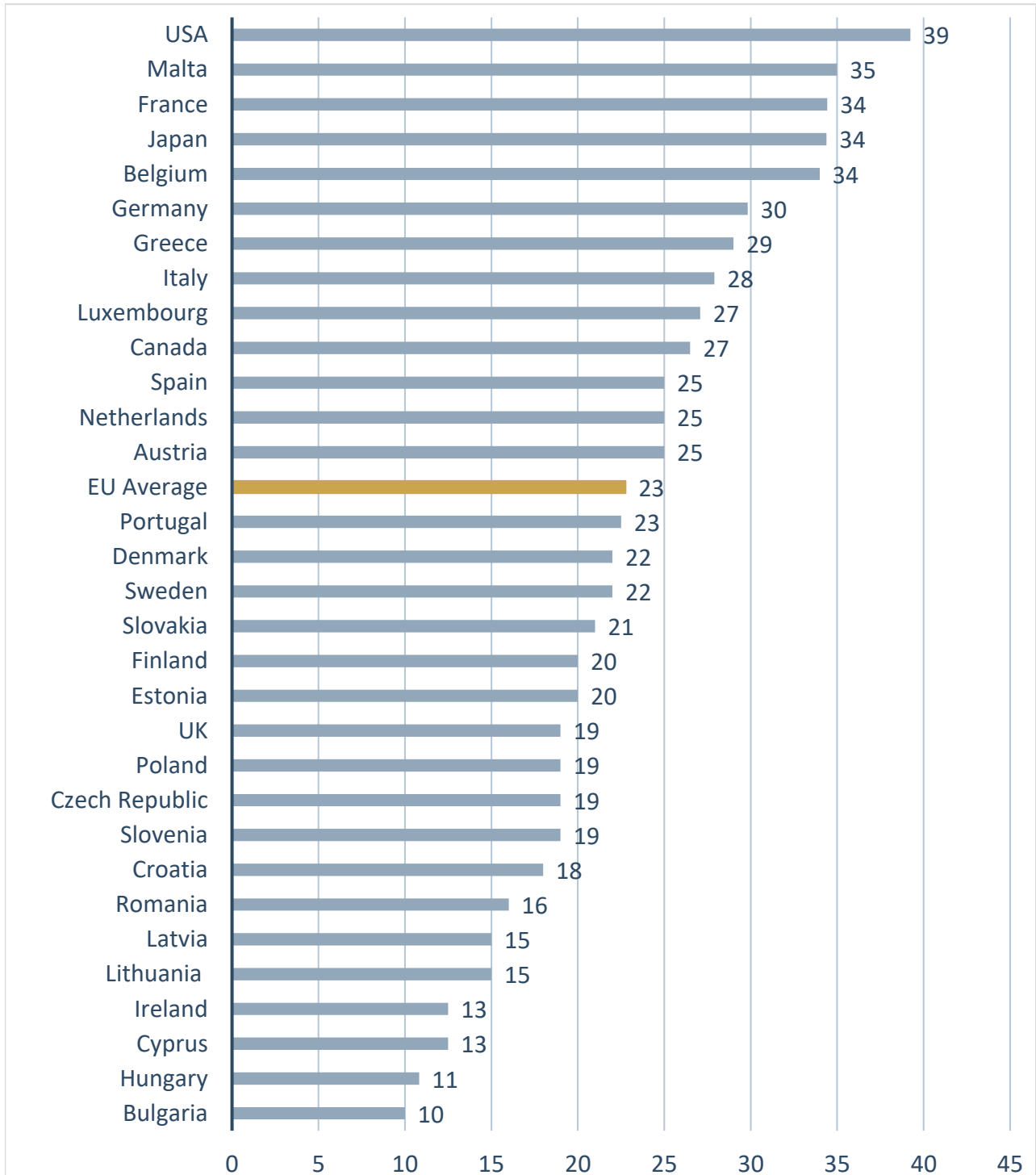
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<sup>1</sup> Profit shifting and tax avoidance are legal tax optimization strategies and have to be distinguished from illegal tax evasion activities. The latter one is not subject to this paper.

porate tax rates but preferential tax regimes and tax rulings, i.e. individual arrangements between national tax authorities and taxpayer. This kind of tax dumping would not be possible anymore when a CCCTB is established. Therefore, the risk for a race to the bottom could be significantly lowered.

