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Christoph Spengel
Andreas Oestreicher

Common Corporate Tax Base in the EU

Impact on the Size of Tax Bases and Effective Tax Burdens

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Prof. Dr. Dr. h.c. mult. Wolfgang Franz

Authors
Prof. Dr. Christoph Spengel
University of Mannheim
Centre for European Economic Research
Palace
68131 Mannheim
Germany
spengel@uni-mannheim.de

Prof. Dr. Andreas Oestreicher
University of Göttingen
Platz der Göttinger Sieben 3
37073 Göttingen
Germany
andreas.oestreicher@uni-goettingen.de

With the cooperation of: Christina Elschner, Timo Reister, Christof Ernst, Michael Grünewald and Katharina Finke

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Preface

Our book presents a report which was prepared in 2007 and 2008 for the Taxation and Customs Union Directorate General of the European Commission, under contract no. TAXUD-2007 DE325.

The results are intended to serve the evaluation of the potential tax consequences arising from the introduction of a harmonised tax base for EU-resident companies, as contemplated by the European Commission. A harmonised tax base or common corporate tax base can help to eliminate the most important tax obstacles to cross-border EU-wide activities (compliance costs, denial of group wide consolidation of profits and losses, transfer pricing problems and double taxation caused by cross-border re-organisation and conflicting taxing rights) stemming from the great diversity of the Member States' tax systems.

A Common Corporate Tax Base (CCTB) as a policy option would replace the current 27 different tax codes for the calculation of taxable income across EU Member States with a single and common set of corresponding tax rules. The principle aim of the report is to provide an analysis of the consequences which an adoption of a CCTB would have on the size of the corporate tax bases and tax burden of EU companies located in each of the 27 Member States using the model of the "European Tax Analyzer". As the concept of the CCTB is narrower compared to the concept of a Common Consolidated Corporate Tax Base (CCCTB) which in addition takes into account consolidation, cross-border loss compensation and allocation of the tax bases to different Member States, the latter three elements of a CCCTB, are not addressed in this report.

On March 16th 2011, the European Commission published a proposal for a Council Directive on a Common Consolidated Corporate Tax Base (CCCTB). The findings of this report are included in the impact assessment to the proposal for the Council Directive. The permission to publish this report was granted in April 2011. Nevertheless, we explicitly state that the opinions expressed in this report are our own and do not represent the Commission's official position.

The report was carried out jointly by the ZEW, the University of Göttingen, and the University of Mannheim. Especially important roles were played by *Dr. Timo Reister*, *Christof Ernst*, *Katharina Finke* and *Michael Grünewald* who contributed to the project by supporting the quantitative parts and preparing the report.

Reinald Koch and *Jens Prassel* made further substantial contributions with respect to the statistical analyses and related elements of the work. In addition we gratefully acknowledge the excellent help and advice of *Dr. Christina Elschner.*

Mannheim and Göttingen, April 2011

Christoph Spengel and *Andreas Oestreicher*

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Executive Summary

Introduction

EU companies face many obstacles in their cross-border activities as a result of the various corporate tax systems operated in different member states. These tax obstacles include high compliance costs, the lack of cross-border loss offset provisions and the risk of double taxation due to conflicting rights between tax jurisdictions. To address these problems, the European Commission envisages putting forward a proposal for a tax reform that would improve the efficiency and simplicity of corporate income tax systems across the EU. The most comprehensive approach would be a Common Consolidated Corporate Tax Base (CCCTB), encompassing all elements of cross-border consolidation and loss compensation. A less far reaching approach – the Common Corporate Tax Base (CCTB) – covers all other non consolidation and non loss-compensation related provisions defining the domestic tax bases of EU companies.

