STUDY

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New EU own resources: possibilities and limitations of steering effects and sectoral policy co-benefits

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New EU own resources: possibilities and limitations of steering effects and sectoral policy co-benefits

Abstract

This study was prepared at the request of the Budget Committee and assesses the Commission's recent legislative proposals for the new own resources included in the interinstitutional roadmap agreed together with the NextGenerationEU programme. These are a plastic-based contribution as well as own resources based on the EU Emission Trading System and a carbon border adjustment mechanism. Also, own resources based on the reallocation of taxation rights on profits of large MNE according to Pillar I. of the OECD/G20 Inclusive Framework on BEPS as well as the taxation of corporations and financial transactions, as further options stipulated in the IIA roadmap, are analysed. Finally, the study briefly reviews further own resource options which could create co-benefits and steering effects supporting a sustainable, inclusive, green and digital transition.

This document was requested by the European Parliament's Committee on Budgetary Affairs.

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LIST OF ABBREVIATIONS

ALLBNK	Most Ambitious Scenario in GHG Emissions Reduction
ATAD	Anti-Tax Avoidance Directive
BEFIT	Business in Europe: Framework for Income Taxation
BEPS	Base Erosion and Profit Shifting
BTA	Border Tax Adjustment
CAP	Common Agricultural Policy
CBAM	Carbon Border Adjustment Mechanism
CbCR	Country-by-Country Reporting
CCCTB	Common Consolidated Corporate Tax Base
CEO	Chief Executive Officer
CGE	Computable General Equilibrium (model)
CIT	Corporate Income Tax
CNG	Compressed Natural Gas
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CPRICE	Carbon-pricing based scenario
CTT	Cryptocurrency Transaction Tax
DEBRA	Debt Equity Bias Reduction Allowance
DL	Digital Levy
DST	Digital Services Tax
EC	European Commission
ECON	European Parliament's Committee on Economic and Monetary Affairs
EEA	European Economic Area
EFTA	European Free Trade Association

EGD	European Green Deal
ESMA	European Securities and Markets Authority
ETD	Energy Tax Directive
ETS	Emission Trading System
EU	European Union
EUAs	European Union Emission Allowances
EURI	European Union Recovery Instrument
FTT	Financial Transaction Tax
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GHG	Green House Gas
GILTI	Global Intangible Low-taxed Income
GloBE	Global Anti-base Erosion
GNI	Gross National Income
HFCS	Household and Consumption Survey
HLGOR	High Level Group on Own Resources
HoSG	Head of State or Government
ICAO	International Civil Aviation Organization
IIA	Interinstitutional Agreement (on Budgetary Matters)
IIR	Income Inclusion Rule
LDCs	Less-Developed Countries
LNG	Liquified Natural Gas
LRF	Linear Reduction Factor

LULUCF	Land Use, Land-Use Change, and Forestry
MFF	Multiannual Financial Framework
MiCA	Markets in Crypto-Assets Regulation
MIX	Combined Approach of REG and CPRICE
MLC	Multilateral Convention
MNE	Multinational Enterprises
MSR	Market Stability Reserve
NGEU	NextGenerationEU
OECD	Organisation for Economic Cooperation and Development
ORD	Own Resource Decision
OTC	Over The Counter
RED	Renewable Energy Directive
REG	Regulatory-based measures scenario
RRF	Recovery and Resilience Facility
SCF	Social Climate Fund
SDP	Significant Digital Presence
SRDii	Shareholder's Rights Directive II
STTR	Subject to Tax Rule
TFEU	Treaty on the Functioning of the European Union
TfTEI	Tax for Top Earned Incomes
TNAC	Total Number of Allowances in Circulation
TOR	Traditional Own Resources
TSSC	Tax for Stock Shares of Corporations
UNCTAD	United Nations Conference on Trade and Development

UNEP	United Nations Environmental Programme
UPE	Ultimate Parent Entity
UTPR	Undertaxed Payments Rule
VAT	Value Added Tax
WTO	World Trade Organisation

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EXECUTIVE SUMMARY

The need to repay NGEU debt, newly emerging potential genuine own resources, and mounting long-term challenges for the EU have provided new impulses to the long-standing debate about a fundamental reform of the EU system of own resources, which in its current form contributes to a rather limited extent only to central EU objectives and policies addressing the grand societal challenges the EU is facing. The Interinstitutional Agreement accompanying the MFF/NGEU includes a roadmap for the stepwise introduction of new own resources as of 2021. A plastic-based own resource was introduced in January 2021. The European Commission put forward concrete proposals for own resources based on a revised EU Emission Trading system and a newly introduced carbon border adjustment mechanism as well as for the reallocation of taxation rights on profits of large MNE according to Pillar I. of the OECD/G20 Inclusive Framework on BEPS in July 2021 and in December 2021, respectively, with a view to their implementation by the beginning of 2023.

The framework for the assessment of the new own resources included in the Interinstitutional Agreement (IIA) roadmap undertaken in this study comprises a set of evaluation criteria as well as legal and implementation aspects. The evaluation criteria used to evaluate new own resources include several criteria reflecting specific benefits from an EU-wide introduction of new own resource options and assigning their revenues to the EU. They are also based on the various dimensions of sustainability; and they consider budgetary aspects as well as the fair distribution of the financial burden across Member States.

An EU Emission Trading System has several co-benefits and steering effects. The most obvious steering effect associated with the EU ETS is emission reductions, which should be accelerated by the proposed reform of the EU ETS. Reforming the EU ETS with the aim of steadily increasing the carbon price in the long run, as envisaged by the European Commission's proposal, can be expected to have a positive and increasing effect on innovation. Further co-benefits of the EU ETS include air quality, health, and energy security. An EU-wide emission trading system is preferable to uncoordinated national carbon pricing systems, which could lead to inefficiently low carbon prices. An ETS-based own resource represents a genuine own resource for the EU: revenues are derived from a common EU policy, would not exist without EU-wide coordination, and emissions as the base of EU ETS revenues cannot be attributed properly to particular Member States because of their cross-border nature. If transferred to the EU, EU ETS revenues could be used for climate projects with European added value, while Member States may prefer climate-related spending with local benefits or channelling EU ETS revenues into the general budget. Moreover, a share of revenues could be redistributed via the EU budget to Member States with limited capacities to implement effective climate policies at the national level, by introducing specific programmes supporting the implementation of climate measures in these Member States. Assigning EU ETS revenues to the EU would remove incentives for Member States to loosen other emission-reducing policies to an inefficiently low level with a view to preserving EU ETS auctioning revenues. It is justified also from a cross-country fairness perspective, as otherwise emission-intensive Member States particularly benefit from high and increasing carbon prices (due to the allocation of emission allowances based on historical emissions). The proposed Social Climate Fund would be associated with co-benefits insofar as it would strengthen social inclusion in Member States and support a just transition. The envisaged boundaries of the new own resource based on EU ETS revenues would contribute to cohesion among Member States.

The CBAM's primary goal is to prevent carbon leakage and secure the competitiveness of the EU economy. The CBAM represents a genuine EU own resource since it is related to a cross-border issue (i.e. emissions) and to an EU policy. An uncoordinated introduction of a CBAM at the Member State level would lead to inefficiently low carbon border levies due to the cross-border nature of emissions.

By securing the competitiveness of the EU economy, the CBAM could ensure sectoral co-benefits through spillover effects and value chains. Empirical evidence suggests that carbon border adjustments are an effective tool for reducing carbon leakage and can be effective at protecting the competitiveness of the covered domestic sectors. Therefore, there is reasonably ground to claim the proposed CBAM will be at least partially effective against carbon leakage. This may have positive co-benefits for the European economy due to increased demand for domestically produced energy-intensive goods, and positive spill-over effects due to changed prices of imports and domestic products. In a more general sense, the CBAM may influence other countries to install their own carbon pricing mechanisms and may be a first step towards the creation of a "carbon club", formed together with other large market economies, such as the USA. Rather than the EU acting unilaterally, a large carbon club would be better suited to incentivise other countries to join, to help protect its economic area from carbon leakage, and to be able to protect itself from trade retaliation. There are various reasons for using CBAM revenues as an own resource. Revenues from a CBAM cannot be attributed to individual Member States because of the cross-border nature of emissions. Assigning revenues to individual Member States is also complicated due to cross-border value chains. The CBAM would cover raw materials, which may be imported into one Member State and used as an intermediate good in another one. Therefore, CBAM revenues present themselves as genuine EU own resources, also considering that they stem from a common EU policy. Furthermore, individual Member States may be more inclined to spend CBAM revenues in ways that could be interpreted by the WTO as subsidies, thus endangering the CBAM. Although Member States have different levels of economic development and purchasing power and apply different types of technologies, which determine the carbon intensity of production, the ETS price, and the CBAM rate (especially if determined though sectoral benchmarks) are the same for all, which could lead to a misallocation of revenues. In face of differences in the needs and abilities of Member States to implement the Green Deal, revenues could be used more efficiently if collected and spent by the EU. The single Member States typically have only limited capacities with regard to their international cooperation aid institutions when it comes to international support for the green transition. If a share of CBAM revenues were spent for international transfers compensating poorer EU trading partners, centralised decision making and implementation of such transfers at the EU level is more cost-efficient, and it avoids free-riding and non-participation by individual Member States.

A digital tax solution via a re-allocation of profits has a strong link to EU policy: 20% of RRF should be allocated to digitalisation as well as EUR 132.8bn in the MFF 2021-2027. The introduction of a re-allocation of profits based on the global agreement would contribute to fairer and efficient corporate taxation in the Single Digital Market. A tax paid by companies with no physical presence in the EU territory but using the European digital infrastructure can finance its development and further improvement based on the pay as you use principle. The digital-tax solution in the form of re-allocation of profits can increase coherence of EU budget policies. Moreover, there are various co-benefits and steering effects connected with the global agreement. The digital-tax solution will improve the current corporate tax system, supporting its long-term sustainability and improving tax equity. It increases tax and legal certainty, as it abolishes the unilaterally introduced digital taxes. It would also ensure a level playing field and fairer allocation of taxing rights. Revenues from the digital-tax solution based on the global agreement are attributable to EU Member States. The coordinated approach based on the global agreement is preferable as it is able to ensure a more effective and efficient solution compared to unilateral uncoordinated national solutions, which shall be abolished via the global agreement. Moreover, fairness and equity via a fairer allocation of taxing rights and tax revenues between sovereign states would be improved. The digital-tax solution via a re-allocation of profits can also contribute to fiscal integration between Member States.

With new own resources based on financial transactions and the taxation of corporations, the second basket is also closely linked to EU policy. These particularly include the creation of a single market for financial services as well as fair and efficient business taxation. Uncoordinated implementation of national financial transaction taxes at Member State level could lead to a significant relocation of the tax base and a fragmentation of the single market for financial services. Also, inefficiently low tax rates may result due to competitive pressures. A financial transaction tax may contribute to a stabilisation and more efficient functioning of financial markets. Also, tax equity can be improved, as well as tax and legal certainty. It may also reduce income inequality. A European financial transaction tax may help to internalise negative cross-border externalities due to the cross-border nature of financial trading. Main co-benefits of own resources based on BEFIT are their contribution to the long-term sustainability of corporate taxation and to tax equity. They also help to create a level playing field for companies active in the single market.

The proceeds from all new own resources under discussion are cyclically sensitive, i.e. they are correlated to the business cycle. Replacing a share of GNI-based own resources by these new own resources would act as an in-built automatic stabiliser in the case of asymmetric shocks hitting specific Member States. Compared to the current revenue system primarily funded by the GNI-based own resource, the contributions from the affected Member States from the new own resources would decrease disproportionately, while the other Member States would carry the burden in the form of increased GNI-based contributions.
Beyond the IIA options for new own resources, further options which may contribute to a sustainable, inclusive, green and digital recovery and transition in the EU are conceivable. These include various options for green own resources (a surcharge on national fuel taxes, aviation taxes, or taxes on crypto currencies), own resources based on the taxation of high incomes and wealth, and own resources based on other revenue.

By complementing national contributions to the EU budget or replacing a part of them by new own resources, the EU's financing system could contribute to sustainable growth and development as well as resilience in the EU. The EU-wide introduction of taxes and levies that cannot be implemented effectively at Member State level as new own resources would allow the reaping of potential co-benefits and steering effects that would remain unutilised otherwise. Substituting a share of national contributions with new own resources could improve the EU revenue system as such, e.g. by increasing its transparency or the EU's financial autonomy. Furthermore, the introduction of new own resources would be associated with benefits for Member States, as it would allow national tax cuts or avoid the increase of national contributions and thus the increase of national taxes or expenditure cuts in case of increasing financial needs in general and regarding the repayment of NGEU debt in particular.

Assigning revenues to the EU in the form of new own resources would create a variety of additional benefits, e.g. by alleviating Member States' net position thinking or by improving coherence within the EU budget. Various co-benefits and steering effects would be associated with particular own resources, e.g. positive effects with regard to the environment, public health, public expenditures, and further economic costs. Using the revenues of particular own resources to finance the EU budget would generate a variety of additional benefits. Generally, introducing a basket of new own resources instead of a single new own resource option would have several advantages: a variety of sustainability- and resilience-related co-benefits and steering effects could be generated, and undesirable effects and uneven financial burdens across Member States, as well as differing long-term revenue potentials, might cancel out. A basket of new own resources comprising the plastic-based own resource, an EU ETS-based own resource, as well as revenues from a CBAM and the reallocation of taxation rights on profits of large MNE according to Pillar I. of the OECD/G20 Inclusive Framework on BEPS, could

particularly contribute to the attainment of EU climate objectives and to digital change, and it would strengthen various areas of the single market. Existing revenue estimations suggest that expected revenues from the first basket of new own resources would hardly suffice to repay NGEU debt in the years 2028 to 2032. The revenues that can be expected from the second batch of new own resources, however, that would kick in in 2026 would be more than sufficient to close any financing gap. After 2032, yearly revenues from the two baskets could significantly exceed NGEU debt repayment needs, as due to steadily growing carbon prices, an increasing scope of the CBAM, dynamic profits of the world-wide largest MNEs and of MNEs in general, as well as an increasing volume of financial transactions, yearly revenues can be expected to considerably exceed the financing requirements to pay back NGEU debt.

1 INTRODUCTION AND BACKGROUND

KEY FINDINGS

- The need to repay NGEU debt, newly-emerging potential genuine own resources, and mounting long-term challenges for the EU have provided new impulses to the long-standing debate about a fundamental reform of the EU system of own resources.
- The Interinstitutional Agreement accompanying the next EU budget includes a roadmap for the stepwise introduction of new own resources as of 2021.
- A plastic-based own resource was introduced in January 2021.
- The European Commission put forward concrete proposals for own resources based on a revised EU Emission Trading system and a carbon border adjustment mechanism, as well as for an own resource based on Pillar I. of the G20/OECD Inclusive Framework agreement, in July and December 2021 with a view to their implementation by the beginning of 2023.
- The new own resources proposed by the European Commission in December 2021 could yield annual revenues (in 2018 prices) of up to EUR13.5 billion for 2023 to 2030 and of up to EUR17 billion for 2026 to 2030, with the ETS-based own resource contributing the lion's share.
- By the end of 2023, the European Commission will develop a proposal for further new own resources which could be based on financial transactions and the taxation of corporations with a view to their introduction by the beginning of 2026.