**Figure 2-1: Statutory Corporate Tax Rates**

In percent for 2017 including local taxes



Source: BMF, 2018b

## 3 The EC proposal for a new international tax scheme

### 3.1 Formulary Apportionment

In 2016, the EC launched a proposal for a CCCTB in order to fight profit shifting and tax avoidance (European Commission, 2016). The Commission's plan aims at radically changing the rules of the game in international tax policy. The proposal would abolish the arm's length principle since profits would be allocated based on a formulary apportionment. Profit splits or formulary apportionments are hardly accepted in most countries.

The proposal launched in 2011 was not implemented due to political disagreement. This time, the EC plans to implement the CCCTB in a two-staged approach. Firstly, rules for the common tax base shall be established, later the consolidation of profits and losses shall be amended. In general, a comprehensive implementation of the CCCTB would be favourable since both steps belong to each other. Assuming, for example, that the CCCTB leads to profits in Country A and to losses in Country B, the taxation of the full amount of profits in Country A would disregard the losses in Country B. Thus, on a global level the amount of profits within the MNE would be overestimated. Therefore, the losses have to be subtracted from the profits before tax. This shows the necessity of a consolidation mechanism. However, the implementation of the CCCTB in one integrated step is considered to be not realistic by the EC due to political reasons.

Instead of determining individual transfer prices, a profit split distributes the overall profit of an MNE based on an allocation key. According to the EC, this allocation key shall consist of three pillars, namely the sales volume, the number of employees and the capital invested. The EC argues that profits shall be allocated where value is created. This implies that the economic value can be derived from these three factors. It is obvious that the terms added value and economic activity are interpreted differently by the arm's length principle and the formulary apportionment.

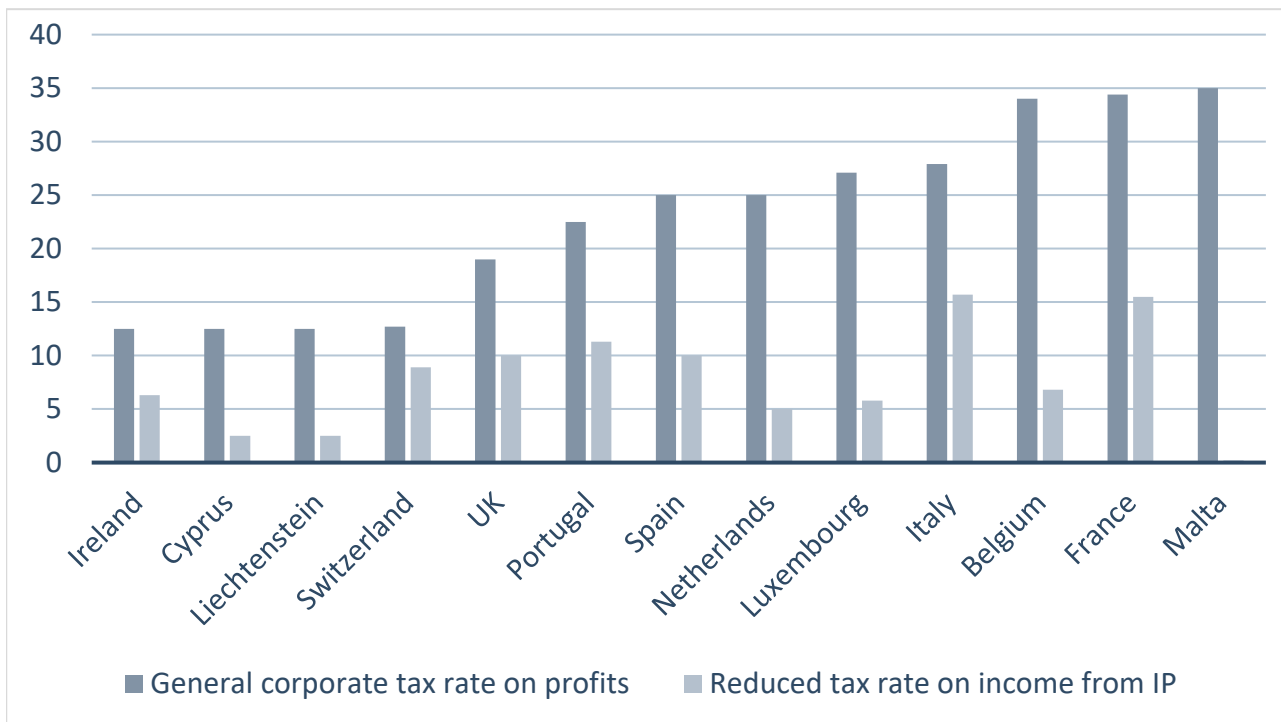
The OECD denies any formulary apportionment as suggested by the EC by arguing that this would not be agreed on by independent parties (OECD, 2017, 145). Hence, the resulting profit allocation does not reflect market conditions. Furthermore, profit splits can only work when all countries involved accept the determined profit allocation and have common accounting standards. Otherwise, double taxation (or double non-taxation) might occur (OECD, 2017, 39-42). From an economic point of view, it is questionable if any profit split method is more convincing than relying on (hypothetical) market prices as in the current system. However, since the determination of (hypothetical) market prices lacks sustainable results especially in the digital economy, modifications are reasonable.

