DOI: 10.1007/s10272-019-0815-2

Danuše Nerudová and Veronika Solilová*

The Impact of the Introduction of a CCCTB in the EU

Currently, businesses in the European Union are facing 28 different corporate taxation systems. Globalisation, digitalisation and the uncoordinated corporate tax policy in the EU enabled multinational enterprises (MNEs) to use the loopholes between the national corporate tax systems for aggressive tax planning resulting in base erosion and profit shifting. The fight with these practices on the field of the European Union and the OECD increases the complexity of the current system of corporate taxation and hinders the growth of small and medium-sized enterprises (SMEs), as they do not possess enough financial and human resources to exploit the possibility of tax planning in comparison with MNEs.[1] Moreover, SMEs represent more than 99% of all EU businesses and create two-thirds of the total employment.[2]

Base erosion and profit shifting, which the majority of Member States are currently confronting, have particularly led the European Commission to reconsider the proposal and to relaunch the project known as the Common Consolidated Corporate Tax Base (CCCTB). The European Commission has published an action plan for fair and efficient corporate tax systems in the European Union in which the CCCTB is understood as a tool to fight tax evasion and tax fraud.[3] The design of the re-launch is influenced by the previous draft proposal. Being aware that the most controversial issue represents the consolidation regime and the mechanism for tax base sharing, the Commission suggests implementing the system in two steps. The first step is to apply only the common rules for the corporate tax base construction; the second step is to implement the full CCCTB. Remembering that the most appealing part of the project (that is represented by the consolidation scheme) is missing in the first step, the Commission suggests a temporary solution by way of the introduction of possible cross-border loss offsetting.

Following the previously noted action plan, the European Commission published two directive proposals, the Proposal for Council Directive on a Common Corporate Tax Base (hereinafter CCTB directive)[4] and the Proposal for Council Directive on a Common Consolidated Corporate Tax Base (hereinafter CCCTB directive)[5] in October 2016. Both of the above-mentioned directives would be mandatory for all multinational groups with consolidated revenue of 750 million euro. The CCTB directive proposal contains common rules to calculate and determine the tax base in each EU Member State, thus limiting planning opportunities for multinational groups. The main elements of the common set of rules represent a super deduction for R&D expenses, an allowance for growth and investment, temporary cross-border loss relief with recapture, interest limitation rules based on EBITDA and rules for hybrid mismatches. Under the CCCTB directive, the profits of multinational groups in the EU will be consolidated for corporate tax purposes. Consequently, the profits of multinational groups will be allocated to the EU Member States in which the group is active, by means of a formulary apportionment replacing the current transfer pricing rules.

The subsidiarity deadline for national parliaments to submit comments on the proposals was 3 January 2017; the parliaments of 19 countries scrutinised these comments. Seven reasoned opinions were issued by the Parliaments of Denmark, Ireland, Luxembourg, Malta, Sweden and the Netherlands (submitting two opinions, one from each chamber). In the European Parliament, the proposal has been assigned to the Economic & Monetary Affairs Committee, with an opinion expected from the Legal Affairs Committee. The Internal Market and Consumer Protection Committee decided not to provide an opinion. On 15 March 2018, the European Parliament suggested amendments to the draft directives within the consultation procedure and transferred the document to the Council.

* The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation programme 2014-2020, grant agreement No. FairTax 649439.

1 D. Nerudová, V. Solilová: The Impact of the CCCTB Introduction on the Distribution of the Group Tax Bases Across the EU: The Study for the Czech Republic, Prague Economics Papers, Vol. 24, No. 6, 2015, pp. 621-637.

2 Eurostat: Statistics on SMEs, 2016, available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_small_and_medium-sized_enterprises.

3 European Commission: A Fair and Efficient Corporate Tax System in the European Union: 5 Key Areas for Action, No. COM(2015) 302 final, Brussels 2015, European Commission.

4 European Commission: Proposal for a Council Directive on a Common Corporate Tax Base, Document, No. COM(2016) 685 final. Brussels 2016, European Commission.