The decade-old debate about a fundamental reform of the EU system of own resources funding the Multiannual Financial Framework (MFF) by introducing innovative own resources has been led with growing intensity since the outbreak of the COVID-19 pandemic in the EU at the beginning of 2020. The increasing momentum this long-standing debate has been gaining recently is driven by several new impulses. First, there is the need to repay the debt incurred to finance the European Recovery Package "NextGenerationEU (NGEU)" agreed at the EU level to counter the economic downturn caused by the COVID-19 pandemic. NGEU has a total volume of EUR750 billion to be spent in the period 2021 to 2026 and comprises EUR390 billion of grants and EUR360 billion of loans that Member States can apply for. These funds are financed by the issuance of common EU debt scheduled for repayment between 2028 and by 2058 at the latest.

The introduction of new own resources is stipulated in the 2020 Own Resources Decision and the legally binding Interinstitutional Agreement on Budgetary Matters[1] between the Council, the European Parliament, and the European Commission. As an alternative to decreasing MFF funds or to increasing national contributions by Member States, new own resources can strengthen the NGEU repayment plan's sustainability and credibility on the financial markets, thus securing the best possible borrowing terms (Schwarcz, 2021). Second, as Fuest and Pisani-Ferry (2020) point out, several potential new own resources which are of a genuine European nature have evolved recently. Third, the system of own resources contributes to a very limited extent only to central EU objectives and policies, despite increasing challenges facing the EU (Schratzenstaller et al., 2017). This is particularly relevant with

[1] See Schwarcz (2021) for details.

regard to the European Green Deal and the stepped-up EU climate goals, which underline the necessity to integrate climate objectives into all European policy areas and thus also into the EU system of own resources. Moreover, given the acts of war in Ukraine and the EU's reactions to it, related issues of energy transition gain even greater urgency. In addition, innovative own resources can also support other important EU objectives and strategies, e.g. fair taxation, competitiveness, the creation of a level playing field regarding international competition, or the stabilisation of financial markets.

In its proposal for the MFF 2021 to 2027 put forward in May 2018 (European Commission, 2018a) the European Commission for the first time presented several concrete options for new own resources. The European Commission suggested a share of 3% in a Common Consolidated Corporate Tax Base (CCCTB), 20% of the revenues of auctioning EU Emission Trading Systems (ETS) certificates, and a plastic-based contribution of EUR0.80 per of non-recycled packaging plastic waste (table 1).

The total annual revenue potential of these options was estimated at EUR22 billion. By 2027, they should yield about 12% of overall EU revenues, thus reducing the share of national contributions in overall revenues from above 80% to 71%. These new own resources explicitly should not only serve a revenue-raising purpose, but should also support important EU priorities, particularly climate protection, the circular economy, and fair taxation.

During the ensuing MFF negotiations, the plastic-based own resource emerged as the only consensual option to be introduced in 2021. An agreement on a CCCTB seemed unrealistic at that stage, and a number of Member States opposed the ETS-based own resource as it would imply that a part of the proceeds from auctioning ETS certificates, which currently flow into national budgets, would be lost to them. The negotiating box presented by European Council President Charles Michel at a special European Council devoted to the next MFF in February 2020 mentioned a share of revenues generated by the ETS and a national contribution linked to non-recycled plastic packaging waste as possible new own resources.

Shortly after this MFF compromise proposal had been declined by Member States, the outbreak of the COVID-19 pandemic in Europe caused a major reshuffling of cards in spring 2020. In its proposal from May 2020 on a European Recovery Plan, the European Commission suggested introducing additional own resources on top of those proposed in May 2018 at a later stage of the 2021 to 2027 financial period, to facilitate repayment of the issuance of bonds on the financial markets on behalf of the EU of up to EUR750 billion to finance NGEU. An ETS-based own resource, drawing on a revised EU ETS possibly extended to aviation and shipping, an own resource based on the operation of corporations in the single market, a carbon border adjustment mechanism, and a digital levy for firms with an annual turnover above EUR750 million, should yield estimated revenues of between EUR26.3 billion and EUR35.2 billion per year (table 1).

The agreement between the Council and the European Parliament from November 2020 on the European Recovery Plan, which was confirmed by Member States in December 2020, includes a roadmap for the stepwise introduction of new own resources during the new MFF period 2021 to 2027 stipulated in the Interinstitutional Agreement on Budgetary Matters and in a new Council Decision on the System of Own Resources of the European Union. As a first step, a plastic-based own resource was added to the existing own resources financing the MFF starting in January 2021 (table 1).

Furthermore, the European Commission was asked to put forward concrete proposals for own resources based on a carbon border adjustment mechanism (CBAM) as well as on a revised EU Emission Trading System (ETS) possibly extended to aviation and shipping, and for a digital levy by June 2021. The revenues from these new own resources should allow (partial) repayment of debt incurred to finance NGEU. The Council should discuss these options with a view to their introduction by the

beginning of 2023. By June 2024, the European Commission was asked to put forward a proposal for further new own resources which could be based on financial transactions, the corporate sector, or a new harmonised corporate tax base. Their implementation was to be discussed by mid-2025, with a view to their introduction by the beginning of 2026. Assuming linear annual repayments, EUR15 to EUR16 billion (in current prices) would be required annually to pay back debt incurred for non-repayable transfers to Member States within NGEU by 2058.

The publication of the Commission's legislative proposals for the first batch of new own resources (new own resources based on a digital levy, a revised EU ETS, and a CBAM), which was originally foreseen for June 2021, was postponed due to several current developments. The legislative proposals for the revision of the EU ETS and the CBAM were presented on July 14, 2021, as these reform proposals were included in the 'Fit for 55' package which is aimed at reaching the EU's climate goals[2] and comprises reforms to a wide range of policies (8 revisions of existing legislation, *inter alia* the EU ETS; 5 new proposals, *inter alia* the CBAM). In their proposal for an amendment of the Own Resources Decision from December 2021 (European Commission, 2021a, 2021b), the European Commission suggests dedicating 25% of the revenues generated by the EU ETS as own resource to the EU budget and estimates annual revenues for the EU budget of about EUR9 billion for the period 2023 to 2030 and EUR12 billion for 2026-2030. Moreover, the European Commission proposes to use 75% of the revenues from a CBAM for the EU budget and estimates yearly revenues of EUR0.5 billion for the EU budget between 2023 and 2030 and EUR1 billion from 2026 to 2030.

As a compromise on the introduction of a minimum tax and revised rules for the taxation of multinational enterprises (MNE) including large digital companies seemed possible to reach within the OECD Inclusive Framework by mid-2021, the Commission decided to delay the publication of a legislative proposal for an EU-wide digital levy to autumn 2021. After 137 countries reached a final agreement on a two-pillar solution focusing on the introduction of a global minimum tax and the reallocation of profits as revised rules for the taxation of Multinational Enterprises (MNE), including large digital companies, in October 2021, the European Commission abandoned its original digital levy plans altogether. Instead, an own resource corresponding to 15% of the share of the residual profits of the largest and most profitable multinational enterprises that are reallocated to EU Member States was proposed on December 22, 2021, from which annual revenues of up to EUR2.5 billion to EUR4 billion are expected (European Commission, 2021a).

In principle, the European Commission envisages the introduction of the three new own resources included in the first batch of new own resource proposals by 2023 (European Commission, 2021c). The ETS-based own resource shall be established as of January 1, 2023. The CBAM-based own resource shall be established as soon as the CBAM Regulation has been implemented, which is planned for 2023. The new own resource based on the OECD/G20 Inclusive Framework Pillar I. shall be introduced as soon as the agreement enters into force. At the international level, the work on a Multilateral Convention is in progress, with a view to implementing it in 2023. The Commission intends to publish a proposal for a Council directive providing for the implementation of the Multilateral Convention in the EU in 2022 (European Commission, 2021b). Altogether, these three new own resources could yield annual revenues (in 2018 prices) of up to EUR13.5 billion per year between 2023 and 2030 and up to EUR17 billion per year from 2026 to 2030, according to European Commission estimates.

To alleviate social hardships for vulnerable groups that may result from the inclusion of the buildings and road transport sectors in the EU ETS, a Social Climate Fund (SCF) shall be newly established. This SCF shall be provided with EUR72.2 billion (current prices; EUR58.4 billion in 2018 prices) for the period

[2] See Tagliapietra (2021) for a brief overview of the elements of the 'Fit for 55' package.

2025 to 2032, corresponding in principle to 25% of revenues from the new ETS2 for buildings and road transport. Thus, the revenues from the new ETS-based own resources would be used both for financing the SCF and the repayment of NGEU debt. The largest share of the overall expected revenues of up to EUR17 billion per year in the period 2026 to 2030 would be contributed by the enlarged EU ETS (71%). The own resource based on the reallocated profits of very large MNEs would contribute 23%, the CBAM-based own resource 6%.

For further new own resources, which could be based on a financial transaction tax or be linked to the corporate sector (building on the BEFIT proposal expected for 2023), the European Commission is asked to put forward concrete proposals by the end of 2023, with a view to their introduction by the beginning of 2026.

Looking at the **objectives**, this analytical study provides data and related analysis on the topic of new EU own resources, their possibilities and limitations, with regard to the European Commission's legislative proposals published in July and December 2021.

In terms of the **scope**, this analytical study assesses: (1) the advantages and disadvantages of the proposed first basket of new own resources, as well as for the options for the second basket of new own resources mentioned in the Interinstitutional Agreement on Budgetary Matters (IIA) roadmap for the EU as a whole and for the Member States from an economic, policy and political aspect, in order to foresee the main issues to be weighed in their adoption; (2) the possible effects of each new own resource and the revised system of own resources as a whole on the EU budget and the achievement of 'sectoral' EU policy objectives; (3) whether the desired EU objectives can be best achieved by introducing the proposed fiscal measures at EU level, as own resources; (4) whether the proposed new own resources would be effective, efficient and sufficient to finance the repayment of the European Union Recovery Instrument (EURI) debt; and (5) further options for new own resources contributing to sustainable growth and development in the EU.

Table 1: New own resources for MFF and NGEU – an overview of recent proposals and agreements

Proposal/agreement	Short description	Potential revenues in billion EUR p.a.
Proposal European Commission May 2018	Total	22
Plastic-based own resource	EUR0.80 per kilogram non-recycled packaging plastic waste	7
ETS-based own resource	share of 20% in revenues from auctioning off EU ETS certificates	3
CCCTB-based own resource	share of 3% in Common Consolidated Corporate Tax Base (CCCTB)	12
Proposal European Commission May 2020	Total	26.3 – 35.3
ETS-based own resource	own resource based on a revised EU ETS possibly extended to aviation and shipping share in revenues from auctioning off EU ETS certificates	10
Own resource based on operation of corporations in Single Market	n.a.	10
CBAM-based own resource	various design options under discussion	5 – 14
Digital levy	for firms with turnover above EUR750 million	1.3
Agreement December 2020	Total	-
Plastic-based own resource	EUR0.80 per kilogram non-recycled packaging plastic waste Introduction in January 2021	6
ETS-based own resource	own resource based on a revised EU ETS possibly extended to aviation and shipping proposal by mid-2021 introduction by January 2023	-
CBAM-based own resource	various design options under discussion proposal by mid-2021 introduction by January 2023	-
Digital levy	various design options under discussion proposal by mid-2021 introduction by January 2023	-
Further possible new own resources	Financial transaction tax, own resources linked to corporations or a new common corporate tax base proposal by mid-2024 introduction by the beginning of 2026	-

Proposal/agreement	Short description	Potential revenues in billion EUR p.a.
Proposal European Commission December 2021	Total[1])	Up to 13.5
ETS-based own resource	25% of revenues from EU ETS with full auctioning of aviation allowances and extended to shipping and road transport and buildings (excluding allowances auctioned to finance Innovation Fund and initial endowment of Modernisation Fund) introduction by January 2023	9 (2023-2030) 12 (2026-2030)
CBAM-based own resource	75% of revenues from CBAM Introduction as soon as CBAM Regulation enters into force (planned for January 2023)	0.5 (2023-2030)[2]) 1 (2026-2030)
Own resource based on the reallocated profits of very large MNEs	15% of share of residual profits of largest and most profitable MNEs reallocated to MS Introduction as soon as OECD/G20 Inclusive Forum Pillar I. Agreement enters into force[3])	up to 2.5 to 4
Further possible new own resources	Financial transaction tax, own resource linked to the corporate sector (building on BEFIT proposal) proposal by the end of 2023 introduction by the beginning of 2026	-

Source: Schratzenstaller (2021; modified and extended), Next generation of EU own resources (europa.eu). – 1) In 2018 prices. – 2) During the transitional period from 2023 to 2025, no revenues are expected from the CBAM. – 3) Envisaged for 2023.

2 THE SYSTEM OF OWN RESOURCES – BRIEF OVERVIEW AND RATIONALE FOR REFORM

KEY FINDINGS

- The contribution of the EU own resource system to central EU objectives and policies addressing the great societal challenges the EU is facing is still limited.
- Against this background, replacing a part of national contributions by innovative, sustainability-oriented own resources would contribute to important EU policies.
- Substituting a share of national contributions with new own resources would create space for Member States to cut less sustainability-oriented taxes, thus resulting in a supra-national tax shift.
- New own resources could also generate additional revenues required in face of Brexit and the need to repay NGEU debt, thus avoiding an increase of national contributions or a decrease of MFF expenditures.
- Therefore, a basket of new own resources would be advisable, so that potential negative effects of specific own resources for individual Member States would cancel out.
- A basket of various new own resources associated with different co-benefits and steering effects could contribute to various dimensions of sustainable growth and development in the EU and to making the EU more resilient.

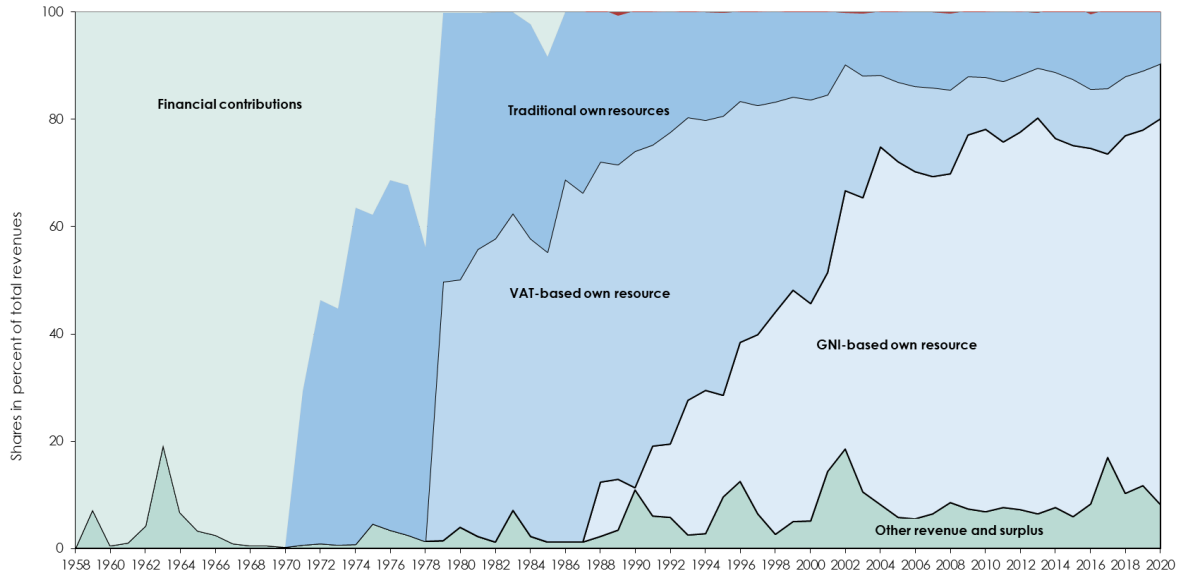
The system of own resources was based on three pillars[3] until the end of 2020 (figure 1). The VAT-based own resource is calculated by applying a uniform call rate on the harmonised VAT base (0.3% since 2007; with reduced rates for Germany, the Netherlands, Austria and Sweden in the MFF period 2007 to 2013 and for Germany, the Netherlands and Sweden in the MFF period 2014 to 2020) and contributed a share of 10.2% to overall EU revenues in 2020. Under the MFF 2021-2027, the VAT-based own resource was simplified to reduce the administrative burden on the side of both the EU and Member States' administrations. The GNI-based own resource is determined based on Member States' gross national income (GNI). As a residual revenue source, its call rate (which is identical for all Member States) is fixed annually according to the respective financial needs, as the EU in principle is not allowed to incur debt to finance the EU budget. Meanwhile, the GNI-based own resource contributes the lion's share to financing the MFF; its share in overall EU revenues reached 71.9% in 2020. Traditional own resources, which are the EU's only genuine own resources, consist of customs duties levied at the external border of the single market, agricultural duties, and sugar levies[4]. Their share has been decreasing considerably since the mid-1970s and amounted to just 11.4% in 2020. In 2021, the own resource system was complemented by a fourth pillar: a plastic-based own resource which is expected to contribute about 4% to overall EU revenues and explicitly not only pursues a revenue-raising purpose, but also aims at environmental goals.[5]

[3] See Schwarcz (2021) and D'Alfonso (2021) for brief overviews.