Purpose and Structure of the Report

This report assesses the impact of a CCTB on the size of the corporate tax bases of EU companies. The results of the report will help to evaluate the economic consequences of the introduction of a harmonised set of tax accounting rules for EU-based companies, as promoted by the European Commission and related Working Groups. The proposals for a CCTB covered in this report include the following elements: (A) depreciation on intangibles, machinery, buildings, furniture and fixture, (B) simplified valuation of inventories, (C) determination of production costs for stocks, (D) treatment of costs for R&D as part of production costs, (E) provisions for future pension payments, (F) provisions for legal obligations (e.g. warranty claims), (7) avoidance of double taxation regarding dividend income, and (G) loss relief. While all proposed elements of a CCTB could be applied separately or simultaneously (Option I), the idea of a CCTB is clearly based on a simultaneous application of all eight elements in all 27 member states.

The European Tax Analyzer was used to produce estimates on the impact that a CCTB would have on the size of corporate tax bases. The European Tax Analyzer uses a computer-based model-firm approach for the computation and comparison of international company tax burdens. The estimates on both corporate tax base sizes and effective average tax burdens are derived by simulating the growth of a corporation over a ten year period. The study looks first at the effects of a CCTB on two different model firms: (1) an average EU-27 large corporation and (2) an average EU-27 small and medium-sized corporation (SME). The analysis is based on tax regulations as they stood in the year 2006 and takes into account the CCTB options specified by the Commission's Steering Group. In a second step, the effects of alternate assumptions concerning economic data on the model companies are examined. To this end, various sensitivity analyses as well as computations for model companies from different economic sectors and geographical regions (EU-15/EU-12) are presented. Finally, in the last section, the effects of major tax reforms in five member states (Germany, France, Italy, the Netherlands and Spain) during 2006 and 2008 are explored.

Results for the Benchmark Case Scenarios

Our calculations show that with the introduction of a CCTB, the tax base of the EU-27 large model company would increase on average by 6.20% (see Table 1).

Table 1: Changes in the value of the tax base in case of a CCTB (large company)

	National GAAP		**CCTB Options (all)**			
	Future Value Tax Base in € Millions	Rank	Future Value Tax Base in € Millions	Rank	Deviation in %	Rank
AT	81.19	5	86.02	5	5.9	0
BE	78.55	4	80.93	4	3.0	0
BG	94.64	14	107.00	27	13.1	-13
CY	104.98	27	97.97	13	-6.7	14
CZ	95.97	21	105.51	24	9.9	-3
DE	74.05	3	77.58	3	4.8	0
DK	91.36	8	94.81	8	3.8	0
EE	103.22	26	105.90	26	2.6	0
ES	85.05	6	88.98	6	4.6	0
FI	95.06	17	104.03	18	9.4	-1
FR	55.43	2	60.86	2	9.8	0
GR	95.90	20	104.65	21	9.1	-1
HU	41.70	1	46.82	1	12.3	0
IE	101.06	25	99.50	14	-1.5	11
IT	94.72	16	103.01	17	8.8	-1
LT	93.70	12	104.08	19	11.1	-7
LU	93.42	9	96.92	10	3.7	-1
LV	93.84	13	104.44	20	11.3	-7
MT	98.18	24	101.95	16	3.8	8
NL	95.66	19	97.80	12	2.2	7
PL	97.46	23	104.95	23	7.7	0
PT	94.67	15	104.67	22	10.6	-7
RO	95.16	18	99.86	15	4.9	3
SE	93.60	11	97.69	11	4.4	0
SK	96.26	22	105.69	25	9.8	-3
SL	89.26	7	96.91	9	8.6	-2
UK	93.45	10	93.67	7	0.2	3
Ø	89.91		95.27		6.20	

On a country-by-country basis, the change in the tax base varies between 13.1% in Bulgaria and -6.7% in Cyprus. Countries affected most include Hungary, Latvia, Lithuania and Portugal. Aside from Cyprus, Ireland is the only country that registers a decline in the tax base (-1.5%).

Of all eight CCTB options, common depreciation rules have the greatest impact on the size of the tax base. Rules concerning future warranty liabilities rank second in significance. A relatively minor impact, by contrast, is exerted by common rules for the determination of production costs, the treatment of R&D-related costs as production costs and the proposed provisions for offsetting losses.