5 European Commission: Proposal for a Council Directive on a Common Corporate Tax Base, Document, No. COM(2016) 683 final. Brussels 2016, European Commission.

Danuše Nerudová, Mendel University Brno, Czech Republic.

Veronika Solilová, Mendel University Brno, Czech Republic.

We aim to research the impact of the consolidation regime and the mechanism for the sharing of the tax base on the corporate tax bases allocated in the individual EU Member States.

Methodology

To achieve the research objective, it was necessary to obtain suitable data first in order to analyse the impact of the allocation formula's application under the CCCTB system. Thus, to preserve the size of the data sample, we have analysed the data from the perspective of the missing data. Research on three possible methods for missing data imputation was conducted (regression, imputation and the Monte Carlo Method) to identify the most suitable method for the imputation that minimises the distortion of the data by analysing the standard deviations from the real data for all three selected methods. We calculated the size of the tax base in each Member State when both the CCCTB system with an allocation formula and a consolidation element were implemented. Ultimately, we performed a comparative analysis of the group tax basis allocation in individual Member States. Based on the comparative analysis in the current situation, we were able to identify possible increases or decreases in the allocated corporate tax bases and in the liabilities in all the EU Member States.

The empirical analysis is based on the company information available in the Amadeus database (update no. 2552 from December 2015), which is provided by Bureau van Dijk. This database consists of comprehensive information on approximately 21 million private and public entities from 43 European countries; it was also used by other authors.[6] We will expand the data set by employing data from the Bankscope database (which is also provided by Bureau van Dijk, update 312.1 for NACE K (financial sector)) as one from the special industries for whom the adjusted allocation formula should be applied.

Regarding the proposal of the CCCTB directive, which sets a two-layer cumulative condition for companies to be eligible for the group taxation scheme and consolidation, at least 50.01% of ownership rights and more than 75% of voting rights condition the subjection to the consolidation and group taxation scheme; all the companies in the above-mentioned databases were subjected to this test. Moreover, with regards to the directive proposal, all the entities having consolidated turnover higher than 750 million euro have to enter the system. Therefore, this filter was also used to create the dataset of companies, as the proposal also leaves space for voluntary entrance into the system.

Our semi-dynamic model expects changes in the behaviour of the economic subjects (as a reaction to the CCCTB implementation). We assume changes in behaviour for entities that can enter both systems voluntarily; that is, they are not meeting the threshold of 750 million euro of consolidated turnover for obligatory entrance into the system. From that perspective, we divide the companies into SMEs and large entities (i.e., entities not achieving the threshold of 750 million euro of consolidated turnover but recording operating revenue higher than 10 million euro, total assets higher than 20 million euro and having more than 150 employees). We define two possible scenarios in both datasets (SMEs and large entities).

We assume that the main incentive for entities to enter the CCCTB system is a lower tax burden for the whole group. Therefore, both datasets were divided into two. First, the entities with a lower tax burden in the group were identified and the effect of their entrance into the CCCTB system was examined (for the SME dataset and the dataset of large entities). Second, the entities that would encounter a higher tax burden in the group after entrance into the CCCTB system are identified. However, in this group of entities, incentives to enter the system may exist that could ultimately outweigh the higher tax burden factor in the group. These incentives include, for example, lower compliance costs of taxation, cross-border loss offsetting, a super-deduction for R&D (notably for SMEs and start-up companies), fair tax competition (i.e., the situation in which all market subjects have the same information about the effective tax rate), elimination of tax obstacles to mergers and acquisitions mainly in the areas of capital profit taxation and the elimination of transfer pricing issues.

To map the current situation in the corporate tax base allocation in the European Union, we have applied four possible models of group taxation regimes that are currently applied within the EU (i.e., full consolidation, pooling, intra-group loss transfer and no group taxation scheme applied in the country) according to the country of the parent company's residency. Moreover, the creation of the group corporate tax base structure in the current situation also allowed research on the impacts of the second implementation step; this is the impact of the CCCTB on the corporate tax bases and liabilities allocated in respective individual Member States.