[4] As the sugar quota system ended by the marketing year 2016/17, Member States paid the sugar production tax and the surplus levy for the last time in March 2017 and June 2018.

[5] See section 4.1 for details.

Figure 1: Composition of EU revenues in a long-term perspective



Source: European Commission (2021d), own representation.

Several advantages and drawbacks characterise the current system of own resources (Schratzenstaller et al., 2017). On the positive side, it provides a stable and reliable financial basis for the EU budget. At least before the application of various correction mechanisms, it results in a fair distribution of the financial burden across Member States, as the GNI reflects each country's ability to contribute to the EU budget. The current own resource system also leaves freedom of choice for Member States regarding the sources from which they finance their national contributions to the EU, thus respecting the subsidiarity principle.

However, the existing EU financing system is also characterised by several shortcomings (Schratzenstaller et al., 2017; Schwarcz, 2021). It is associated with a shrinking and currently very low financial autonomy of the EU, corresponding to the decreasing importance of traditional, genuine own resources. Thus, the EU budget is mainly financed through direct contributions from Member States, which furthers a *juste-retour* perspective of Member States on the EU budget, with the consequence that Member States are focusing on their net positions (i.e. the difference between financial contributions to and transfers received from the EU budget) instead of aiming at maximising the EU added value provided by the EU budget (Bachtrögler et al., 2019 and 2020). It has also been criticised that the EU's revenue system is opaque and intransparent, and that it is unfair due to various correction mechanisms. Finally, as indicated above, the EU revenue system contributes to a limited extent only to central EU objectives, particularly with regard to the overarching goal of sustainable growth and development as well as a resilient EU.

Against this background, replacing a part of national contributions by innovative, sustainability-oriented own resources could contribute to important EU goals and policies, and would thus help the EU to cope with the mounting challenges it is confronted with. The reduction of national contributions would create budgetary space for Member States to reduce the national tax burden by cutting particularly less sustainability-oriented taxes (e.g. labour taxes), thus resulting in a supra-national tax shift strengthening sustainability-orientation of taxation in the EU (Schratzenstaller et al., 2017). New

own resources could also generate revenues required to expand EU expenditures: specifically, to compensate for Brexit-induced revenue shortfalls (Schratzenstaller, 2019a) and to pay back debt incurred for NGEU. Moreover, new own resources linked to EU policies may help to overcome Member States' net position thinking (Bachtrögler et al., 2019 and 2020). They would also increase the EU budget's independence and autonomy (Schratzenstaller, 2019b).

Well-suited candidates for such new own resources are taxes and levies that are genuine European resources, as they are linked to European policies, or taxes and levies that cannot be implemented and enforced effectively on Member State level due to tax competition, tax avoidance and/or cross-border externalities and contribute to European strategies and policies (Fuest and Pisani-Ferry, 2020; Pisani-Ferry, 2020; Schratzenstaller et al., 2017), such as the single market, climate protection, environment and energy, the circular economy, fair taxation, stable financial markets, etc.

Hereby, according to the interinstitutional High-Level Group on Own Resources (HLGOR, 2016), a "basket solution" would be preferable: a fundamental reform of the EU system of own resources should be based on several new own resources, so that potential negative effects of specific own resources for individual countries would cancel out to a certain extent. A basket solution also makes it easier to achieve a fair distribution of the financial burden across Member States, as uneven effects of specific new own resources could balance out (Schwarcz, 2021). Moreover, such a basket of various own resources associated with different co-benefits and steering effects could contribute to various dimensions of sustainable growth and development in the EU and to making the EU more resilient altogether.

3 FRAMEWORK FOR THE ASSESSMENT OF THE OPTIONS FOR NEW OWN RESOURCES INCLUDED IN THE IIA ROADMAP

KEY FINDINGS

- The framework for the assessment of the new own resources included in the IIA roadmap comprises a set of evaluation criteria as well as legal and implementation aspects.
- The evaluation criteria used to evaluate new own resources include several criteria reflecting specific benefits from assigning a new own resource to the EU; they are also based on the various dimensions of sustainability; and they consider budgetary aspects as well as the fair distribution of the financial burden across Member States.
- The TFEU contains several legal provisions relevant for the implementation of new own resources in general and of specific own resources.
- All decisions on new own resources need to comply with Article 311 TFEU, which governs the EU own resource system and the associated decision procedures.
- Tax-based own resources are to comply with the EU's tax competences, addressed in Articles 113 and 115 TFEU (harmonisation of indirect and approximation of direct taxes, respectively).
- Alternatively, new own resources can consist of fiscal measures targeted at environmental and energy purposes according to Articles 192 and 194 TFEU.
- There are various design options for (tax-based) own resources.
- Under a transfer system, EU and Member States would both participate in the revenues from a tax that would be fully harmonised across Member States regarding tax rate and tax base.
- A surcharge system would require the harmonisation of the tax base only; a surcharge in addition to the existing national tax rate would then be levied, the proceeds of which would go to the EU.
- The separation system would allow the EU to introduce a specific tax with its revenues; it would be associated with own legislative and revenue competences of the EU.

3.1 Evaluation criteria

The assessment of the new own resources envisaged in the IIA roadmap and proposed by the European Commission in its own resource package presented in December 2021 conducted in chapters 4 and 5 of the study is based on a set of evaluation criteria reflecting different important requirements and expectations related to own resources for the EU. The evaluation criteria included in table 2 represent a synthesis derived from the evaluation criteria suggested in the work on own resources published in the last two decades, e.g. by the High Level Group on Own Resources (2014), Schratzenstaller et al. (2016)[6], Schratzenstaller and Krenek (2019a), and most recently Fuest and Pisani-Ferry (2020). This list

[6] Schratzenstaller et al. (2016) provide a review of the evaluation criteria suggested by the most important relevant studies and documents published since the beginning of the 2000s.

comprises different groups of evaluation criteria. Several criteria reflect specific benefits from assigning certain new own resources to the EU.

In addition, the various dimensions of sustainability (economic, social, environmental, and cultural/institutional sustainability) (see Schratzenstaller et al., 2016 for details) provide an important basis for the selection of evaluation criteria for new own resources for the EU. Moreover, various budgetary criteria and the fair distribution of the burden from new own resources across Member States are considered. Thus, our evaluation criteria take into account conventional considerations on how to design 'good' EU own resources, and they augment these with additional criteria allowing the political priorities pursued in the EU to be explicitly considered and made visible. We will also highlight wherever appropriate the added value resulting from using the proceeds from a specific own resource to fund the EU budget, instead of channelling them into national budgets. The list with evaluation criteria will be explained in more detail in what follows.

First of all, several criteria are related to the question of whether implementing a given candidate for new own resources at the EU level delivers an additional benefit compared to an introduction at the national level. This is the case when due to a mobile tax base or avoidance reactions, or due to its very nature, an own resource candidate cannot be effectively enforced or cannot be implemented at all at the national level. Also, candidates whose revenues cannot be attributed to individual Member States because they are, for example, connected to a base with externalities (e.g. carbon emissions), are suitable own resources for the EU (Fuest and Pisani-Ferry, 2020). A related criterion is whether an own resource option is linked to a European policy or strategy (HLGOR, 2014), e.g. fair taxation or the European Green Deal. Accordingly, potential sectoral co-benefits and steering effects which contribute to important European objectives also speak in favour of allocating a tax or levy to the EU level, in order to strengthen the effects of relevant expenditure policies and thus also create European added value through EU revenues.

Besides the efficiency aspects already mentioned, e.g. the contribution of new own resources to the containment of negative externalities (Le Cacheux, 2009; Fuest and Pisani-Ferry, 2020), there are several other criteria related to efficiency considerations (European Commission, 2004 and 2011a; HLGOR, 2014). New own resources should be transparent (Le Cacheux, 2009; Cipriani, 2014), i.e. they should be visible (Cattoir, 2009; HLGOR, 2014) and easy to understand for the general public, and linked to a tangible basis (Heinemann et al., 2008a and 2008b). Moreover, their administrative complexity should be limited: they should not lead to an excessive administrative burden for EU institutions, national administrations, and taxpayers. Not least, the impact of candidates for new own resources on economic performance should be considered.

Moreover, against the background of the climate objectives of the EU and the green strategies it is pursuing in the European Green Deal, the contribution of new own resources to environmental sustainability is of particular importance.

New own resources should also consider fairness on several levels. Fair burden-sharing across Member States is one relevant aspect of fairness (European Commission, 2004 and 2011a; Cattoir, 2009; HLGOR, 2014): revenues should not be distributed too unevenly across Member States, and poorer Member States should not be disproportionately burdened. Another aspect, at a personal level, are the effects of a new own resource regarding social sustainability and inclusiveness, i.e. whether it mitigates the unequal distribution of income and wealth. Social sustainability also relates to gender relations, equality of opportunity, employment, social cohesion, poverty, population health, and population growth. Finally, fairness also relates to the treatment of different kinds of firms, and sectors of the economy.

A fiscal integration criterion is related to the impact of a new own resource on fiscal integration in the EU (Cattoir, 2004) and, more specifically, on the fragmentation of tax systems in the EU.

Finally, new own resources should respect several budgetary criteria (European Commission, 2004 and 2011a; Cattoir, 2004; HLGOR, 2014). In the longer run, they should generate significant and stable revenues. In the short run, revenues should not be subjected to short-term fluctuations and should be predictable. The criterion of non-interference (Heinemann et al., 2008a and 2008b) implies that there is no competition between Member States and the EU level for the yields of a new own resource, so that it is able to create 'fresh money' for the EU.

Several remarks are in order regarding the application of this list of evaluation criteria to a specific candidate for an own resource. First of all, the individual criteria are of differing scope and importance. The prioritisation of certain criteria over others of course is a political decision. However, considering the imminent challenges the EU is facing, those criteria that capture the potential contribution of a new own resource to sustainable growth and development, thus making the EU more resilient, are particularly important. Second, as underlined by the HLGOR (2016), a "basket solution", i.e. the implementation of several new own resources, may mitigate potential negative effects or deficits of certain own resource options for individual countries. In particular, fairness concerns regarding particular new own resources could be addressed by introducing an overall cap in terms of the total country-specific financial burden resulting from the overall own resource system, with the GNI-based own resource as a flexible adaptation parameter.

Table 2: Evaluation criteria for new own resources

Evaluation criterion	Objective
Linked to European policy	has a link to a European policy
Sectoral co-benefits and steering effects	creates sectoral co-benefits and steering effects
Non-attributability	revenues cannot be attributed to individual Member States
Non-enforceability/non-implementability	cannot be enforced / implemented efficiently at Member State level
Transparency	linked to a tangible basis, visible to citizens/taxpayers
Administrative complexity	does not lead to an excessive administrative burden for EU institutions, national administrations, taxpayers
Environmental sustainability	causes no harm / mitigates environmental problems
Economic performance	does not (significantly) harm economic performance
Fairness	revenues are not distributed too unevenly across Member States; poorer Member States are not disproportionately burdened
Social sustainability/inclusiveness	supports equal distribution of income and wealth, gender aspects, employment, poverty eradication, population health
Fiscal integration	contributes to fiscal integration in the EU
Non-interference	does not interfere with Member States' tax systems ('fresh money')
Predictability / revenue stability	revenues are not subject to short-term fluctuations and are predictable
Sufficiency / fiscal sustainability	generates stable revenues in the longer run

Source: own representation.

Moreover, the introduction of various new own resources contributing to various important EU strategies and goals may strengthen the overall contribution of the EU's financing system to sustainable growth and development and to a resilient EU. This aspect is neglected in an approach that evaluates separately every own resource candidate in its own right, without considering its implementation as just one element of a fundamental reform of the own resource system based on several new own resources.

Third, the budgetary criteria should not be overrated. As new own resources will be embedded in a comprehensive system of own resources keeping the GNI-based own resource as residual own resource, short-term fluctuations in revenues can be mitigated. Within a basket solution, the implementation of new own resources with limited revenue potential also makes sense, especially if they are associated with tangible co-benefits and steering effects. Regarding the often-heard criticism

that the revenue potential of green own resources will decrease in the long run if they are effective in achieving their environmental goals, which renders them unsuitable as elements of a stable and reliable financing system for the EU: first of all, those new own resources that are based on carbon pricing will rather generate growing revenues in the medium run due to rising carbon prices; moreover, as Fuest and Pisani-Ferry (2020) highlight, it makes sense to finance temporary expenditures (such as the debt service for NGEU) through revenue sources which are of a temporary nature. The authors also point out that temporary revenue sources may be appropriate to finance permanent expenditures as an interim solution to bridge the time needed to design and implement other permanent new own resources.

3.2 Legal aspects[7]

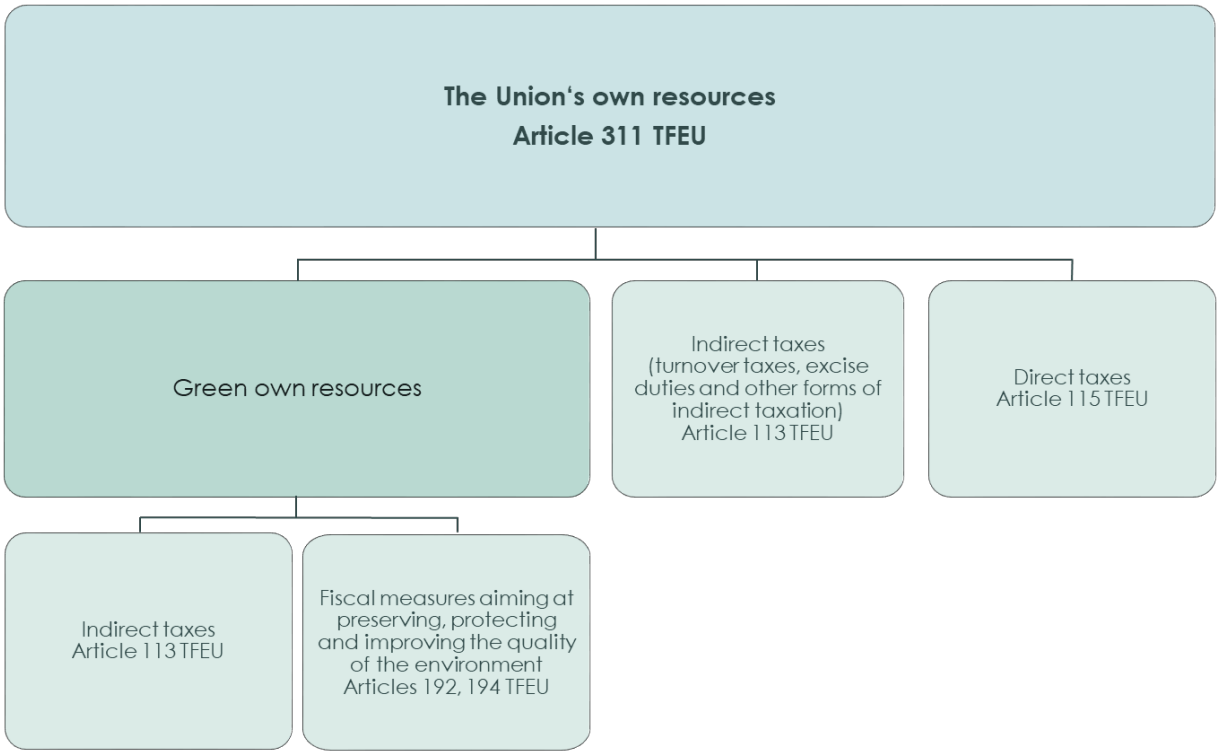
The TFEU contains several legal provisions relevant for the implementation of new own resources in general and of specific own resources. This section can only provide a rather general overview of the legal basis for new own resources. Figure 2 shows the legal basis for new own resources and illustrates that specific own resources may draw on multiple legal bases. These need to be analysed in detail for specific new own resources, to determine the relevant legal provisions in the TFEU depending on their concrete design.