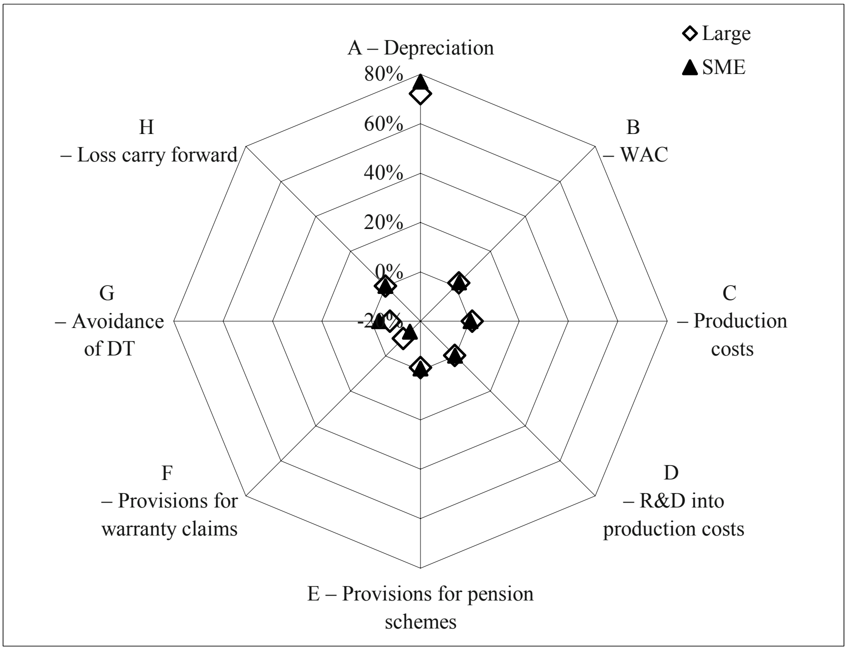
In order to gauge the effects of a CCTB on companies of different sizes, a model SME is also included in the analysis. In this case, as well, our calculations show that the proposed CCTB would increase the size of the tax base in almost all member states (see Table 2). Compared to the large model company, the EU-wide increase for the SME is slightly lower at 5.57%. Yet the considerable variation between member states remains. Hungary witnesses the largest increase (15.4%), and Cyprus the largest decline (-6.9%). In this case as well, depreciation rules have the greatest positive impact on the size of the tax base.

Table 2: Changes in the value of the tax base in case of a CCTB (SME)

	National GAAP		**CCTB Options (all)**			
	Future Value Tax Base in € Millions	Rank	Future Value Tax Base in € Millions	Rank	Deviation in %	Rank
AT	2.87	4	2.99	4	4.3	0
BE	2.94	5	2.99	4	1.5	1
BG	3.43	19	3.83	27	11.8	-8
CY	3.74	27	3.49	13	-6.9	14
CZ	3.45	21	3.78	25	9.5	-4
DE	2.68	3	2.76	3	2.9	0
DK	3.29	8	3.36	7	2.4	1
EE	3.60	26	3.67	17	1.8	9
ES	3.07	6	3.15	6	2.6	0
FI	3.42	18	3.73	19	9.2	-1
FR	2.36	2	2.48	2	5.3	0
GR	3.41	15	3.76	23	10.3	-8
HU	1.08	1	1.25	1	15.4	0
IE	3.54	25	3.52	14	-0.8	11
IT	3.39	13	3.69	18	8.8	-5
LT	3.38	12	3.74	20	10.5	-8
LU	3.35	9	3.43	9	2.3	0
LV	3.40	14	3.75	21	10.4	-7
MT	3.46	22	3.65	16	5.4	6
NL	3.41	15	3.46	12	1.3	3
PL	3.46	22	3.77	24	8.8	-2
PT	3.41	15	3.75	21	9.9	-6
RO	3.44	20	3.53	15	2.5	5
SE	3.36	10	3.45	11	2.7	-1
SK	3.46	22	3.79	26	9.5	-4
SL	3.17	7	3.44	10	8.3	-3
UK	3.36	10	3.38	8	0.7	2
Ø	3.22		3.39		5.57	