Beyond the issue of appropriately estimating the economic value, the implementation of a formulary apportionment has some practical advantages. Countries lose the incentive to offer tax discounts by establishing so called patent or license boxes. As of today, many countries even in the EU use this instrument to attract intellectual property (IP) of MNE. The income derived from

these trademarks and patents are then taxed at a lower rate compared to the regular corporate tax rate (Figure 3-1). A formulary apportionment system would neglect this tool and, therefore, contribute to a fair tax competition.

**Figure 3-1: Patent Boxes in Europe**

In percent



Sources: German Ministry of Finance, EY, Canton Nidwalden

A main drawback relates to the implementation of a profit split only on a European level. Since MNE usually also have operating businesses outside the EU, parts of their profits have to be allocated to third countries. However, if the tax authorities of these countries do not accept the accounting standards and the resulting tax base, the companies will suffer from double taxation. Furthermore, even if the application of the allocation key sounds simple in theory, questions about the calculation of the relevant sales figures, the determination of the capital invested and the enumeration of the employees will arise (OECD, 2017, 135). A common framework in all countries would be a prerequisite as tax harmonization is not only eligible within the EU but also outside the EU.

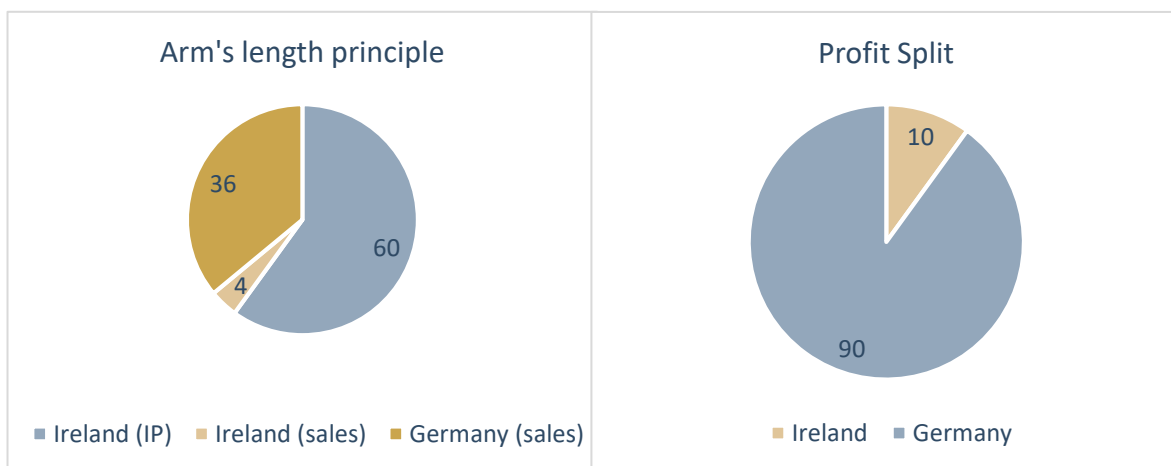
For the case of Germany, the consequences of such a radical change of the transfer pricing system would be enormous. By now, MNE headquartered in Germany pay a rather high share of their global taxes in Germany. For instance, MNE in the chemical industry paid from 2013 to 2015 between 46 and 60 percent of their profit taxes in Germany, while the turnover share only amounted to 18 to 20 percent (BDI/VCI, 2017). According to data for 2013 and 2014, the 30 biggest listed companies in Germany (Dax 30) earned every fourth Euro in Germany while they pay one third of their global taxes in Germany. If the Dax 30 companies had to pay only one fourth instead of one third of their global taxes in Germany, the tax revenue loss for Germany