6 M.P. Devereux, S. Loretz: Increased Efficiency Through Consolidation and Formula Apportionment in the European Union?, Working Paper No. 12, Oxford 2008, Centre for Business Taxation; C. Fuest, T. Hemmelgarn, F. Ramb: How would the introduction of an EU-wide formula apportionment affect the distribution and size of the corporate tax base? An analysis based on German multinationals, in: International Tax and Public Finance, Vol. 14, No. 5, 2007, pp. 605-626; R. Cline, T. Neubig, A. Phillips, C. Sanger, A. Walsh: Study on the economic and budgetary impact of the introduction of a Common Consolidated Corporate Tax Base in the European Union, 2010, Ernst & Young LLP.

Furthermore, to apply the allocation formula below (for the second implementation step, CCCTB), we needed to obtain the information on different financial indicators from the financial statements of the companies, that is, information on sales, payroll, number of employees and tangible fixed assets of companies.

The suggested allocation formula under the CCCTB system is as follows:

$$ShareX = \left(\frac{1}{3}\frac{S^{A}}{S^{Group}} + \frac{1}{3}\left(\frac{1}{2}\frac{P^{A}}{P^{Group}} + \frac{1}{2}\frac{E^{A}}{E^{Group}}\right) + \frac{1}{3}\frac{A^{A}}{A^{Group}}\right) * CCCTB \quad (1)$$

where:

S represents sales, which are based on the sales of goods and services.

P represents payroll, which includes the cost of salaries, wages, bonuses and all other employee compensation, such as related pension and social security costs borne by the employer.

E represents the number of employees, which are considered part of the group that pays the remuneration, unless they are under the control of a different group member, in which case they are considered part of that group. Employees are included if they are employed for at least three uninterrupted months.

A represents assets, which include all fixed tangible assets, including buildings, airplanes and machinery, owned, rented or leased by a group member.

We applied the special allocation formula, which is also offered by the CCCTB proposal, to financial institutions and insurance companies, that is, in industry sector K, because it covers the largest portion of eligible subsidiaries and parent companies in the EU.

The second specific sector for which the CCCTB proposal suggests a special allocation formula with adjusted factors is the exploitation and production of oil and gas. We applied this under the CCCTB proposal sales by state of origin as well as in the whole dataset of eligible entities.

The other specific sectors are shipping and air transport. In their case, however, the special allocation formula was not considered (i.e., the normal allocation formula was applied) because the nature of data included in the Amadeus database did not allow application to this specific allocation approach.

Eligible entities with a threshold of 750 million euros

Research on the CCCTB's impact revealed that the implementation of the consolidation element together with the tax sharing mechanism in the form of the allocation formula (1) would generate a tax base of 797,993 million euro in the whole EU (see Table 1). The highest tax base would be generated in the UK (319,691 million euro); the lowest, in Cyprus (15.59 million euro). This result means that the implementation of CCCTB in the group of entities obligatorily entering the system would result in a 4.2% decrease in the current tax bases.

Eligible entities without a threshold of 750 million euros – SMEs

The overall decrease in the tax burden of the whole group was examined – keeping in mind that the CCCTB is the main incentive for SMEs to enter the system. Our dataset covers 25,258 SMEs (6.5%) that would probably opt for the CCCTB system, and 359,058 SMEs (93.4%) that would probably not opt for the CCCTB system (if the only incentive were the lower tax burden of the group). A large portion of subsidiaries that would probably not opt for the CCCTB are situated in Italy, Romania, Bulgaria, the Czech Republic, Latvia and the Slovak Republic, whereas the opposite subsidiaries (which would probably opt for the CCCTB) are situated in the United Kingdom, Denmark, France, Italy and Bulgaria.