The radar chart presented in Figure 1 illustrates the impact of each individual CCTB option on the value of the tax base for the EU-27 large company and SME. The impact is measured as the proportion of the increase resulting from each single option against the overall increase from all options combined. It demonstrates that the influence of the isolated options is similar for the large company and the SME. In both cases depreciation has the strongest impact on the increase in the tax base. Provisions for warranty claims and the avoidance of double taxation have a notable influence as well, and in isolation lead to a decrease in the tax base. The isolated variation of the other options exerts only minor influence and is similar for the large company and the SME.

Figure 1: Proportion of EU-27 average overall increase of the value of the tax base for each option



Sensitivity Analyses

The above findings are relevant for model companies that represent the EU average companies. Alternately structured firms with different financial ratios were also investigated in the study. Sensitivity analyses were conducted to gauge the impact of a CCTB under varying economic data assumptions and on model firms from different industries and regions.

To see how changes in economic model assumptions influence the effects of the proposed CCTB, sensitivity analyses on the firms' capital intensity, profitability, labour intensity and inventory intensity were carried out. Our calculations show that the direction of impact exerted by alternate economic assumptions is the same under both the national GAAP and the CCTB accounting systems. An increase in capital intensity and labour intensity reduces the value of the tax base. By contrast, greater profitability and inventory intensity increase the size tax base. Looking at the magnitude of the deviation between accounting systems under alternate data assumptions, we find that higher capital intensity results in an increasing deviation. The deviation between the accounting systems decreases, however, with higher profitability, labour intensity and inventory intensity. The results of the sensitivity analysis are confirmed by a multiple regression analysis, which reveals that changing profitability and capital intensity have a significant impact on the value of the tax base.

Sector Specific Analyses

To enlarge the spectrum of analysis, additional calculations were conducted for sector-specific companies. These sectors are: construction, commerce, energy manufacturing, service/trade transport. The sector analysis can be understood as an analysis considering a simultaneous variation of the financial rations from the benchmark case. Composite model companies were assembled for each sector using data from all 27 member states. Table 3 displays the average increase in the size of the tax base induced by the introduction of a CCTB.

Table 3: Value of the tax base under national GAAP and increase in % with the introduction of a CCTB (sector averages)

	Average future value of the tax base under national GAAP (in € millions)	**Average increase of the future value of the base with a CCTB (%)**
Large Company		
EU-27 (benchmark)	89.91	6.20
Commerce	84.26	4.73
Construction	56.00	4.46
Energy	228.76	12.34
Manufacturing	119.69	7.21
Service	47.45	9.44
Transport	21.77	51.72
Small Company		
EU-27 (benchmark)	3.22	5.57
Commerce	4.82	1.99
Construction	2.19	4.70
Energy	4.73	32.71
Manufacturing	3.41	5.98
Service	1.75	3.31
Transport	3.08	11.49

The main findings for the sector-specific sensitivity analyses can be summarised as follows. With the introduction of a CCTB, the value of the tax base would increase for all sector-specific EU-27 model companies. There is a considerable variation between sectors, however. The increase for the large companies varies between 4.46% (construction) and 51.72% (transport). For the SME companies there is again considerable but – compared to the large sector-specific model companies – less variation between sectors. Here the increases vary between 1.99% (commerce) and 32.71% (energy). Aside from commerce and construction (in the case of the large model company), and commerce, construction and service (in the case of the model SME), the increase in the tax base is always higher for the sector-specific companies than in the relevant benchmark case, which is composed of data from all sectors.

As was the case for the benchmark companies, alternate depreciation rules have the largest impact of all CCTB options on the value of the tax base. For this reason, varying levels of capital intensity among the sector-specific companies is a key factor in accounting for the observed changes in the tax base values. High capital intensity is, for example, decisive in the large increases witnessed for the energy-sector SME and the transport-sector large company. Another important factor is profitability.