would be equal to approximately 2 billion Euros per year. With respect to the large number of MNE in Germany – listed in other stock indices or privately organized – the tax loss would be much higher. However, the total effect would be ambiguous as MNE headquartered outside the country could pay more taxes in Germany.

The dramatic consequences of altering the tax system can be illustrated by referring to the following example. Assuming an MNE headquartered in Ireland and with a subsidiary in Germany generates sales with regard to a software tool of 900 million Euro in Germany and 100 million Euro in Ireland (Figure 3-2). The patent for the tool is registered in Ireland. According to the arm’s length principle the remuneration of the sales function is approximately 4 percent of the turnover, equal to 36 million Euro in Germany and 4 million Euro in Ireland. The remaining profits are allocated to Ireland for the IP. According to a formulary apportionment based on the sales volume, Germany receives 90 million Euro and Ireland 10 million Euro. These amounts are then taxed by applying the national corporate tax rate.

**Figure 3-2: Taxable profits according to the transfer pricing regime**

In million Euro



Source: German Economic Institute

### 3.2 Tax revenue effects

Since the idea of using a formulary apportionment instead of the arm’s length principle rather means a revolution than a reform to international taxation, the effects on the distribution of taxable profits are supposed to be remarkable. An estimation based on available data for EU member states and G20 countries supports this view.

For this purpose, the amount of taxable profits per country is firstly determined for all companies in a country, i.e. without any turnover threshold. Torslov et al. (2018) reckon the total corporate profits by country for 2015 based on national accounts. These profits are then divided into profits generated by domestic companies and profits generated by foreign controlled companies. The latter profits are by definition generated by MNE headquartered abroad and are

therefore theoretically subject to profit shifting. Hence, these profits would be considered when applying a formulary apportionment. Furthermore, a certain share of domestic profits is generated by MNE headquartered in the home country. The respective amount is also theoretically subject to profit shifting and formulary apportionment. Since the amount of these profits is unknown, the export exposure of an economy (i.e. exports in terms of GDP for 2016 according to data by OECD<sup>2</sup>, Eurostat<sup>3</sup> and World Bank<sup>4</sup>) is used as a proxy for determining the share of domestic profits that is derived from doing international business. As exports are not exclusively made by MNE but also by purely domestic companies, the number would overestimate the profits generated by local MNE. Therefore, an assumption is needed for the exports made by MNE. For simplification purposes, the share is set to 70 percent for all countries. Thus, 70 percent of the domestic profits generated from international operations (export exposure) are allocated to MNE and are therefore considered in the simulation. This implies, that the rest is allocated to (exporting) local companies. It is straightforward that a higher percentage rate increases the redistribution volume while a lower rate reduces it. Eventually, this approach leads to the amount of taxable profits per country which is maximally subject to profit shifting.

The resulting amount equals the profits which qualify for a formulary apportionment. Subsequently, the distribution of these profits on a country level is compared to a hypothetical allocation by using the formulary apportionment proposed by the EC, i.e. sales volume, number of employees and capital invested. The country shares for the profit split are calculated based on data (provided by Oxford Economics) for capital stock, employment and private consumption (as a proxy for the sales volume). These macroeconomic proxies do not exclusively refer to MNE but to the economy as a whole. In line with the EC proposal, the three elements of the allocation key are equally weighted to calculate a country's profit share. As a result, Germany's share with regard to the EU member states is about 21 percent followed by France (15 percent), the United Kingdom (14 percent) and Italy (12 percent).