First, all decisions on new own resources which are intended to complement or replace the current measures to finance EU expenditures need to comply with the own resource system according to Article 311 (1) TFEU. Whereas nation states are able to directly levy taxes to gain revenue, the EU, lacking full fiscal sovereignty, is allowed to raise revenue exclusively through 'own resources', basically contributions from the Member States or – to a limited extent – 'other revenue'. Article 311 (3) TFEU sets down the procedure for implementing and changing the current form of own resources, which is a specific legislative procedure with some distinctive features. Any decision about changes in the existing own resource system not only requires the unanimous support of the Council after consulting the European Parliament, but also the approval of the Member States according to their constitutional requirements; this includes decisions of the national parliaments in most cases.

Second, tax-based own resources, based on the introduction or expansion of taxes across the EU, need to comply with the EU's tax competences, addressed in Articles 113, 115, 192 and 194 TFEU. New tax-based own resources can be based on the provisions relevant for the harmonisation or approximation of national taxation necessary for the functioning of the internal market (Articles 113, 115 TFEU). Hereby, there seems to be a consensus in the literature that Articles 113 and 115 apply to already existing taxes only, not to new ones not existing in any Member State, and can therefore not serve as the legal basis for the implementation of new taxes upon which own resources may rest. Alternatively, new own resources can result from fiscal measures introduced to pursue environmental and energy purposes (Articles 192 (2) and 194 (3) TFEU). The decision to use the revenues from harmonised or approximated taxes, or from fiscal measures relevant for environmental or energy policy, is to be based, in a second step, on an own resource decision according to Article 311 TFEU, as mentioned above.

[7] This section draws heavily on Schratzenstaller and Krenek (2019a). We are indebted to **Ulrike Spangenberg** for valuable comments and suggestions.

Figure 2: Legal bases for new own resources for the EU budget



Source: own representation.

All decisions to harmonise or to approximate national taxes, or to introduce new taxes across the EU, are subject to a special legislative procedure according to the TFEU (Spangenberg et al., 2019; Weishaar, 2018). This special legislative procedure requires the unanimous agreement of the Council, while the European Parliament as well as the European Economic and Social Committee have only consultation rights. Obviously, the unanimity requirement is a very effective obstacle to implementing coordinated or harmonised tax provisions in the EU (Kube et al., 2016). The enhanced cooperation procedure (Articles 326 to 334 TFEU), allowing a group of at least nine Member States to introduce coordinated or harmonised measures, offers some form of escape from deadlock situations created by the special legislative procedure for those Member States willing and determined to implement certain tax measures (Spangenberg et al., 2019).

However, until now no tax measures have been introduced under the enhanced cooperation procedure. The most prominent example for an initiative resting on the enhanced cooperation procedure is the financial transaction tax, the introduction of which, after meeting fierce resistance by a number of Member States, is currently pursued under the enhanced cooperation procedure. Some authors (e.g. Kube, 2017) claim that taxes introduced within enhanced cooperation are structurally unsuitable as own resources. However, this is not necessarily the case: if all Member States agree on a new own resource decision including the implementation of tax-based own resources by the group of Member States participating in enhanced cooperation, the participating Member States could reduce their national contributions correspondingly.

The provisions in Article 311 TFEU have two important implications (Waldhoff, 2016; Spangenberg et al., 2019). First, they imply that in principle the EU is not allowed to incur debt. Second, they do not grant genuine taxation rights – in the sense of legislative and revenue competences – to the EU (Kube, 2017). Waldhoff (2016) also points out that while Article 311 TFEU in principle allows departure from

the existing own resource decision, as Article 311 TFEU mentions "other revenue", this kind of revenue would not be permitted to contribute to financing the EU budget as a primary revenue source (see also Buser, 2013).

A promising legal basis for 'green' own resources are Articles 191, 192 and 194 TFEU, granting the EU the competence to become active with regard to environmental and energy policy. According to Article 191, the EU may pursue initiatives aiming at "preserving, protecting and improving the quality of the environment". Such initiatives may also include fiscal measures aiming at the attainment of environmental goals (Article 192 TFEU) or of objectives related to energy policies (Article 194 TFEU), provided that the primary motive of these fiscal measures is not revenue generation. Articles 192 (2) and 194 (3) TFEU would permit the introduction of new taxes and levies for environmental purposes, thus granting legislative competence with regard to environmental taxes to the EU (Buser, 2013). Waldhoff (2016) states that it should be legally permitted to allocate the revenue from such environmentally motivated fiscal measures to the EU budget, as long as they do not constitute a primary (in terms of quantitative importance) revenue source.

3.3 Institutional implementation aspects[8]

With regard to institutional implementation, three design options exist for (tax-based) new own resources to finance the EU budget (HLGOR, 2016; see also Raddatz and Schick, 2003).

First, a specific form of a revenue sharing system, which can also be labelled transfer system, would imply that both EU and Member States receive a share of the revenues from a tax that would be fully harmonised (regarding tax rate and tax base) across Member States. Member States would implement the tax and collect its revenues. These would be (partially) transferred to the EU. Such a revenue sharing arrangement can be applied to own resources based on taxes not yet existing in any EU Member State and additional to the given national taxes. In addition, the revenues from already existing taxes levied in all or a group of Member States could be shared with the EU; however, in this case Member States would have to agree to fully or partially waive their claims to the revenues of the respective tax and, if necessary, to adjust the tax rate and/or tax base to a harmonised design agreed EU-wide. Thus, this implementation model is particularly relevant to taxes not yet existing or levied in a few Member States only.

In a surcharge system, which is an alternative form of a revenue sharing system, Member States would agree on a surcharge levied on the base of an already existing national tax, with the revenues generated by the surcharge being transferred to the EU. This implementation model would require the harmonisation of the tax base only, while national tax rates would be set according to national preferences. This implementation model is particularly suitable for taxes already existing in all Member States and levied on an identical tax base.

Within the separation system, the EU would be permitted to introduce a specific tax or levy and to collect its revenues, based on own legislative and revenue competences.

Most obviously, both forms of a revenue sharing system between the EU and Member States would be compatible with the current EU Treaties. New harmonised tax-based own resources involve changes in the own resource system and would have to be introduced in an own resources decision. Article 311 TFEU explicitly allows the introduction of new, or the elimination of existing, own resources. For both forms of a revenue sharing regime, tax revenues would be collected by Member States. Depending on

[8] This section draws heavily on Schratzenstaller and Krenek (2019a).

the harmonisation or approximation provisions of the TFEU on which a specific tax would be based, it would rest on EU or national legislation.

A separation system would require own legislative and revenue competences for the EU and therefore in principle is not possible within the existing legal framework (Waldhoff, 2016). An exception may be the case of fiscal measures aiming at environmental or energy policy objectives whose primary objective is not the generation of revenue.[9] Articles 191, 192 and 194 TFEU grant legislative competences with regard to these fiscal measures to the EU, and based on Article 311 TFEU the revenues could be used as own resources. Such 'green' own resources could therefore be implemented based on the separation system.

[9] See also section 3.2.

4 ASSESSMENT OF THE FIRST BASKET OF NEW OWN RESOURCES

The assessment undertaken in this chapter is based on the evaluation criteria developed in chapter 3 of the study and includes the first basket of new own resources included in the IIA roadmap and specified by the European Commission in its legislative proposals in July and December 2021, i.e. new own resources based on a revised EU ETS, a CBAM, and the re-allocation of profits of very large MNEs. As the Commission has not yet published a legislative proposal for a re-allocation of profits of very large MNEs, a corresponding new own resource can be discussed here only on a general level, including current international developments, namely the two-pillar solution reached by the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting in October 2021. The assessment of this first batch of new own resources is complemented by an assessment of the plastic-based own resource which is also included in the IIA roadmap and was introduced in January 2021.

4.1 Plastic-based own resource

4.1.1 Brief description

The IIA roadmap and the new Own Resources Decision include a plastic-based own resource which was introduced in January 2021. As a so-called statistical own resource, payments per Member State are calculated by applying a call rate of EUR0.80 per kilogram non-recycled plastic packaging waste (determined as the difference between total and recycled plastic packaging waste).[10] To avoid a disproportionate burden for the poorer Member States, a correction mechanism was agreed at the Council Summit of July 2020. This correction mechanism reduces national contributions of those 17 Member States whose gross national income per capita is below the 2017 EU average by a lump sum. The lump sum corresponds to one-fifth of the EU average per capita quantity of non-recycled plastic packaging waste recorded in 2017, multiplied by the 2017 population resident in the country. Thus, the formula for calculating the lump sum is EUR0.80 multiplied by 3.4 kilogram multiplied by population size.

4.1.2 Link to European policy

The objective of the plastic-based own resource is to reduce the volume of non-recycled plastic packaging waste in the EU, i.e. to set incentives for Member States to decrease the total volume of plastic packaging waste and to increase recycling rates. Accordingly, the levy is linked to the Action Plan for the Circular Economy (2015) and the European Strategy for Plastics in a Circular Economy (2018), in which the Commission mentioned "measures of a fiscal nature at the EU level" that should be examined as one instrument to decrease the amount of plastic waste (European Commission, 2018c). The plastic-based own resource is also linked to the European Green Deal.

4.1.3 Sectoral co-benefits and steering effects

The most important steering effect intended with the plastic-based own resource is of an environmental nature (see section 4.1.8. for details). Besides, reducing plastic packaging waste would also decrease its multi-faceted detrimental impact on health, resulting from the production and use of plastic packaging as well as from the disposal of non-recycled plastic packaging waste.[11]

[10] See Council of the European Union (2020) for the following details.

[11] See e.g. Newman et al. (2015), Verma et al. (2016) or Pinto da Costa et al. (2020) for the negative health consequences of plastic waste.

4.1.4 Attributability of revenues to Member States

Plastic packaging is connected with various cross-border externalities resulting from its production and the disposal of non-recycled plastic packaging waste (see section 4.1.8. for details). The production of plastic packaging as well as the incineration of plastic packaging waste cause climate-damaging emissions which are not restricted to the respective country. Also, the disposal of plastic packaging waste other than incineration is associated with environmentally harmful effects crossing borders: e.g. the plastic pollution in the oceans, or the release of microplastics (Pinto da Costa et al., 2020). These cross-border aspects of plastic packaging waste provide good reasons to allocate revenues to the EU level.

4.1.5 Enforceability/implementability

The cross-border nature of most of the environmentally harmful effects that are associated with plastic packaging waste (see section 4.1.4.) suggests implementing global measures or at least measures based on EU-wide coordination, as unilateral national measures do not account for spillover effects to third countries or regions. Regarding taxes or levies, this would imply that rates are set at inefficiently low levels, as social costs affecting other countries are neglected. The statistical approach chosen to determine Member States' payments (see section 4.1.1.) aims at avoiding leakage problems a plastic levy on producers or consumers may encounter.

4.1.6 Transparency

As a statistical own resource, the plastic-based own resource is hardly visible to citizens and taxpayers, particularly if it is not passed on to producers and/or consumers via the introduction of levies on plastic packaging waste at Member State level.

4.1.7 Administrative complexity

The administrative complexity of the plastic-based contribution is rather low. Revenues are calculated based on the weight of non-recycled plastic packaging, for which Eurostat data are readily available, albeit with a time-lag, as Member States are to report the data for a given year within the subsequent 18 months. The payments for a given year therefore refer to the data for non-recycled plastic packaging waste from three years earlier (e.g. payments for 2021 are based on data for 2018) (Reichert et al., 2021). The lump sum rebates, which are granted to 17 Member States with a per capita gross national income below the EU average, need to be calculated just once by multiplying the country's population size in 2017 by 3.8 kilograms of plastic waste, and applying the call rate of EUR0.80 to the resulting base; no update is foreseen for the resulting lump sum reductions.

4.1.8 Environmental sustainability

The production of plastic and the generation of plastic waste are associated with manifold negative environmental consequences which are not confined to individual countries but are of a cross-border nature (Verma et al., 2016; Milios et al., 2018; Pinto da Costa et al., 2020). In 2019, 40% (45.6 million tonnes) of plastic used in Europe consisted of plastic packaging which is intended for single use and disposed of afterwards. Considering the high share of plastic packaging waste in total plastic waste, measures targeting the generation and handling of plastic packaging waste are particularly urgent: also due to the fact that currently only 21% (9.4 million tonnes) of plastic packaging waste is recycled, while 31% goes into landfill, 21% is incinerated, and 28% is unaccounted for (Pinto da Costa et al., 2020). A number of studies show that recycling has positive environmental effects compared to other plastic waste management measures (Da Cruz, 2014).

A plastic-based own resource aims at providing an additional incentive to reduce plastic packaging waste and to support the EU recycling objectives. Thus, it could decrease carbon emissions by reducing plastic production and consumption and support the circular economy by furthering plastic recycling. The cross-border nature of environmental damage caused by plastic packaging waste calls for global action (Pinto da Costa et al., 2020); an EU-wide approach is a first important step in this direction.

Whether the expected steering effects will indeed materialise will crucially depend on the concrete implementation in the Member States, which can decide freely without any legal obligation to implement additional measures aimed at the reduction of non-recycled plastic packing waste. Passing on the cost of the contribution to packaging companies via some kind of levy would incentivise them to switch to more environmentally-friendly packaging materials. Levying a charge on plastic packaging to be paid by consumers alternatively or additionally would provide incentives to use less plastic packaging. If the contribution is paid out of the general budget, it will not exert any direct steering effects (Reichert et al., 2021). However, it may have an indirect impact on Member States by incentivising them to implement other policies to reduce plastic packaging waste and to increase recycling rates. In this sense, the lump sum reduction granted to 17 Member States somewhat undermines the underlying polluter pays principle and thus counteracts the environmental goals pursued by the plastic-based own resource. To avoid this, it may be considered to apply the lump sum reduction to the respective Member States' GNI-based contributions, or to compensate them by extra measures on the expenditure side. Moreover, the design of the lump sum rebates does not include incentives to reduce plastic packaging waste, as these remain constant over time; gradually phasing them out would provide additional incentives for Member States to implement measures to decrease plastic packaging waste.