However, there are also other benefits connected with the adoption of the CCCTB system. In particular, the benefit from the unified rules for corporate tax base construction and the elimination of transfer pricing issues (as all intra-group transactions within the group) will be excluded from the tax base, also known as the 'one-shop-stop' approach. All these attributes will likely result in a decrease in the compliance costs of taxation. Therefore, to capture the dynamic effect and the changes in the behaviour of entities, we further identify the range of possible maximum and minimum effects.

Under the maximum effect, we assume that SMEs confronting higher corporate tax liability will have the motivation to opt for the CCCTB system in order to gain additional benefits. Implementing the consolidation element together with the tax sharing mechanism in allocation formula (1) would generate the tax base of 102.06 billion euros in the entire EU compared to the tax base of 192 billion euros under the current conditions (see Table 2). The highest tax base would be generated in Poland (23.17 billion euros), and the lowest would be in Greece (30 million euros).

Table 1

The generation of the tax yield from CCCTB in the dataset of entities obligatorily entering the CCCTB system

Country	No. of eligible entities	Current situation – tax base in mil. euro	CCCTB in mil. euro	Nominal tax rate 2014	CCCTB tax yield in mil. euro
AT	2,539	10,760.51	10,196.54	25.00	2,549.14
BE	2,515	26,385.69	20,475.05	34.00	6,961.52
BG	165	676.01	693.72	10.00	69.37
CY	114	42.00	15.59	12.50	1.95
CZ	1,309	8,508.02	9,896.77	19.00	1,880.39
DE	13,809	70,602.00	79,885.40	31.00	24,764.47
DK	929	14,988.89	16,723.69	23.50	3,930.07
EE	190	683.72	994.78	20.00	198.96
ES	4,468	40,182.58	40,612.87	33.40	13,564.70
FI	864	9,796.62	7,128.88	20.00	1,425.78
FR	13,898	93,239.44	106,301.80	38.90	41,351.40
UK	26,597	365,862.32	319,691.26	20.00	63,938.25
GR	390	1,052.69	1,270.79	29.00	368.53
HR	290	1,490.46	2,566.73	20.00	513.35
HU	614	2,779.92	6,003.36	20.90	1,254.70
IE	1,399	10,020.82	6,122.22	12.50	765.28
IT	6,795	34,596.93	47,062.05	31.30	14,730.42
LT	197	483.28	595.12	15.00	89.27
LU	604	9,734.30	2,914.98	29.20	851.17
LV	198	267.55	869.53	15.00	130.43
MT	78	56.15	44.86	35.00	15.70
NL	3,529	81,841.64	60,494.71	25.00	15,123.68
PL	2,399	8,354.70	11,168.14	19.00	2,121.95
PT	1,268	5,537.20	5,634.49	29.50	1,662.17
RO	811	3,145.72	7,481.15	16.00	1,196.98
SE	3,176	28,614.71	29,615.52	22.00	6,515.41
SI	404	165.59	264.95	17.00	45.04
SK	573	3,111.98	3,268.44	22.00	719.06
Total	90,122	832,981.46	797,993.39		206,739.13

Source: Amadeus and Bankscope databases, own calculation.

With the minimum effect, we assume that only entities encountering lower corporate tax liability would enter the CCCTB system. The current tax base of those entities is 171.65 billion euro. Under this assumption, the implementation of CCCTB would generate a tax base of 71.14 billion euro in the entire EU. The highest tax base would be generated in Poland (20.24 billion euro); the lowest, in Greece (10 million euro). The decrease in the tax base in both effects was identified mainly due the cross-border loss offsetting that occurred during the consolidation regime. However, the entering of SMEs into the CCCTB system would cause an increase in the tax base of between 8.9% and 12.8%, up to 900 billion euro, depending on the reaction of the SMEs to the system's implementation.