The basic idea of the analysis is to see the fundamental effects on a country's tax base. However, the results are rather indicative than an exact guess due to the restrictive assumptions. As behavioural effects of MNE are not accounted for, the interpretation of the numbers is further limited. However, the results illustrated in Figure 3-3 and Figure 3-4 indicate whether a country benefits from the current system or would be better off when establishing a formulary apportionment.

In Figure 3-3, the simulation results are shown for the EU member states. Bulgaria, Croatia, Cyprus, Lithuania and Romania are not considered due to data restrictions. For Malta and the Netherlands the real capital stock can only be roughly estimated. The outcome of the simulation is in line with theoretical considerations. On the one hand, EU tax havens as Ireland, Luxembourg, Malta and the Netherlands are the biggest losers in terms of taxable profits. On the other hand, the winners are large countries as France, Italy and Spain as well as rather small countries

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<sup>2</sup> See <https://data.oecd.org/trade/trade-in-goods-and-services.htm>.

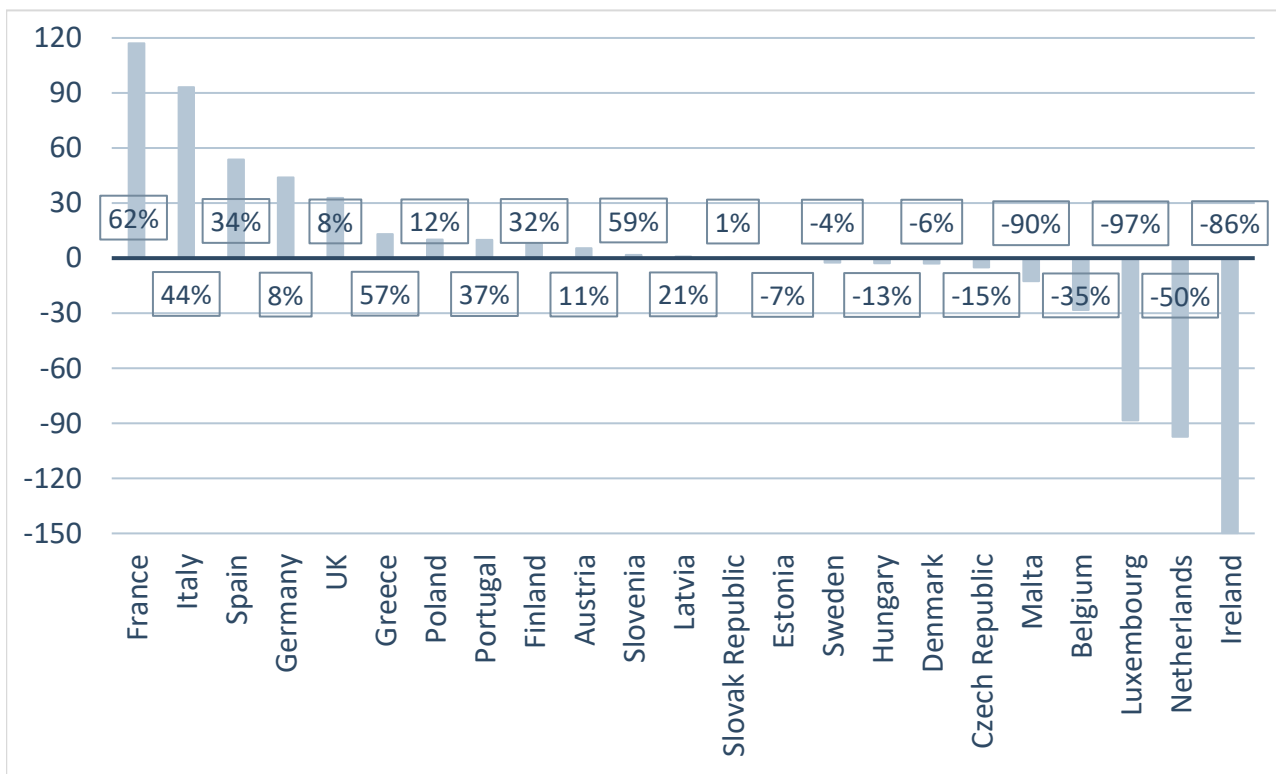
<sup>3</sup> See <https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=de&pcode=tet00003&plugin=1>.