Newman et al. (2015) and Pinto da Costa et al. (2020) present an overview of the experiences of Member States with levies on plastic bags: in practically all Member States levying plastic bag charges for consumers, the use of plastic bags decreased considerably. Although this empirical evidence on the effectiveness of plastic bag charges for consumers of course cannot be transferred directly to the case of a levy on plastic packaging which is imposed on producers, it suggests that charges on the use of plastic packaging for consumers may be an effective instrument in reducing plastic packaging.

A survey among Member States undertaken for this study in the second half of 2021 shows that currently almost all Member States plan to pay the plastic-based contribution out of the national budget (table 3).[12] Only Spain and Latvia levy a tax on non-reusable plastic waste beginning with 2022. In Italy such a tax has been discussed for some years now. However, the adoption of the legislative proposal is still pending, and the planned introduction of the tax was postponed to 2023.

[12] No information is available for Romania.

Table 3: Introduction of plastic levy in Member States following implementation of plastic-based contribution

Member State	Brief description
Spain	EUR0.45 per kilogram of plastic packaging on manufacture, importation or intra-community acquisition of non-reusable plastic packaging and semi-finished products (preforms, thermoplastic sheets, caps etc.) within the Spanish market Introduction in 2022
Italy	EUR0.45 per kilogram single-use plastic items and semi-finished products including preforms (e.g. sheets, plugs, bottles, films Introduction planned for 2023[1)]
Latvia	EUR0.80 per kilogram of plastic and composite packaging not recycled Introduction in 2022

Source: own survey among Member States, ey-plastics-and-packaging-taxes-webcast-summary.pdf, own representation. – 1) Introduction planned for 2020 originally, postponed several times, adoption pending.

4.1.9 Economic performance

Measures to reduce plastic waste are beneficial also from an economic perspective. First, plastic waste causes considerable costs. For example, removing plastic waste from coasts and beaches incurs costs of EUR630 million annually in Europe (Pinto da Costa et al., 2020). The annual decline of the value of the benefits provided by marine ecosystem services[13] globally through the presence of marine plastic is estimated at $500 billion to $2,500 billion (Beaumont et al., 2019). Second, as Da Cruz et al. (2014) show for the example of Sweden, plastic recycling schemes have considerable job creation potential.

At the same time, recycling plastic is costly, and due to the low commercial value of recycled plastic and the cheap availability of virgin polymers the recycling process often is not profitable and needs to be subsidised by the government (Da Cruz et al., 2014). Thus, measures aimed at reducing plastic packaging decrease the need for potentially economically inefficient recycling measures requiring public subsidies.

4.1.10 Fairness

Table 4 shows projected revenues from the plastic-based own contribution for 2021 after the application of the correction mechanism estimated by Reichert et al. (2021).

Projected revenues amount to EUR6,214 million, thus reducing revenues that would have been generated without the correction mechanism (EUR6,926 million) by about 10%. Before lump sum reductions for 17 poorer Member States, total revenues reach 0.5% of EU27 GDP. 3 'old' Member States (France, Italy, and Portugal) and 8 'new' Member States (Bulgaria, Estonia, Croatia, Latvia, Hungary, Malta, Poland, and Romania) would carry a disproportionate burden, as measured by the relationship between payments and GDP.

Due to the lump sum reductions the financial burden in relation to GDP is decreased to 0.4% of GDP on average for the EU27. Thus, with a few exceptions (Estonia, Hungary, Poland, and Portugal) it is distributed more evenly across Member States, ranging between 0.02% (Luxembourg, Sweden) and 0.11% (Hungary). Without the correction mechanism, payments would range between 0.02%

[13] Marine ecosystem services are the benefits provided to humans by marine habitats, such as fish harvests, wild plant and animal resources, and abstracted water (Barbier, 2017).

(Luxembourg, Sweden) and 0.13% (Hungary). After the consideration of the lump sum rebates, Bulgaria and Croatia no longer find themselves among the countries with a disproportionate financial burden.

It is worthwhile noting here that 7 Member States (Czech Republic, Greece, Spain, Cyprus, Lithuania, Slovenia, and Slovakia) are granted a lump sum reduction, although for them the burden of the contribution as measured in relation to GDP would not exceed the EU27 average.

In absolute terms, France, Germany, Italy, Spain, and Poland are expected to make the biggest annual contribution.

Table 4: Projected revenues from plastic-based own resource, 2021

Member State	Before application of the correction mechanism			Lump sum reduction			After application of the correction mechanism		
	In million EUR	In percent of GDP	In EUR per capita	In million EUR	In percent of GDP	In EUR per capita	In million EUR	In percent of GDP	In EUR per capita
EU 27 (without UK)	6,926	0.05	15.5	711.3	0.01	1.6	6,214	0.04	13.9
Belgium	160	0.03	13.9	0	0.00	0.0	160	0.03	13.9
Bulgaria	43	0.07	6.2	22	0.04	3.2	21	0.03	3.0
Czech Republic	92	0.04	8.6	32	0.01	3.0	60	0.03	5.6
Denmark	133	0.04	22.8	0	0.00	0.0	133	0.04	22.8
Germany	1,370	0.04	16.5	0	0.00	0.0	1,370	0.04	16.5
Estonia	28	0.10	20.8	4	0.01	3.0	24	0.08	17.8
Ireland	146	0.04	29.5	0	0.00	0.0	146	0.04	29.5
Greece	88	0.05	8.2	33	0.02	3.1	55	0.03	5.2
Spain	653	0.05	13.8	142	0.01	3.0	511	0.04	10.8
France	1,379	0.06	20.5	0	0.00	0.0	1,379	0.06	20.5
Croatia	32	0.06	7.9	13	0.02	3.2	19	0.04	4.7
Italy	1,030	0.06	17.2	184	0.01	3.1	846	0.05	14.2
Cyprus	6	0.03	7.2	3	0.01	3.4	3	0.02	3.8
Latvia	22	0.07	11.7	6	0.02	3.1	16	0.05	8.6

Member State	Before application of the correction mechanism			Lump sum reduction			After application of the correction mechanism		
	In million EUR	In percent of GDP	In EUR per capita	In million EUR	In percent of GDP	In EUR per capita	In million EUR	In percent of GDP	In EUR per capita
Lithuania	19	0.04	6.7	9	0.02	3.2	10	0.02	3.4
Luxembourg	14	0.02	22.6	0	0.00	0.0	14	0.02	22.6
Hungary	191	0.13	19.5	30	0.02	3.1	161	0.11	16.5
Malta	9	0.06	17.0	1	0.01	2.8	7	0.05	14.2
Netherlands	203	0.03	11.7	0	0.00	0.0	203	0.03	11.7
Austria	165	0.04	18.5	0	0.00	0.0	165	0.04	18.5
Poland	506	0.10	13.3	117	0.02	3.1	389	0.07	10.3
Portugal	219	0.10	21.3	31	0.01	3.0	188	0.09	18.3
Romania	178	0.08	9.2	60	0.03	3.1	118	0.05	6.1
Slovenia	16	0.03	7.6	6	0.01	3.0	10	0.02	4.6
Slovakia	51	0.05	9.4	17	0.02	3.1	34	0.04	6.3
Finland	75	0.03	13.5	0	0.00	0.0	75	0.03	13.5
Sweden	98	0.02	9.6	0	0.00	0.0	98	0.02	9.6

Source: Reichert et al. (2021), own calculations, based on GDP and population of 2019 data.

4.1.11 Social sustainability/inclusiveness

No immediate impact of the plastic-based own resource on income distribution is to be expected. If Member States pay the contribution out of their national budgets, the distributional impact depends on the overall distributive impact of the national tax system. If Member States implement a levy on plastic packaging waste payable by producers, the distributional effects for consumers depends on the real incidence of the levy. If the levy increases the prices of products packaged in plastic for consumers, i.e. if it is shifted fully or partially to consumers, it is plausible to assume an overall regressive effect, with generally disproportionate consumption ratios in the lower income groups. A similar result may be assumed for a charge on consumers. Up to now, no empirical research on the distributional effects of plastic-based levies and charges exists.

4.1.12 Fiscal integration

As Member States can decide freely whether and how to implement national levies on plastic packaging waste, there is the danger of increasing fragmentation of Member States' tax systems resulting from the construction of the plastic-based own resource. Table 5 shows that already (2020) various taxes and charges on plastic are levied in Member States (Sastre Sanz et al., 2018). Besides taxes and charges on packaging (which sometimes not only cover plastic packaging waste, but also other sorts of packaging, mostly to be paid by consumers, not by producers, and found in Belgium, Croatia, Estonia, Hungary, and Latvia), there are taxes and fees on plastic products in Belgium and Latvia, and a levy on plastic bags in 8 Member States (Belgium, Hungary, Denmark, Ireland, Italy, France, Spain, and Sweden). Altogether, although charges and levies on plastic are not widespread in the EU, the existing ones vary considerably in scope and design. Additional levies on plastic packaging waste would add to the complexity of the existing national systems of plastic-based levies and taxes and would counter fiscal integration. Also, the lump sum rebates are an issue from the view of fiscal integration, as they are granted to a group of Member States only and their level differs between these Member States.

Table 5: Overview of charges and levies on plastic in EU Member States, 2020

Member State	Taxes and charges on packaging	Taxes and fees on plastic products	Levy on plastic bags
Belgium	• Packing contribution (since 2004) • Non-reusable beverage packaging: EUR9.86 per hectolitre of product packed in individual non reusable packages • Reusable beverage packaging: EUR1.41 per hectolitre of product packed in individual reusable packages • Revenues (2019): EUR349.3 million (0.07% of GDP)	• Environmental charge on 1. Plastic kitchenware 2. Plastic plates, sheets, strips, tape, foil and other flat shapes, even in rolls, for household use • Disposable plastic bags: EUR3 per kg • Disposable plastic kitchenware: EUR3.6 per kg • Revenues (2014): EUR13 million (0.003% of GDP)	• Environmental charge: on 3. Disposable plastic bags • Plastic plates, sheets, strips, tape, foil and other flat shapes, even in rolls, for household use: EUR2.7 per kg • Revenues: n.a.
Croatia	• Packaging waste charge (levy for non-hazardous industrial waste) • Several products • Revenues (2019): EUR0.23 million (0.0004% of GDP)	• Complex system of various taxes and fees on plastic products	
Estonia	• Package excise tax • EUR2.5 per kg, several exemptions • Revenues (2020): EUR0.39 million (0.0001% of GDP)		
Hungary	• Plastic packaging (except plastic shopping bag): EUR0.1349 per kg • Revenues: no breakdown for single category available; total revenues (2014): EUR112 million (0.1% of GDP)		• Plastic shopping bag: EUR5.78 per kg • Revenues: see column 1 (breakdown not available)
Latvia	• Plastic packaging (except plastic shopping bags) 1. Oxy-degradable plastic source materials: EUR0.7 per kg 2. Plastic (polymer) source materials, except bio-plastic or oxy-degradable plastic, polystyrene source materials: EUR1.22 per kg 3. Polystyrene source materials: EUR2.2 per kg • Revenues (2017): EUR0.97 million (0.004% of GDP)	• Packaging and disposable tableware charge • Packaging and plastic products cannot be reported separately /see category 1	
Poland	• Plastic shopping bags (since 1995) 1. Plastic packaging made of PC, PS and PET: 20% of the price for packaging 2. Plastic packaging made of PP or PE: 10% of the price of packaging		

Member State	Taxes and charges on packaging	Taxes and fees on plastic products	Levy on plastic bags
Denmark			• Carrier bags made of plastics • EUR8.87 per kg • Revenues (2020): EUR27.7 million (0.009% of GDP)
Ireland			• Plastic bag levy • EUR0.22 per plastic bag • Revenues (2019): EUR6.46 million (0.002% of GDP)
Italy			• Tax on plastic bags is new in force of: 01/07/2020: EUR0.45 per kg, compostable plastic materials and medical plastic devices are not included.
France			• General tax on polluting activities: Waste management - individual products / Plastic bags • EUR10.0 per kg • Revenues: breakdown for single category 'plastic bag' is not available
Portugal			• Excise duties on lightweight plastic bags / packaging for consumer products 1. Plastic - Bags from the point of sale: EUR200.8 per tonne 2. Plastic - Multipacks: EUR68.4 per tonne 3. Plastic – Primary sector: EUR200.8 per tonne 4. Plastic - Secondary and tertiary sector: EUR23.8 per tonne • Revenues (2020): EUR0.22 million (0.0001% of GDP)
Spain			• Andalusia - Tax on disposable plastic bags • Rate: n.a. • Revenues (2019): Data refers to Andalusia only: EUR0.74 million (n.a. % of GDP)
Sweden			• Tax on plastic carrier bags (since 01/03/2020) • Rate: n.a. • Revenues (2020): EUR23.65 million (0.005% of GDP)

Source: European Commission (2021e; National Tax List), OECD-PiNE-database, own calculations and representation.

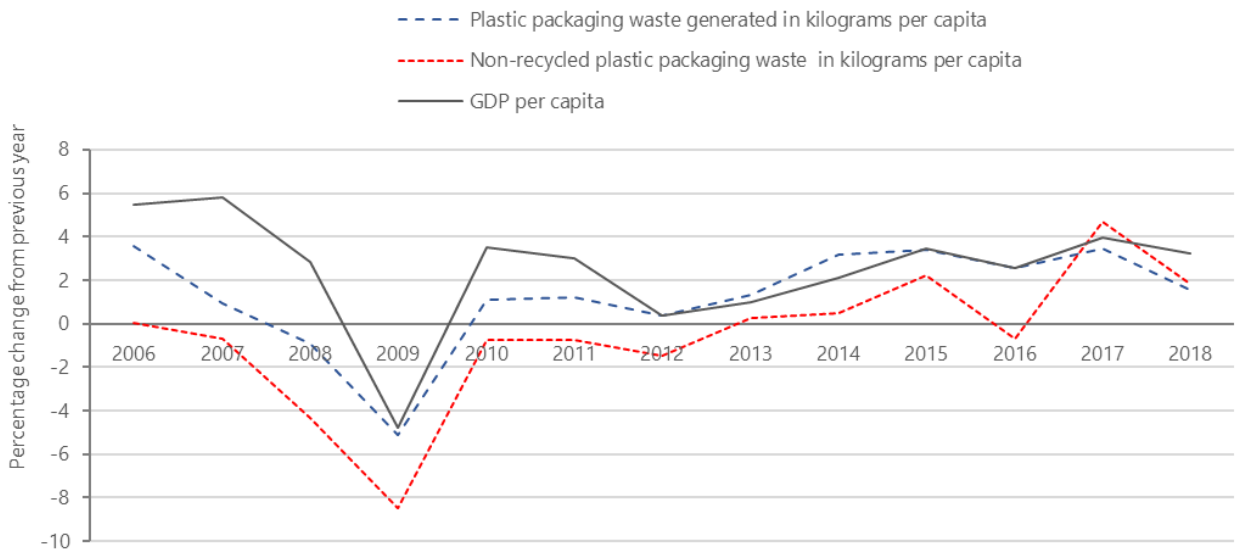
4.1.13 Interference with national tax systems

As a statistical own resource, the plastic-based own resource itself does not interfere with national taxes and charges on packaging. If Member States implement national levies on plastic packaging waste payable by producers, these will not interfere with existing levies, which are targeting consumers.

4.1.14 Predictability/short-term revenue stability

Figure 3 shows a strong correlation between plastic packaging waste and GDP in the EU27. Thus, the base for the plastic-based own resource and therefore revenues is subject to cyclical fluctuations. These cyclical fluctuations in non-recycled plastic packaging waste will be buffered by steadily increasing recycling rates over this decade.

Figure 3: Cyclical fluctuations in GDP and plastic packaging waste in the EU27, 2006 to 2018



Source: Eurostat, own calculations.