Eligible entities under threshold of 750 million euro – large entities

The main incentive for large entities (not meeting the threshold) to enter the system was the overall decrease in the tax burden on the whole group. Our dataset covers 9,116 large entities (34.93%), that do not meet the threshold, that would probably opt for the CCCTB system and 16,979 large entities (65.07%), not meeting the threshold, that would probably not opt for the CCCTB system (if the only existing incentive was a lower tax burden on the group). A large portion of entities that would probably not opt for the CCCTB are situated in Italy, Germany, Spain or Romania; whereas the opposite group of entities (which would probably opt for the CCCTB) are situated in the UK, Italy or France. The differences in tax rates applied in the EU have an impact on the determination of corporate tax liabilities under both tax systems (i.e., national as well as CCCTB).

However, there are also other benefits connected with the adoption of the CCCTB system as unified rules for corporate tax base construction and the elimination of transfer pricing issues, as all intra-group transactions within the group will be excluded from the tax base or one-shop-stop approach. All these attributes will probably result in a decrease in the compliance costs of taxation. Therefore, to capture the dynamic effect and the changes in the behaviour of the entities, we further identify the range of possible impacts.

Looking at the maximum effect, we assume that large entities (not meeting the threshold) encountering higher corporate tax liability will have the motivation to opt for the CCCTB system to be able to gain other benefits from this system. Implementing the consolidation element together with the tax sharing mechanism in allocation formula (1) would generate the tax base of 95.3 billion in the entire EU compared to the tax base of 114 billion euro under the current conditions (see Table 2). The highest tax base would be generated in the UK (28.73 billion euro); the lowest in Cyprus (0.2 million euro).

Conversely, under minimum effect we assume only entities that encounter lower corporate tax liability would enter the CCCTB system. The current tax base of those entities is 82.12 billion euro. Under this assumption, the implementation of CCCTB would generate a tax base of

Table 2

Comparison of the current tax base and tax-base sharing mechanism under the CCCTB for EU28

in bn. euro

Country	Current TB (2014) threshold 750 mil EU28	CCCTB (2014) threshold 750 mil EU28	Differences (current x CCCTB) EU28 in %	CCCTB – SMEs – max effect	CCCTB – SMEs – min effect	CCCTB – LEs – max effect	CCCTB – LEs – min effect
AT	10.76	10.19	-5.2	3.62	3.28	1.80	0.96
BE	26.38	20.47	-22.4	2.56	1.77	2.50	1.23
BG	0.67	0.69	2.6	1.58	0.27	0.74	0.18
CY	0.042	0.015	-62.9	3.78	3.78	0.0002	0.0002
CZ	8.51	9.89	16.3	4.23	3.08	1.70	0.66
DE	70.60	79.88	13.1	2.71	1.70	4.27	1.19
DK	14.98	16.72	11.6	1.57	0.75	3.18	2.19
EE	0.68	0.99	45.5	0.23	0.08	0.30	0.14
ES	40.18	40.61	1.1	1.04	0.83	5.90	2.99
EL	1.05	1.27	20.7	0.03	0.01	0.07	0.07
FI	9.79	7.12	-27.2	1.40	1.11	1.34	0.84
FR	93.24	106.30	14.0	7.14	6.94	8.26	6.53
HR	1.49	2.56	72.2	0.62	0.26	0.47	0.15
HU	2.77	6.00	116.0	0.40	0.24	0.25	0.17
IE	10.02	6.12	-38.9	5.42	5.41	0.92	0.82
IT	34.59	47.06	36.0	15.58	2.73	17.71	4.81
LT	0.48	0.59	23.1	1.73	1.49	0.07	0.04
LU	9.73	2.91	-70.1	5.01	4.59	0.48	0.26
LV	0.27	0.86	225.0	0.79	0.21	0.45	0.28
MT	0.056	0.044	-20.1	0.69	0.63	0.0036	0.00283
NL	81.84	60.49	-26.1	0.80	0.34	4.48	3.21
PL	8.35	11.16	33.7	23.17	20.24	2.06	0.78
PT	5.54	5.63	1.8	0.21	0.11	2.44	1.13
RO	3.14	7.48	137.8	7.00	3.80	1.83	0.57
SE	28.61	29.61	3.5	1.57	0.73	4.84	3.84
SI	0.165	0.26	60.0	1.07	0.31	0.12	0.02
SK	3.11	3.26	5.0	1.73	0.62	0.40	0.14
UK	365.86	319.69	-12.6	6.37	5.81	28.73	26.91
Total	832.98	797.99	-4.20	102.06	71.14	95.30	60.12

Note: TB – tax base; LEs – large entities under the threshold of EUR 750 mil.