<sup>4</sup> See <https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS>.

not being known as tax havens such as Slovenia and Greece. Especially, the large countries benefit from the focus on consumption, capital invested and employment. The only exceptions are Germany and the United Kingdom as their gain is comparatively small. With regard to Germany, the high export share is a possible explanation for this result since the current system is rather in favour of strong exporting countries. In the UK, the financial sector offers several tax incentives under the current regime that would not exist anymore under a formulary apportionment. Still, Germany and the UK benefit from the formulary apportionment. According to the simulation, the corporate tax revenue in Germany would increase by approximately 13 billion US Dollar or 11 billion Euro applying a tax rate of 30 percent.

### Figure 3-3: Redistribution of taxable profits in the EU member states

Changes under a formulary apportionment in billion US Dollar and in percent of the total taxable corporate profits



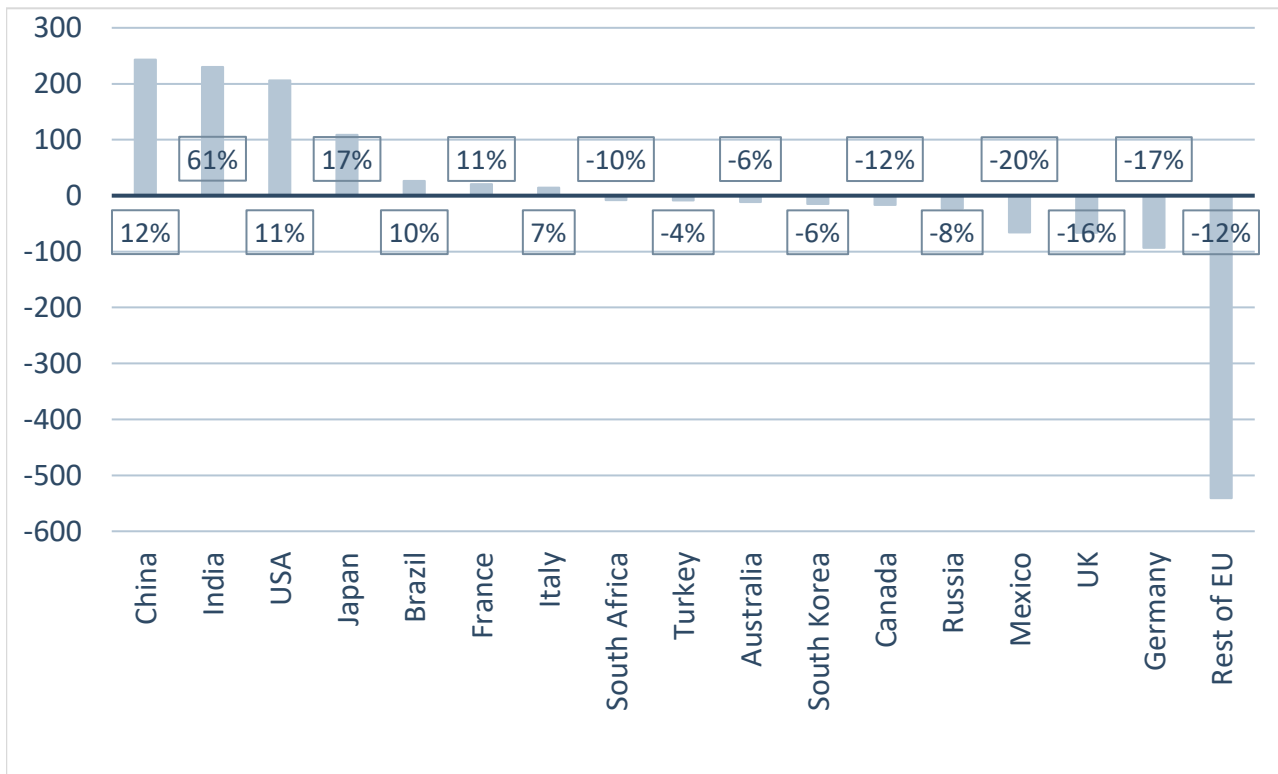
Source: German Economic Institute

In Figure 3-4, the analogous analysis is performed for the G20 countries (except Argentina, Indonesia and Saudi-Arabia due to missing data). Interestingly, EU countries are the biggest losers in terms of taxable profits. For other industrialized countries as the United States and Japan the picture is different. Lower export shares are a relevant factor for this pattern. India and China as one of the world's biggest job centres are also unsurprisingly on the winner side. A closer look at Europe reveals that the huge loss for the rest of the EU can be mainly allocated to the tax havens named above. The G20 members France, Germany, Italy and the United Kingdom are also worse off compared to Figure 3-3. In terms of corporate tax revenue, the simulation in Figure 3-4 reckons for Germany decline of approximately 28 billion US Dollar or 24 billion Euro.

Within the EU, the tax havens have to give away parts of their taxable profits in favour of the large countries with high consumption levels and many jobs. Now, France, Germany, Italy and United Kingdom lose for the same reasons as the tax havens because countries like China and India have many more employees and the United States and Japan have higher consumption levels. In conclusion, a formulary apportionment is generally beneficial for large countries. Therefore, it depends on the peer group if a country is amongst the winners or losers.

**Figure 3-4: Redistribution of taxable profits in the G20 countries**

Changes under a formulary apportionment in billion US Dollar and in percent of the total taxable corporate profits



Source: German Economic Institute

In fact, the implementation of a formulary apportionment would significantly redistribute taxable profits. From an economic perspective, this kind of profit split weakens the coherence between added value and taxable profits as, for example, not the number of employees but their productivity, not the amount of capital invested but its rate of return and not the consumption level but the total income are crucial in terms of the value chain.