4.1.15 Sufficiency/fiscal sustainability

In its initial proposal from May 2018, the European Commission estimated annual revenues of EUR6.6 billion from the plastic-based own resource (European Commission, 2018b). The correction mechanism mitigating the burden of this own resource for poorer Member States reduces expected revenues by over EUR700 million annually (Deutsche Bank Research, 2020). Reichert et al. (2021) project overall revenues of EUR6.9 billion before and EUR6.2 billion after the application of the correction mechanism for 2021 (see table 4).

As with all green resources achieving the intended steering effects, the revenues from the plastic-based own resource can also be expected to shrink in the long run due to increasing recycling rates and the use of alternative, un-taxed packaging materials. In the medium term, however, the plastic-based contribution according to the expectations of the Commission will act as a fairly stable revenue source (European Commission, 2018b): the Commission expects an annual increase of plastic waste in the EU by 300,000 tonnes and an increase of recycling rates up to 50% in 2025 and up to 55% in 2030, as stipulated in the European Plastic Strategy. Accordingly, overall revenue from the plastic-based own resource should remain stable until 2026 and should only slightly decrease in subsequent years.

4.1.16 Legal aspects

The plastic-based own resource is introduced as a new own resource listed in Article 2(1) of the 2020 Own Resources Decision, based on a unanimous decision according to Article 311 TFEU. It is therefore directly based on Article 311 TFEU; other legal provisions are irrelevant in this case.

4.1.17 Implementation aspects

As mentioned above, revenues are calculated by applying a call rate of EUR0.80 per kilogram of non-recycled plastic packaging waste and deducting – if applicable – the lump sum rebate. The resulting sum is transferred by Member States to the EU. Being a so-called statistical own resource, which is based on a uniform calculation base for all Member States, and not a tax or levy in the actual sense, the plastic-based own resource does not fit into any of the implementation models defined in subsection 3.3.

4.1.18 Key points

- The plastic-based own resource has various links to EU policy:
  - Action Plan for the Circular Economy
  - Strategy for Plastics in a Circular Economy
  - European Green Deal
- The plastic-based own resource has several potential co-benefits and steering effects:
  - It can reduce emissions from the production of plastic packaging and the disposal of plastic packaging waste.
  - It can reduce plastic pollution.
  - It can strengthen the circular economy.
  - It can decrease public expenditures for plastic packaging waste treatment and other economic costs caused by plastic packaging waste.
  - It has co-benefits related to public health.
- Uncoordinated introduction of plastic levies at Member State level can lead to inefficiently low rates due to the cross-border nature of environmental damage caused by the production of plastic packaging and the disposal of plastic packaging waste.
- Using revenues as own resource can result in additional benefits:
  - It provides incentives for Member States to implement measures aimed at plastic packaging waste reduction.
  - It strengthens coherence between EU revenues and EU expenditures, considering the climate mainstreaming goal of 30% for the MFF and NGEU and of 37% for the Recovery and Resilience Facility (RRF).
- Revenues from the plastic-based own resource are expected to be stable until 2026 at about EUR6 billion, and to decrease afterwards.
- A plastic-based own resource is associated with low administrative complexity and administrative burden.
- The base for the plastic-based own resource and therefore revenues are subject to cyclical fluctuations; these cyclical fluctuations in non-recycled plastic packaging waste will be buffered by steadily increasing recycling rates over this decade.
- As Member States can decide freely whether and how to implement national levies on plastic packaging waste, there is the danger of increasing fragmentation of Member States' tax systems resulting from the construction of the plastic-based own resource.
- Up now, most Member States do not intend to introduce national levies on plastic packaging waste.

- As a statistical own resource, the plastic-based own resource is hardly visible to citizens and taxpayers, particularly if it is not passed on to producers and/or consumers via the introduction of levies on plastic packaging waste at Member State level.

4.2 ETS-based own resource[14]

4.2.1 Brief description

4.2.1.1 Current system[15]

The EU emissions trading system (ETS) is a key instrument in EU climate policy. It was introduced in 2005 and is still the largest greenhouse gas emissions market worldwide.16 The EU ETS is a cap-and-trade system, setting a cap on the total amount of greenhouse gas emissions which are reduced gradually and at growing pace in phase 4 (2021 to 2030). A carbon price results from auctioning and trading emission allowances. Starting at EUR18.2 per tonne in the pilot phase (2005 to 2007), the carbon price fluctuated between a minimum of EUR0.70 (2007) and a maximum of EUR14.20 (2010) during phases 1 and 2 (2005 to 2012). In phase 3 (2013 to 2020), the carbon price steadily increased from EUR4.30 in 2013 to EUR24.40 in 2020. As a result of the reform of the EU ETS system, the EU carbon price has risen to EUR93 in the end of December 2021 and to EUR96 in the beginning of February 2022.[17]

4.2.1.1.1 Scope

The EU ETS includes energy-intensive industries within the manufacturing and the power sector as well as intra-EU flights[18], thus covering over 11,000 installations and about 40%[19] of the EU's greenhouse gas emissions in 31 European countries initially (the EU27 plus the United Kingdom, and since 2008 Liechtenstein, Norway, and Iceland) (European Commission, 2016a). Since 2020 the EU ETS is linked with the Swiss ETS. The United Kingdom left the EU ETS in the end of 2020 and is now operating its own UK ETS, which covers around 1,000 installations (Ares, 2021). In 2019, overall GHG emissions (without international aviation and shipping) in the EU27 (EU28) amounted to 3,610.05 (4,059.23) million tonnes. Of these, in the EU27 (EU28) 1,385 million tonnes or about 38% (1,503.84 million tonnes or 37%) were subject to the EU ETS. International aviation contributed another 170 million tonnes, international shipping another 149 million tonnes (EU28, 2019). Of overall EU28 GHG emissions, about 24% stemmed from the energy sector, 21% from industry, 24% from overall transportation (22% from road transport), and 15% from the residential/services sector.

4.2.1.1.2 Number of allowances (cap)

The emission cap is steadily decreased by reducing the annual supply of allowances by a linear reduction factor (LRF). This annual LRF has just been increased to 2.2% for phase 4, up from 1.74% in phase 3. It corresponds to the original 2030 target of at least 40% reductions in EU GHG emissions compared to 1990.

4.2.1.1.3 Allocation mechanism

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[14] We are indebted to **Angela Köppl** for valuable comments and suggestions.

[15] This section refers to the current design of the EU ETS and its development originally planned for phase 4 (2021 to 2030).

[16] For the following details see European Commission (2015a).

[17] In 2021, the European carbon price increased from about EUR34 in the beginning of January to EUR93 in the end of December.

[18] Intra-EU flights are covered since 2012; the EU ETS in its current design applies to flights between airports located in the European Economic Area (EEA) until the end of 2023 only.

[19] Emissions Trading – Putting a Price on carbon (europa.eu).

To prevent carbon leakage and protect the international competitiveness of EU ETS-covered industries, allowances were almost fully allocated for free for exposed sectors initially, with changes in allocation rules over time and the share of free allocations decreasing (see Joltreau and Sommerfeld, 2019, for an overview). By 2020, the share of free allowances for the industry sector was reduced to 30% (down from 80% in 2013), while it was 100% for industry sectors deemed exposed to carbon leakage. The share of free allocation to installations follows a benchmark system based on the best-performing installations. Free allocation to airlines amounted to 82% in phase 3. Free allowances for electricity production were abolished beginning with phase 3, with transitional exceptions for some Member States to help them modernise their power sector (European Commission, 2015a). Altogether, within phase 3 of the EU ETS, 57% of overall allowances were to be auctioned, while the remaining 43% were made available for free allocation. Phase 4 (2021 to 2030) foresees prolonging the system of free allowances as a carbon leakage protection measure. Hereby, the focus is on the sectors most exposed to international competition. They receive 100% of their allocation for free, while free allowances will be phased out between 2026 and 2030 for less exposed sectors.

4.2.1.1.4 Market Stability Reserve

In 2019, a Market Stability Reserve (MSR) mechanism was implemented to correct the large surplus of emission allowances that had built up in the EU ETS since 2009, leading to lower carbon prices and thus incentives to reduce emissions. This mechanism foresees the transfer of unallocated allowances to the reserve. Depending on the total number of allowances in circulation (TNAC), allowances will be placed in or released from the reserve. For the period 2019 to 2023, the intake rate (i.e., the percentage of the TNAC determining the number of allowances placed in the reserve if the threshold of 833 million allowances is surpassed) was doubled temporarily from 12% to 24%. Moreover, allowances held in the MRS exceeding the previous year's auction volume will be cancelled.

4.2.1.1.5 Use of revenues

Currently, the lion's share of revenues from auctioning EU ETS emission certificates accrues to the Member States, which according to Article 10(3) of the EU ETS Directive are supposed to use at least 50% of these funds to tackle climate change in the EU and third countries. In the period 2013 to 2019, 78% of revenues flowing into Member States' budgets were spent for climate- and energy-related purposes (European Commission, 2020a). In phase 4 of the EU ETS (2021 to 2030), 2% of the total amount of phase 4 allowances shall be used to fund the Modernisation Fund. The Modernisation Fund is a dedicated funding programme to support 10 lower-income EU Member States with a GDP per capita below 60% of the EU average in 2013 in their transition to climate neutrality by helping to modernise their energy systems and improve energy efficiency. The beneficiary Member States are Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia. The revenues of at least 450 million allowances shall go into the Innovation Fund, a funding programme for the demonstration of innovative low-carbon technologies. Moreover, 10% of auctioning allowances are reserved, within a so-called solidarity mechanism, for the poorer Member States "in the interest of solidarity and growth in the Union to reduce emissions and adapt to the effects of climate change": the 16 Member States benefiting from this solidarity mechanism can auction these additional allowances and thus increase their auction revenues.

4.2.1.2 The Commission's legislative proposals for a revision of the EU ETS from July 14, 2021, and for an ETS-based new own resource from December 22, 2021

In 2018, the EU ETS was reformed with the objective to reduce EU ETS emissions by 43% by 2030 against 2005, which corresponds to an EU-economy wide emission reduction by at least 40% by 2030

compared to 1990. According to recent estimations by the Commission, given the current legislation emissions in the sectors covered by the EU ETS would be reduced by 51% by 2030 against 2005. This would imply a higher contribution than the reduction of 43% initially aimed for; however, it would still remain below the necessary reduction of 55%. This is the background of the envisaged reform of the EU ETS for which the Commission presented its recent legislative proposal from July 14, 2021 (European Commission, 2021f) as one element of the 'Fit for 55' package. The proposal implies a significantly higher level of ambition regarding the emissions reduction target, which is raised from 43% to 61% for the ETS sectors and shall be achieved by an increase of the LRF and a one-off reduction of the cap.

The legislative proposal published by the Commission mid-July 2021 includes reforms affecting the scope of the EU ETS (i.e. the sectors covered) as well as the allocation mechanism (i.e. free allocation versus auctioning of emission allowances), the number of allowances issued (the cap), and the market stability reserve.[20]

The legislative proposal for an amendment of the system of own resources of the EU (European Commission, 2021b) includes a proposal for the concrete design of an ETS-based own resource and the use of the estimated revenues.

4.2.1.2.1 Scope of the revised EU ETS

As mentioned above, the EU ETS currently covers about 40% of EU GHG emissions by including emissions from electricity, combined heat and power, industry, district heating and intra-EU aviation. The Commission proposal aims to considerably extend the coverage of the EU ETS. The international shipping sector is envisaged to be included into the existing EU ETS, the building sector and road transport shall be covered by a new separate ETS2. The coverage of international aviation shall remain unchanged in the short run, i.e. shall remain limited to intra-EU flights, and shall later be extended to extra-EU aviation not covered by CORSIA. The agricultural and waste sectors shall remain outside the EU ETS also in the future.

The first step in the envisaged broadening of the coverage of the EU ETS is the inclusion of the maritime sector in the existing EU ETS. Between 2023 and 2025 the obligation to surrender emission allowances shall be phased in; as of 2026 shipping companies would have to surrender allowances for 100% of their verified emissions. The extended EU ETS1 shall cover all emissions from large ships (above 5,000 gross tonnage) resulting from intra-EU voyages as well as 50% from extra-EU voyages and all emissions at berth in an EU port. The extension would imply additional 90 million tons of carbon emissions that would be covered by the EU ETS1; which represents a rather small share in overall carbon emissions included in the EU ETS1.[21]

In a second step, the building and the road transport sector shall be integrated into EU emission trading. This extension shall take the form of a separate but adjacent ETS2. This new ETS2 for building and road transport shall potentially be merged in the future with the existing ETS1 (covering energy, industry, aviation and, according to the Commission proposal, also shipping) after a review assessing the functioning of the two parallel ETS. The ETS2 shall be based on own parameters and provisions regarding the cap, the LRF, and the MSR. The cap shall be set from 2026, together with a LRF aiming at reaching 45% emissions by 2030 compared to 2005. Thus, the ETS2 shall start operating in 2026. It shall be based on an upstream approach, i.e. the suppliers of fuels releasing for consumption fuels used for

[20] See Marcu and Cabras (2021) for a brief overview of the main features of the Commission proposal.

[21] In 2019, international shipping made up for 2.4% of overall carbon emissions in the EU.

combustion in buildings and road transport (instead of end consumers) shall be obliged to buy emission allowances.

The envisaged extension would increase the coverage of EU emission trading substantially, primarily by including the road transport sector, followed by the building sector, whereas international shipping would contribute a small amount of additionally covered emissions only.

It is important to note that the planned design with two separate ETS implies that two carbon prices would emerge in the EU – one for each of the two pillars of the extended EU ETS. According to the explanatory memorandum to the proposal any possible merger of the existing ETS1 with the new parallel ETS2 should be considered only after a review of the functioning of the new ETS after a few years. Moreover, road transport and buildings would still be covered by the Effort Sharing Regulation, meaning that Member States would still need to implement national emission-reducing measures in these sectors.

Social impacts on consumers shall be cushioned by a new SCF that is supposed to operate one year ahead of the start of the ETS2, during the period 2025 to 2032. As a fully-fledged spending programme of the EU budget within the MFF, its (initial) financial equipment shall be equivalent to 25% of the revenues from the new ETS2 (i.e. the estimated share of EU ETS2 revenues stemming from vulnerable households and traffic users).

Table 6 shows the shares of the sectors covered by the enlarged EU ETS in EU GHG emissions estimated for 2030 as well as the estimated share of EU GHG emissions subject to carbon pricing. At the end of this decade, about three quarters of overall EU GHG emissions would be covered by the extended EU ETS. The estimated share of EU GHG emissions subject to European carbon pricing would be about two third of overall EU GHG emissions due to the free allowances granted to the energy intensive industry, 50% of which would be phased out by 2030 according to the proposal for the sectors falling under the CBAM.

Table 6: Estimated coverage of GHG emissions by the revised EU ETS in 2030 in %

Sector	Estimated share of EU GHG emissions[1])	Estimated share of EU GHG emissions subject to European carbon pricing
Current ETS stationary sectors (power, energy-intensive industry)	34	26.7[2])
Intra-EU aviation	2.2	2.2[3])
Intra-EU maritime	2.2	2.2[4])
Road transport	28	28
Buildings	8.5	8.5
Total	**73.4**	**67.6**

Source: Gore et al. (2021). - 1) Based on projected emissions in European Commission (2020b) in the MIX scenario (that reflects the key aspects of the 'Fit for 55' package), assuming an equal split between intra-EU aviation and maritime emissions. – 2) Assuming 50% of current free allowances are phased out by 2030, based on the proposal for CBAM sectors. – 3) Based on the proposed end to free allocation in the aviation sector. – 4) In addition, half of extra-EU maritime emissions should face a carbon price, based on the Explanatory Memorandum in the ETS Directive revision proposal.