Source: Amadeus and Bankscope databases, own calculation.

60.12 billion euro in the EU. The highest tax base would be generated in the UK (26.91 billion euro); the lowest, in Cyprus (0.2 million euro). Similar to SMEs, in both situations the decrease in the tax base was identified mainly due the cross-border loss offsetting during the consolidation regime. However, the entering of large entities under the threshold of 750 million euro into the CCCTB system would cause an increase in the tax base between 7.5% and 11.9% up to 893 billion euro, depending on the large entities' reaction to the system's implementation.

Conclusion

We develop a semi-dynamic model enabling us to capture the changes in the behaviour of various entities due to the implementation of CCCTB. Three datasets of entities were employed in the research. The first dataset was that of entities meeting the threshold of 750 million euros of consolidated turnover, which automatically enter the CCCTB system. The second dataset was the SMEs that will probably enter the system voluntarily based on the existence of incentives (overall lower tax burden for the group). The third dataset focused on the large entities that do not meet the threshold of 750 million euro but have incentives to enter the CCCTB system (e.g. lower tax burden for the group).

The construction of a semi-dynamic model enabled more precise research on the impact of CCCTB implementation, particularly in the group of entities that will be able to enter the system voluntarily. The classification of entities that captured changes in the behaviour of the companies enabled research on the impact of the CCCTB implementation on the budget revenues in individual Member States across the EU. It was possible to quantify the minimum effect, e.g. the situation in which the entities would be motivated to enter by the lower overall tax burden and by its maximum effect as well (e.g entities entering the system despite the fact that the group tax burden would not be lower and because of other attractive features – including the accessibility of the consolidation regime, the lower compliance costs of taxation and the allowance for growth and investment).

In the group of large entities above the set threshold of 750 million euro of consolidated turnover, (which enter the CCCTB system obligatorily, the research revealed that the implementation of CCCTB would result in a 4.2% decrease in the total tax base (798 billion euro) in the EU from the current situation.

In the SME dataset, the impact of the CCCTB implementation was quantified as an 8.9-12.8% increase in the total tax base in the EU under CCCTB, depending on the number of entities voluntarily entering the system. The lower limit represents the scenario in which only entities encountering a lower tax burden would enter the system; the upper limit depicts the scenario in which other features of CCCTB would also be attractive and all the entities within the group would enter the system.

A similar perspective was applied to the dataset of large entities that do not meet the 750 million euro in consolidated turnover threshold. The impact of the CCCTB implementation in this dataset was quantified as a 7.5-11.9% increase in the total tax base in the EU under CCCTB, depending on the number of entities voluntarily entering the system.

In the datasets, the decrease in the current tax base was identified mainly due to the cross-border loss offsetting during the consolidation regime, as currently many EU Member States do not allow cross-border loss offsetting.

To sum up, the implementation of CCCTB in the European Union will definitely bring many advantages such as fair tax competition, lower compliance costs of taxation for both taxpayers and tax administrators, the elimination of tax obstacles to mergers and acquisitions mainly in the areas of capital profit taxation and the elimination of transfer pricing issues.[7] However, with regards to the fiscal effects of the implementation, we recommend that policymakers carefully consider the concept especially concerning mandatory/voluntary implementation. Our results show that decreasing the threshold does not necessarily mean increasing the tax revenue from CCCTB imposition compared to the current tax base.

7 D. Nerudová, V. Solilová, M. Dobranschi: Sustainability-oriented future EU funding: The case of C(C)CTB, FairTax working paper No. 4, 2016.