The countries most affected by the introduction of a CCTB are again Bulgaria, Hungary, Lithuania, Latvia and Portugal. But also France (service), Greece (manufacturing), Slovakia (energy) show a considerable increase in the value of the tax base. Ireland and particularly Cyprus show declining tax base values for most sector-specific companies.

EU-15 and EU-12 Companies

An additional analysis was conducted of model firms representing an average large company and SME from the EU-15 and EU-12 regions. EU-15 denotes the original 15 EU member states and EU-12 the accession countries which joined the EU in 2004 and 2007.

Table 4: Value of the tax base under national GAAP and deviation in case of a CCTB

	Average future value of the tax base under national GAAP (in € millions)	**Average increase in the future value of the base with a CCTB (%)**
Large Company		
EU-27 (benchmark)	89.91	6.20
EU-15	115.72	3.95
EU-12	31.57	7.30
Small Company		
EU-27 (benchmark)	3.22	5.57
EU-15	4.02	3.14
EU-12	2.48	6.34

As was the case in the sector analysis, the model companies differ in their balance sheet structure and financial ratios. Both company models are applied to the respective subgroup of countries. The results displayed in Table 4 show increases of the values of the tax bases for all regional company models.

While the increase in the future value of the tax base in the EU-12 accession countries exceeds the EU-27 average increase whereas the increase of the future value of the tax base in the original EU-15 countries ranges below the EU-27 average. This finding holds true for the large company as well as for the small and medium-sized company.

Impact of Recent Tax Reforms in Certain Member States

Finally, consideration was given to major tax reforms in five countries (France, Germany, Italy, the Netherlands and Spain) which became effective in 2007 and 2008. The tax reforms resulted in a broadening of the tax bases under national GAAP. Therefore, after the tax reforms became effective in these countries, the increases of the values of the tax base in the event of the proposed CCTB are smaller for both the EU-27 large and the EU-27 SME company. Respect given to the EU-27 average, the increases of the values of the tax base amount to 5.86% in case of the EU-27 large company (compared to 6.20% in the benchmark case) and to 5.30% in case of the EU-27 SME company (compared to 5.57% in the benchmark case).

Conclusions

According to our analysis, the introduction of a CCTB would have a considerable impact on the tax base values in all EU member states. An enlargement of the tax base would be witnessed in all countries aside from Cyprus and Ireland.

The results show considerable variation between companies depending on their size, economic sector and financial characteristics. In this connection, assumptions regarding capital intensity and profitability have the most significant impact on estimates of the tax base changes which would result from a CCTB.

Each individual CCTB option has varying effects on the value of the tax base. CCTB rule modifications concerning depreciation have by far the strongest impact on future tax base values.

The countries which would be affected most by a CCTB are Bulgaria, Hungary, Latvia, Lithuania and Portugal. Sensitivity analyses show that Greece, France and Slovakia would also be significantly impacted. The introduction of a CCTB as considered here has a considerable impact on the values of the tax base in the EU member states. Except for Cyprus and Ireland, the values of the tax base would increase in all countries.

There is considerable variation among sectors and the size of companies. In this context, capital intensity and profitability turn out to be the most relevant factors out of the economic assumptions in the event of a CCTB.

The considered options for a CCTB show different impacts on the value of the tax base. The option with the strongest impact on the tax base is the rule concerning depreciation.

Countries affected most by the introduction of a CCTB are Bulgaria, Hungary, Latvia, Lithuania and Portugal. Sensitivity analyses reveal Greece, France and Slovakia as countries with strong impact as well.

1 Introduction

The aim of this report is to help evaluate the economic consequences of introducing a harmonized tax base for EU companies, as proposed by the European Commission. A harmonised tax base would help to eliminate the most important tax obstacles to EU-wide cross-border activities, including compliance costs, denial of group-wide consolidation of profits and losses, transfer pricing problems, double taxation caused by cross-border reorganisations and conflicting taxing rights. These obstacles are a product of the large discrepancies between the tax systems of each EU member state.