Regarding the aviation sector, the current scope shall remain unchanged initially, i.e. the revised EU ETS1 would include intra-EU flights only (European Commission, 2021g). In June 2020 a Council decision was adopted that all Member States apply the international Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)[22] as of January 2021. Therefore, in principle the sector has been subject to CORSIA since the beginning of 2021.[23] In the period from 2021 to 2026, intra-EU flights will be subject to the EU ETS, but not to the voluntary CORSIA regime (except for intra-EEA flights by non-EU based airlines, which are covered both by the EU ETS and CORSIA). Flights to and from the EU conducted by EU-based operators will be covered by the voluntary CORSIA regime only, except on routes to and from countries not implementing CORSIA. In 2027, with the start of the mandatory phase of CORSIA, all emissions from flights to and from countries not participating in CORSIA both for EU and non-EU airlines shall be integrated in the EU ETS, whereby flights to and from Least Developed Countries and Small Island Developing States (other than those states whose GDP per capita equals or exceeds the EU average) should always be exempt from CORSIA obligations.

Extending the scope of the EU ETS would raise revenues accordingly, mostly by adding the road transport sector, followed by the residential sector. In comparison, the additional revenue potential of including international shipping in the existing EU ETS1 would be rather limited, due to its relatively small share in overall emissions.

4.2.1.2.2 Number of allowances (cap)

Regarding the number of allowances, the proposal envisages an increase of the LRF from 2.2% originally established for phase 4 to 4.2% following the year of entry into force of the revision of the EU ETS. This increase of the LRF would be combined with a rebase, i.e. a one-off downward adjustment of the cap in this same year to make sure that the new LRF is in line with this level of reduction having been applicable for 2021. The increased 4.2% LRF would also be applied to the total number of aviation allowances, which shall be capped at current levels.

The cap for the new self-standing EU ETS2 for buildings and transport shall be introduced in 2026; it would be decreased yearly so that in 2030 emission reductions of 43% compared to 2005 are achieved.

4.2.1.2.3 Allocation mechanism

The proposal also includes changes in the allocation mechanism for emission allowances.

Free allocation shall be eliminated for sectors and subsectors covered by the CBAM. Free allocation of emission allowances for CBAM sectors will be phased out by 2035. During the transitional phase between the entry into force of the CBAM and 2025, free allocation shall remain at 100%. Beginning in 2026, free allocation for CBAM sectors shall be decreased by 10% annually, parallel to the phasing in of the CBAM. The revenues from the free allocation that is no longer granted to the CBAM sectors and must be auctioned shall be made available to the Innovation Fund. Furthermore, free allocation of

22 The approach for CORSIA is based on comparing the total CO_2 emissions for a year (from 2021 onwards) against a baseline level of CO_2 emissions, which is defined as the average of CO_2 emissions from international aviation covered by the CORSIA for the year 2019. In the following years, any international aviation CO_2 emissions covered by the CORSIA that exceed the baseline level represent the sector's offsetting requirements for that year. CORSIA thus aims at achieving carbon-neutral growth of international aviation as of 2021. The CORSIA will be implemented in three phases, starting with participation of states in the CORSIA offsetting on a voluntary basis (pilot phase and first phase), followed by participation of all States except the States exempted from offsetting requirements, as follows: pilot phase: from 2021 to 2023; first phase: from 2024 to 2026; and second phase: from 2027 to 2035. CORSIA is coordinated by the International Civil Aviation Organization (ICAO), a specialised UN agency to address all matters related to international civil aviation, including environmental protection. For more details, see https://www.icao.int/Pages/default.aspx.

23 As CORSIA covers emissions above the 2019 level only, no offsetting obligations are expected at least for 2021 (European Commission, 2021h).

allowances shall be made conditional on the implementation of measures recommended in energy audits, thus making free allocation dependent on decarbonisation efforts in the future. For installations subjected to energy audit obligations under the Energy Efficiency Directive that are not able to implement report recommendations or other measures achieving equivalent GHG reductions, free allocation will be decreased by up to 25%.

Moreover, product benchmarks on which free allocation are based currently shall be reduced at a higher rate than originally intended for phase 4. Currently, the product benchmark is determined based on the average GHG emissions of the best performing 10% of the installations producing that product in the EU and EEA-EFTA Member States. Installations that do not meet the benchmark receive fewer allowances. Under the current legislation, the phase 4 benchmarks were to be reduced by an annual minimum rate of 0.2% up to a maximum rate of 1.6%, leading to reductions of the benchmarks between 3% and 24% over the 15 years between 2008 and 2023, the mid-point of the period 2021-2025. The European Commission's proposal foresees an increase of the maximum annual adjustment from 1.6% to 2.5% per year as of 2026.

No free allocation shall be granted within the new EU ETS2 for the building and transport sector.

During the transition phase for international shipping, the portion of emissions for which shipping companies need to acquire allowances will gradually rise to 100% as of 2026. Accordingly, the shares of verified emissions to be surrendered will increase from 20% of verified emissions reported in 2023 to 45% for 2024, 70% for 2025, and 100% for 2026.

The proposal also includes the progressive reduction of free allowances in aviation between 2024 and 2026. As of 2027, no free allocation shall be granted to the aviation sector.

4.2.1.2.4 Market Stability Reserve

To establish a buffer MSR intake when the total number of allowances circulating (TNAC) lies between 833 million and 1,096 million the intake rate mechanism shall be revised under the European Commission proposal. The intake into the reserve then shall amount to the difference between the TNAC and the threshold of 833 million allowances. Above the threshold of 1,096 TNAC, the normal intake rate of 24% would apply. This intake rate, which originally was to be decreased again to 12% in 2023, shall be maintained until 2030, as shall be the minimum amount of 200 million allowances to be placed in the reserve. Allowances in the MSR above the fixed level of 400 million (which corresponds to the lower threshold for the value of the TNAC) shall be cancelled. Thus, the number of allowances in the reserve shall not be dependent any longer on the auction volumes of the previous year. Altogether, this revision of the MSR mechanisms aims at preventing a harmful surplus of allowances by enabling it to absorb a historical surplus more quickly, and at stabilising the carbon price (European Commission, 2021i).[24]

A new and separate MSR shall be implemented for the building and the transport sector with a view to start operating in September 2027. It would be equipped with 600 million allowances initially. If the total TNAC is above 440 million, the MSR would absorb 100 million allowances; it would release 100 million allowances if the TNAC is below 210 million. This separate MSR shall contain a cost containment mechanism against the background of the low-price elasticity prevailing in the building and the transport sector. It shall mitigate the risk of potentially very high carbon prices by releasing additional

[24] An in-depth presentation of the functioning and the effects of the MSR mechanism would go beyond the scope of this study.

allowances (50 million or 150 million) based on the average price level of allowances over a period of three months.

4.2.1.2.5 Use of revenues

According to the proposal of the European Commission from December 22, 2021, 25% of revenues from EU emissions trading shall be used as own resource for the EU budget. Hereby, the initial allowances allocated to the European Investment Bank and the Modernisation Fund shall be excluded. According to the Commission proposal, the equivalent (monetized) value of the allocations for the ETS to the Innovation Fund and the Modernisation Fund are subject to the 25% call rate. The SCF operating between 2025 and 2032 designated to finance measures at Member State level aiming at cushioning undesirable social effects of the extension of the EU ETS to the building and the road transport sector shall be equipped with an amount of EUR72.2 billion (in current prices; EUR58.4 billion in 2018 prices), which is equivalent to about 25% of expected revenues from the new ETS2. The SCF shall place a specific focus on vulnerable households, micro enterprises, and transport users. It shall be set up and managed by the EU. Member States shall use these funds particularly for investment in the decarbonisation of buildings and transportation, whereby a specific focus should be placed on vulnerable households. The allocation of the funds shall be based on a mechanism similar to that in place for the Recovery and Resilience Fund (RRF): Member States shall apply for the funds based on National Social Climate Plans specifying concrete programmes to be financed by the SCF; financial support from the Fund shall be made conditional upon the achievement of milestones and targets. SCF funds shall be doubled by Member States, using *inter alia* a part of EU ETS auction revenues assigned to them, so that altogether EUR144.4 billion (in current prices; EUR116.8 billion in 2018 prices) would be available. SCF funds would be allocated to Member States based on a formula taking into account population size, GNI per capita, the population at risk of poverty living in rural areas, carbon emissions from fuel combustion by households, and the percentage of households at risks of poverty with arrears on utility bills. A temporary solidarity adjustment mechanism that shall operate until 2030 shall provide upper and lower boundaries for Member States' contributions based on EU ETS revenues. The Commission proposes to apply an upper boundary for Member States whose GNI per capita in the period 2023 to 2027 (2028 to 2030) is below 90% of the EU average in 2020 (2025). Accordingly, eligible Member States' share in the overall amount of the EU ETS-based own resource shall not exceed 150% of their share in overall EU GNI. For Member States whose share in total EU ETS-based own resources is below 75% of their share in overall EU GNI a minimum contribution shall apply: the affected Member States are to apply a rate of 75% of their share in EU gross national income to the total amount of EU ETS-based own resources.

Moreover, according to the legislative proposal for the EU ETS revision, an additional share of 2.5% of phase 4 allowances shall be transferred to the Modernisation Fund to support the energy transition of Member States with a GDP per capita below 65% of the EU average in the years 2016 to 2018. The requirements regarding the use of the financial means provided by the Modernisation Fund shall be more stringent compared to the current regulations, forbidding investment in any fossils fuel instead of only solid fossil fuels as currently intended. The revenues that shall accrue to the Innovation Fund shall be raised from at least 450 million allowances to 650 million allowances, whereby 150 million allowances shall stem from the new road transport and buildings EU ETS2 and 50 million allowances (10 million allowances that could be auctioned otherwise, 40 million otherwise available for free allocation) would be added to the Fund from ETS1. In addition, auction revenues from free allocation no longer provided to the CBAM sectors shall be channelled into the Innovation Fund.

Finally, in its proposal for the EU ETS revision, the European Commission suggests that Member States use 100% of EU ETS revenues not assigned to the EU budget for climate-related purposes (inter alia for doubling up SCF funds), instead of the current 50%.

4.2.2 Link to European policy

Given the existence of the European single market, it was a logical step – after the refusal by a number of Member States of a European carbon tax that the Commission had initially proposed – to go for an EU-wide emission trading system and thus for a European single carbon market instead (Convery, 2009). After lengthy negotiations, the EU ETS was finally introduced in 2005 as the result of an EU initiative aimed at creating a single carbon market across the EU, analogously to the EU single market.

Achieving climate neutrality by 2050 by implementing a European Green Deal is one of the core objectives of the European Commission in office since the end of 2019. Accordingly, the EU has stepped up its climate reduction target by 2030 from 40% to (net) 55% compared with 1990 levels, in line with the enhanced nationally determined contribution of the EU under the United Nation Framework Convention on Climate Change. The European Commission published the 2030 Climate Target Plan in September 2020 (European Commission, 2021f). The European Climate Law is the legal basis for the EU's legally binding climate neutrality target to be achieved in 2050. The revision of the EU ETS (similar to the introduction of a CBAM[25]) is a key element of the European Green Deal, which envisages a reform towards a more stringent EU ETS to attain the stepped-up climate goals, particularly by the extension to sectors hitherto not or only partially covered. Accordingly, the 'Fit for 55' package also contains a revision of the EU ETS.

An EU ETS-based own resource would therefore be linked to a common EU policy aimed at achieving commonly determined emission reduction goals agreed at the United Nations Framework Convention on Climate Change conferences, and thus represents a genuine European resource (Fuest and Pisani-Ferry, 2020).

4.2.3 Sectoral co-benefits and steering effects

The most obvious steering effect associated with the EU ETS is emission reductions, which are found by an increasing number of empirical *ex-post* studies.[26] These emission reductions should be accelerated by the proposed reform of the EU ETS. In addition, the EU ETS could impact positively on innovation. Empirical evidence on such a positive innovation effect is still rather small and inconclusive (Laing et al., 2014; Marcu et al., 2021). The review of recent *ex-post* studies provided by Lilliestam et al. (2021) finds no convincing empirical evidence that the EU ETS has triggered the necessary technological change required for full decarbonisation. Martin et al. (2013) and Calel and Dechezleprêtre (2016) provide empirical evidence for a positive impact of the EU ETS on innovation at the firm level. That these are rather modest, as suggested by the surveys by Marcu et al. (2021), Muûls et al. (2016), and Martin et al. (2016), inter alia is due to the low carbon price prevailing in phases 1 and 2 of the EU ETS, as pointed out by Joltreau and Sommerfeld (2019). The study by Popp (2006) suggests that to stimulate innovation, the carbon price should be rather high. According to Laing et al. (2013) and Rafaty et al. (2020), significant innovation effects require a credible future path for a high and stable carbon price. Reforming the EU ETS with the aim of steadily increasing the carbon price in the long run, as envisaged by the European Commission's proposal, can therefore be expected to have a positive and increasing effect on innovation. Furthermore, as from climate action in general, additional co-

[25] See section 4.3 of the study.

[26] See section 4.2.8 for details.

benefits can be expected from the EU ETS in the form of positive health effects, soil and water quality, biodiversity, and energy security.[27]

Further steering effects of the Commission proposal include an increased Investment Fund and a more stringent Modernisation Fund. The proposed SCF would be associated with co-benefits insofar as it would strengthen social inclusion in Member States and support a just transition. The envisaged boundaries of the new own resource based on EU ETS revenues would contribute to cohesion among Member States.

4.2.4 Attributability of revenues to Member States

Revenues from auctioning EU ETS emission certificates can easily be attributed to individual Member States based on the location of emitting installations as well as the providers of heating and transport fuels. However, the cross-border nature of carbon emissions, which are associated with negative externalities not restricted to the emitting countries, provides a sound rationale to allocate auction revenues from EU ETS certificates to the EU level (Fuest and Pisani-Ferry, 2020). Thus, an ETS-based own resource could also mitigate the net position debate (Bachtrögler et al., 2020).

4.2.5 Enforceability/implementability

Due to the cross-border nature of emissions, the implementation of an EU-wide carbon pricing mechanism for sectors that are particularly integrated across the EU is more effective and efficient compared to national solutions. National carbon pricing systems bear the danger of aiming at inefficiently low carbon prices, as damage caused by national carbon emissions to third countries is neglected. Moreover, a downward carbon price competition as well as the danger of carbon leakage could lead Member States' governments to set inefficiently low carbon prices below the social costs of carbon. These aspects are particularly relevant for the industry and energy sectors, for international aviation and shipping as well as cross-border road transport; less for domestic road transport and the building sector.

4.2.6 Transparency

Transparency and tangibility of an ETS-based own resource for citizens can be expected to be limited in the planned revised design of the EU ETS and even lower compared to the current design. The EU ETS itself is a relatively complex mechanism not easily understandable for EU citizens. Its proposed extension with two adjacent ETS with their own individual provisions would further add to complexity.

According to the proposed upstream mechanism, suppliers (instead of end consumers) would be required to purchase emission allowances which would then be passed on to end consumers in the prices of transportation fuel and fossil energy needed for heating purposes. Therefore, citizens would be involved indirectly only through price increases for transportation and heating.