However, from a political perspective a radical change might be reasonable as a formulary apportionment is rather simple and transparent. Huge fabrics and crowded shopping streets are then interpreted as visible indicators for the amount of profits and tax revenue. Furthermore, the possibilities to manipulate the tax base by setting distorted transfer prices would be eliminated. Still, disputes between taxpayers and tax authorities with regard to the tax base are likely. The EC proposal would substantially alter the tax revenue distribution in the EU. Therefore, it is more than doubtful that all member states agree with the proposal.



## 4 Further elements of the EC proposal

### 4.1 Deduction rules

There are several aspects that might be an obstacle on the road to a CC(C)TB with regard to the harmonization of country-specific rules. An important issue concerns the deduction rules which determine the tax base. Therefore, they are at least as important as tax rates.

The EC proposes a linear depreciation with appropriate time periods for different asset categories. The declining-balance depreciation was not considered. This means that the amount of money which is deductible declines over time as, for example, a machine does not constantly lose its value but mainly in the first years of usage. In Germany, this method was abolished in 2011 and replaced by a linear depreciation. In contrast, the recent tax reform in the United States has implemented a cash flow tax, i.e. assets are immediately and fully deductible.

From a government perspective, the linear depreciation method leads to a higher tax revenue in the short term. In the long run, however, there is nominally no difference between the declining and linear methods since an investment can be eventually fully depreciated in any case. Thus, the nominal amount of taxes paid over the whole period considered does not depend on the deduction method. From a company's point of view, declining depreciation would be an incentive for more investments since it generates a positive liquidity effect. In this regard, the CCCTB proposal is not in favour of fostering private investment.

A common tax base will not be fully accomplished according to the EC proposal since, for example, the deduction of pension provisions is not unambiguously regulated. Under the CCTB, member states shall be free whether they provide for the deduction of pension provisions for defined benefit plans or not (Article 24). As a consequence, the tax base might be lowered in some countries by deducting pension provisions for defined benefit plans while this would not be the case elsewhere.

### 4.2 Debt Bias

A further innovation of the new CCCTB proposal is the tax treatment of equity. According to economic theory, taxes should not distort corporate investment decisions. However, the tax practice in many countries looks differently. While borrowing costs are tax deductible, imputed equity expenses are not. The "tax shield" results from the multiplication of interest expenses and tax rate.