A Common Corporate Tax Base as a policy option would replace the current 27 tax codes for the calculation of taxable income across EU member states with a single and common set of tax rules. The principle aim of this report is to provide an analysis of the consequences that an adoption of a Common Corporate Tax Base (CCTB) would have on the size of the corporate tax bases of EU companies located in each of the 27 member states, using the model of the "European Tax Analyzer". The proposed CCTB is narrower in scope than the proposals for a Common Consolidated Corporate Tax Base (CCCTB), which includes provisions for consolidation, cross-border loss compensation and the allocation of tax bases to different member states. Consequently, these elements of the CCTB are not addressed by the present study.

In specific terms, our study evaluates the change in the size of EU companies' tax bases – and, therefore, in their effective tax burdens – associated with a transition from national corporate tax systems to a CCTB, i.e. the EU-wide harmonisation of corporate tax bases with the omission of the consolidation and cross-border loss provisions found in the more expansive CCTB proposal. In order to achieve reliable results, the quantitative analysis is based on two model companies: (1) an average EU-27 large company, and (2) an average EU-27 small to medium-sized company (SME). Furthermore, we not only analyse the cumulative effects of common tax accounting rules on the tax base and on effective tax burdens, but also isolated effects of the different elements of a CCTB.

The aim of the quantitative analysis is to measure the corporate tax base, as defined by current national tax provisions (benchmark case) for different types of "EU companies" in each member state and to compare the results with the tax base yielded with the application of alternative options for a CCTB. The benchmark case takes into account the EU member states' tax provisions as the law stood for the fiscal year 2006. Since the focus of this report is on the corporate tax base and the resulting effective corporate tax burdens, the analysis is limited to

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corporations (i.e. transparent entities are not taken into account) and to taxes borne at the corporate level (i.e. personal taxes of shareholders are not taken into account).

In order to estimate the quantitative effects of alternative CCTB options on the size of EU company tax bases by computing tax bases and effective company tax burdens, it was first necessary to collect and verify the relevant tax variables as defined by national tax provisions for the fiscal year 2006 in each of the 27 EU member states. Furthermore, alternative options for a CCTB underlying this report were defined in co-operation with the Commission's Steering Group in January 2008.

On this basis, verified data and alternative CCTB options were implemented into the model of the European Tax Analyzer. Furthermore, company data for the different types of EU companies were extracted from databases containing balance sheet and profit-and-loss statement data; these data were also implemented into the European Tax Analyzer. With these steps the requisite data pool for the quantitative analysis was thus obtained.

The report is divided into two broad sections. Section 2 introduces the European Tax Analyzer and the underlying methodological concept for the computation of tax bases and effective company tax burdens. As the European Tax Analyzer model was previously approved by the European Commission in an earlier report conducted on behalf of by the Commission (see Jacobs & Spengel, 2002), the description only highlights the main underlying assumptions and recent modifications and improvements to the model. In addition, it contains a detailed description of how company data for different types of EU companies were derived from the AMADEUS database and aggregated to data for a model firm. Section 3 then computes and analyses the effects on tax bases and effective tax burdens resulting from the adoption of a CCTB in the 27 EU member states. Section 3 is divided into three parts. In the first part, this report applies the proposed options for a CCTB for both an average EU-27 large and an average EU-27 small and medium-sized corporation. The analysis is based on tax rules as they stood in the year 2006 and takes into account the CCTB options specified by the Commission's Steering Group. In the second part, the report examines how the results are affected by alternative assumptions on the economic data of the model companies. Various sensitivity analyses as well as computations for model companies belonging to different economic sectors and geographical regions (EU-15/EU-12) are carried out. Finally, in the third part, the effects of major tax reforms in five member states (Germany, France, Italy, the Netherlands and Spain) during 2006 and 2008 are examined.