The debt bias might lead to distorted economic decisions since it prevents financial neutrality. From a tax perspective, it makes a fundamental difference if investments are financed via debt or equity. Therefore, many companies prefer financing investments by loans. However, by doing

so the financial exposure rises. Higher leverage ratios increase the risk of illiquidity. Furthermore, especially start-ups face significant problems in financing their projects because it is more difficult for them to get loans. They depend on equity by venture capitalists which is at a disadvantage compared to debt. This limits the growth potential of the economy.

Germany is not the only country promoting debt by far, but there are countries which have established neutrality, for example Belgium and Italy. Neutrality between the two ways of financing an investment can be achieved by allowing the same rules for equity-financing as well as for debt-financing. There are two opposing possibilities for correcting the current debt bias. Firstly, the allowances for debt could be granted for equity as well or, secondly, the deductibility of interests could be abolished. The latter option refers to the so called CBIT (Comprehensive Business Income Tax) which would lead to higher capital costs with restrictions for investment and growth.

In contrast, the introduction of an allowance for equity could be accomplished with two methods: COCA (Cost of Capital Allowance) would ensure the same treatment of debt and equity by allowing uniform hypothetical costs of equity. This would be a pragmatic approach but it could also be subject to further distortions as real figures are neglected. Alternatively, ACE (Allowance for Corporate Equity) would also ensure that debt and equity are treated in the same way from a tax perspective. Since it allows the deduction of real interest payments, it is very close to the business practice and prevents distortions effectively. However, the application leads to a higher red-tape burden and corresponding costs.

The long-term goal of such a reform would be a behaviour adjustment, i.e. companies are supposed to invest more via equity. Eventually, the equity ratio would increase, thereby reducing the risk of going bankrupt.

### 4.3 R&D expenses

Furthermore, the issue of fostering private activities for R&D is addressed by the EC. R&D expenses are key for industrialised countries in order to maintain their strong position and welfare. While some EU member states have already established tax incentives, others have not. In Germany, for example, the government does not offer any indirect tax incentives. Hence, changes are needed in order to achieve a level playing field.

There are several possibilities to stimulate R&D from a tax perspective. Full deductibility of R&D costs in the tax year in which they incur is a reasonable starting point. Alternative measures such as deducting only a share of the R&D costs or deducting the R&D costs with a factor higher than one from the tax burden should be evaluated additionally in order to find the most reasonable way to boost R&D. A recent study claims that a tax credit of 10 percent of R&D expenses could lead to 14 percent more R&D investment (BDI/ZVEI, 2017).

## 5. Conclusion

The CCCTB proposed by the EC would mean a significant reform or even a revolution of the current tax regime in the EU. The arm's length principle, the benchmark in international taxation for decades, would be replaced by a profit split method. This approach is not in line with the anti-BEPS initiative by the G20 and OECD. Due to the magnitude of the project and previous experiences any pitfalls should carefully be evaluated.

A formulary apportionment which is the key element of the CCCTB is rather convincing from a political point of view than from an economic one. From an economic perspective, the principle of taxing profits at source would be abolished. However, due to the difficulty for taxpayers and tax authorities in the current system to agree on adequate transfer prices, a radical change as proposed by the EC might be reasonable.

The effects in terms of tax revenue when implementing a formulary apportionment in the EU should not be underestimated. Especially, smaller countries like Ireland, Luxembourg and Malta would significantly lose parts of their tax base while large countries like France and Italy rather win due to the proposed allocation key consisting of sales volume, number of employees and capital invested. This makes it extremely complex to find a long lasting solution in the EU which enables a level playing field. Loss compensations might be politically suitable for smaller countries.

When simulating a profit split for the G20 countries the results give evidence that the EU member states would be the biggest losers in terms of tax revenue – not only smaller tax havens like Ireland and Luxembourg but also large countries like Germany and the UK. In contrast, China, India and the United States would belong to the winner side. The reasons for this is the same as for the case of the EU. The formulary apportionment would be in favour of labour intensive countries like China and India as well as importing countries like the United States. Thus, whether or not a country benefits from a formulary apportionment system depends on the peer countries.

Still, the EC proposal for the CCCTB is an ambitious but promising goal. Especially, the adjustment of the debt bias and the encouragement of R&D as further items of the EC proposal could stimulate economic growth.

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