An ETS-based own resource in principle could be a very transparent own resource: revenues, which are collected at Member State level and currently flowing into national budgets, would simply be transferred (partially) to the EU budget. There are, however, several provisions that introduce some degree of complexity. First of all, there is some degree of complexity associated with the SCF. This regards the indirect link between the financial equipment of the SCF and ETS2 revenues, as the SCF's initial endowment shall be equivalent to 25% of ETS2 revenues. Second, the distribution mechanism foreseen for the SCF, which is oriented at the system applied for the implementation of the RRF, is

[27] See Karlsson, Alfredsson and Westling (2020) for an extensive review of recent empirical literature on the co-benefits of climate policy.

relatively complex. A third source of complexity is the temporary solidarity adjustment mechanism that shall be in place until 2030. Finally, there is the indirect link to NGEU debt, which EU ETS revenues – as the other new own resources – shall help to pay back.

4.2.7 Administrative complexity

The introduction of a new EU ETS2 with its own provisions regarding the key design elements, the inclusion of the maritime sector as well as the extension of the coverage of aviation including the coordination with CORSIA can be expected to add to the administrative complexity of the EU ETS itself.

In contrast to the energy and the industry sector, the road transport and the building sector consist of a large number of small emitters. Monitoring emissions at the source within a so-called downstream approach and obliging individual households and firms (i.e. end consumers) to buy emission allowances would encounter sizeable practical difficulties and result in considerable administrative costs (Nader and Reichert, 2015). In contrast, the envisaged upstream approach according to which the suppliers of transportation fuels and fossil fuels used for heating purposes would have to purchase emission allowances is more efficient from an administrative point of view; the more as this approach implies that the two ETS would to a large extent cover identical installations.

Currently, EU ETS revenue is collected and administered at the Member State level by authorities designated by Member States. An EU ETS-based own resource should therefore be generally associated with limited administrative complexity (HLGOR, 2016): the provisions for revenue collection are already in place and assigning revenues to the EU would simply imply their transfer to the EU budget. The calculation mechanism to determine Member States' individual EU ETS-based contributions is associated with some additional administrative burden due to the upper and lower boundaries. As already mentioned, the planned use of EU ETS revenues described in section 4.2.6 would be associated with considerable administrative complexity. This should be particularly true for the implementation of the SCF.

4.2.8 Environmental sustainability

Generally, the number of *ex-post* evaluations of the environmental effectiveness of carbon pricing schemes is still limited, with a focus on a rather small number of countries or regions (Green, 2021). The EU with its ETS is the case most analysed: within the last decade, an increasing number of *ex-post* evaluations of the impact of the EU ETS on emissions have been conducted, which, however, focus on the first two EU ETS phases, while estimates for the third phase are still lacking (Marcu et al., 2021).[28] There is a consensus that the ETS indeed caused emission reductions, and empirical evidence suggests that these are real and not (solely) the consequence of carbon leakage (Muûls et al., 2016). However, the exact extent of emission reductions caused by the EU ETS is somewhat unclear, also because the influence of other emission-reducing policies is difficult to disentangle (Vollebergh and Brink, 2020; Marcu et al., 2021).

According to the European Commission[29], emissions from the installations covered by the EU ETS were brought down by 35% between 2005 and 2019. Estimates in the literature are considerably lower: in her recent meta-analysis of *ex-post* evaluations Green (2021) shows that emission reductions resulting from the EU ETS have been rather modest: ranging between 0% and 1.5% annually, they are insufficient to reach current medium- and long-term emission goals as stipulated in international and national

[28] A notable exception is the analysis by Bayer and Aklin (2020) according to which the EU ETS reduced carbon emissions by 3.8% over the period 2005 to 2016 compared to a non-ETS-scenario.

[29] EU Emissions Trading System (EU ETS) | Climate Action (europa.eu).

agreements and plans (Rafaty et al., 2020). This should be due to the rather low carbon price resulting from the EU ETS until recently, the generous exemptions granted particularly in its initial phases to the sectors covered, and the (*de facto*) exemption of certain relevant sectors, particularly aviation and shipping.

Recent empirical work researching carbon taxes suggests that the price of carbon matters insofar, as it needs to exceed a certain level to unfold its emission reduction potential (Aydin and Esen, 2018; Runst and Thonipara, 2020). Against this background, the envisaged reforms of the EU ETS, including its extension to further sectors hitherto uncovered, the phasing out of carbon leakage provisions, and the accelerated reduction of the cap can be expected to enhance the environmental effectiveness of the EU ETS by raising the EU carbon price for an increasing share of EU carbon emissions, thus making an EU ETS-based new own resource an effective sustainability-oriented new own resource.

In addition, the proposed extension of the scope of the EU ETS would represent a substantial step towards a uniform carbon price in the EU covering almost all sectors (with the exception of agriculture and waste). Hereby it needs to be pointed out that during the first phase of the extended EU ETS, separate carbon prices will result in each of the two pillars of the extended EU ETS (i.e. the sectors currently covered by the EU ETS1 on the one hand and the road transport and building sector covered by the EU ETS2 on the other hand). Currently, economic incentives in the building and the road transport sector, which are subject to the effort sharing regulation regime, are rather modest in many EU Member States, with lacking or limited explicit carbon pricing (European Commission, 2021f): more than 50% of EU emissions stem from non-ETS sectors subject to national decarbonisation policies which are very heterogeneous regarding scope and effective carbon prices. Proponents of widening the scope of the EU ETS argue with cost-efficiency achieved by a uniform carbon price across all sectors and point out that placing carbon pricing in the centre of European decarbonisation policies would require uniform and steadily increasing carbon prices (Edenhofer et al., 2021). The inclusion of the road transport sector in the EU ETS would raise the price of transport fuels, thus providing incentives for private households and road freight transport companies to lower fuel consumption (Urrutia et al., 2021). Considering low short-run price elasticities of fuel demand[30], this incentive will be more effective in the longer run; also depending on the development of other important factors determining fuel demand besides the price. Generally, low carbon price elasticities in the road transport and residential sector could contribute to higher carbon prices in the EU (Stenning et al., 2020). It has been shown that a rather high carbon price is necessary to achieve the emission reductions that are needed given current climate ambitions (Öko-Institut and Agora-Energiewende, 2020).

At the same time, increasing the stringency of the EU ETS, as a regionally limited carbon pricing system, may be associated with a growing extent of carbon leakage (Lowe, 2019; Vollebergh and Brink, 2020) with environmentally as well as economically harmful effects. The few existing *ex-post* evaluations attempting at identifying carbon leakage caused by the EU ETS do not deliver convincing empirical support for the existence of carbon leakage, which could be explained by the low or zero emission costs the EU ETS imposed on firms during the first ten years of its existence.[31] Increasing carbon prices, extending the coverage of the EU ETS, and phasing out carbon leakage provisions may therefore be expected to result in significant carbon leakage in the future, thus counteracting the EU's climate

[30] See Köppl and Schratzenstaller (2021) for a detailed overview of empirical estimates for the elasticity of fuel demand.

[31] See Joltreau and Sommerfeld (2019) for a brief overview of recent studies.

ambitions. Therefore, the envisaged CBAM should act as a useful and effective supplement of an enlarged EU ETS.[32]

The proposed revision of the MSR should strengthen the environmental effectiveness of the EU ETS further. The MSR implemented in 2019 has led to significant increases in the carbon price, which has risen from about EUR16 per tonne of carbon emissions to approximately EUR24 in 2019 and 2020 and to a current level of almost EUR100. The revision suggested by the Commission should contribute to the envisaged increase in the European carbon price. As a complementary instrument, Demertzis and Tagliapietra (2021) recommend the introduction of a carbon floor price[33], gradually increasing over time at a level guaranteeing the achievement of the EU climate targets. By providing a credible and predictable carbon price trajectory, which would stabilise firms' expectations (Fuest and Pisani-Ferry, 2020), a carbon price floor could increase the environmental effectiveness of the EU ETS further.

From an environmental perspective, the proposed phasing out of free allocation for exposed industries and coupling free allocations on decarbonisation efforts is to be assessed positively, although the phasing out period of one decade seems to be rather generous. Would free allocation be phased out by 2030 instead of 2036 as currently envisaged, about 75% of EU GHG emissions – instead of only 67.6% according to the Commission's proposal – would be subject to carbon pricing under the EU ETS in 2030 already (Gore et al., 2021). Demertzis and Tagliapietra (2021) argue that carbon leakage should be addressed through a CBAM and not through free allowances: that way, domestic carbon market distortions would be avoided and competitiveness *vis-à-vis* competitors in third countries would be preserved. As the envisaged CBAM also aims at carbon leakage prevention, it would allow the phasing out of free allocation faster or even its complete abolition, increasing EU ETS revenues accordingly.

That according to the Commission's proposal no free allocation would be granted to the newly integrated buildings and road transport sector is also positive from an environmental point of view, as is the phasing out of free allocation for the aviation sector.

Regarding the carbon pricing regime for international aviation, the level of environmental ambition for aviation is higher under the EU ETS compared to CORSIA (Urrutia et al., 2021). According to a study commissioned by the European Commission (2020d), CORSIA is less ambitious than the EU ETS concerning the stringency of the emission target, the coverage of sources of climate impact, and the enforcement mechanism. Simulations undertaken in this study show that a scenario in which the EU ETS covers all flights to, from and within the EEA from 2024, and in which the EU would not participate in CORSIA, would lead to the largest decrease of intra-EEA and global net aviation carbon emissions as well as the largest increase of costs for airlines and the largest decrease of demand. Continuing the current scope of the EU ETS for aviation (i.e. covering intra-EEA flights only) and exempting international flights to and from the EEA from CORSIA would be associated with a slightly lower decrease of EEA aviation emissions, but with significantly higher global net aviation carbon emissions compared to the previous scenario. Keeping the current scope of the EU ETS for aviation and applying CORSIA on flights to and from the EEA would result in a slightly larger decrease of global net aviation carbon emissions. Similar results can be expected for a scenario applying both EU ETS and CORSIA to intra-EEA flights. Exempting international aviation (including intra-EEA flights) from the EU ETS and subjecting it to CORSIA would have the smallest effect on demand and airline costs but would also result in the smallest decrease of global net aviation carbon emissions. In face of these simulation results, the Commission proposal's environmental effectiveness regarding aviation is limited due to the

[32] See chapter 4.3 for a detailed assessment of the Commission's CBAM proposal.

[33] The United Kingdom had introduced a carbon price floor in 2013 already to address the problem of the low European carbon price floor (Ares, 2021).

planned provision that until 2026 flights to and from the EU would be exempted from the EU ETS and be subject to CORSIA only, which covers only air travel emissions exceeding the 2019 level. Also, the planned application of the EU ETS only to those extra-EU flights not covered by CORSIA as of 2027 is less environmentally effective than the integration of these flights into the EU ETS.

Considering the climate effectiveness of the integration of the maritime sector into the EU ETS, the proposed solution to include 50% of extra-EU voyages can be seen as a compromise, as the contribution of carbon pricing in the shipping sector to decarbonisation would obviously be maximised by covering all emissions of ships calling at EU ports (Urrutia et al., 2021). However, including the maritime sector at all, with a relatively short transition phase of 4 years until full emission coverage is reached, and also covering at least 50% of emissions of extra-EU voyages can be seen as a substantial first step towards an effective carbon pricing of international shipping. At the same time, however, it needs to be taken into account that a fuel switch to alternative fuels requires a rather high carbon price: according to estimates, a carbon price would have to be as high as EUR250 to achieve a fuel switch, so that the decarbonisation impact of a carbon price below this level can be expected to be limited to fuel savings through increased technical and operational efficiency (Urrutia et al., 2021).

In their impact assessment for the policy options to achieve a climate neutral EU economy by 2050 mentioned above, the European Commission (2020c) estimates potential effects of an extended EU ETS on GHG emissions for various scenarios. Several of these scenarios which are closest to the Commission's recent proposal are included in table 7.

These scenarios differ inter alia with respect to the scope of the ETS, the role of carbon pricing, the role of energy efficiency (EE) and renewable (RES) policies, the role of other policies (particularly in the field of transport), and the role of non-CO2 policies. The various scenarios are briefly described as follows by the European Commission (2020c, p. 43f.):

- "REG, a regulatory-based measures scenario that achieves around 55% GHG reductions. It assumes high increase of the ambition of energy efficiency, renewables and transport policies, while keeping the EU ETS scope unchanged. This scenario thus does not expand carbon pricing and relies mostly on other policies;
- CPRICE, a carbon-pricing based scenario that achieves around 55% GHG reductions. It assumes strengthening and further expanding of carbon pricing, be it via EU ETS or other carbon pricing instruments, to the transport and buildings sectors, combined with low intensification of transport policies while not intensifying energy efficiency, renewables policies;
- MIX, following a combined approach of REG and CPRICE, which achieves around 55% GHG reductions, both expanding carbon pricing and moderately increasing the ambition of policies, but the latter to a lesser extent than in REG;
- MIX-50, an increased ambition scenario achieving at least 50% GHG reductions, similar to MIX in that it combines both expanding carbon pricing and increasing the ambition of energy and transport policies but to a more limited extent than in MIX;
- ALLBNK, the most ambitious scenario in GHG emissions reduction, based on MIX and further intensifying fuel mandates for aviation and maritime sectors in a response to the extended scope of GHG reductions covering all aviation and navigation."

The Commission's proposals in the 'Fit for 55' package are reflected best by the MIX scenario.

Table 7: Selected Target Plan Policy Scenarios

	REG	(MIX) / (MIX-50)	(CPRICE)	(ALLBNK)
ETS scope / carbon pricing	• Power, industry • Intra-EU aviation and navigation Revenues (2019): EUR349.3 million (0.07% of GDP)	• Power, industry • Intra-EU aviation and navigation • Road transport, buildings	• Power, industry • Intra-EU aviation and navigation • Road transport, buildings	• Power, industry • all aviation and navigation • Road transport, buildings
EE policies	high intensification policies	medium/low intensification policies	no additional measures compared to baseline	medium intensification policies
RES policies	high intensification policies	medium/low intensification policies	no additional measures compared to baseline	medium intensification policies
Transport measures	high intensification policies (CO_2 standards in road transport + RES, aviation and maritime fuel mandates + measures improving transport system efficiency)	medium/low intensification policies (CO_2 standards in road transport + RES, aviation and maritime fuel mandates + measures improving transport system efficiency)	low intensification policies (CO_2 standards in road transport + aviation and maritime fuel mandates + measures improving transport system efficiency)	medium intensification policies (CO_2 standards in road transport + measures improving transport system efficiency) high intensification of RES, aviation and maritime fuel mandates
Non-CO_2 policies	medium intensification policies	medium intensification policies	medium intensification policies	high intensification policies
EE policies	high intensification policies	medium/low intensification policies	no additional measures compared to baseline	medium intensification policies

Source: European Commission (2020c), figure 3; own representation.

Table 8 shows the emission reductions for the main sectors projected by the European Commission (2020c) for various scenarios.

Using EU ETS revenues as own resource may result in additional environmental benefits. Currently, Member States are supposed to use at least 50% of EU ETS revenues for climate purposes; this share reached about 77% in 2019 on average, with considerable differences across Member States. According to the Commission's recent proposals, 75% of EU ETS revenues shall go to Member States and be used completely for climate-related spending. Using EU ETS revenue without earmarking for the general budget – and therefore also for climate-related expenditures – may strengthen climate spending with European added value, while national climate-related spending will probably focus on projects with local effects. A similar point can be made regarding the provision according to which a share of EU ETS revenues accruing in phase 4 of the EU ETS is earmarked for the Modernisation Fund and the Innovation Fund. Instead of earmarking ETS revenues for projects funded through these programmes, it may be more cost-efficient and environmentally effective to channel revenues into the general EU budget, and to finance these programmes through general EU revenues. Financing these funds from the general budget would also guarantee a steady and reliable financial base, which would allow for funding decisions primarily based on the quality of projects rather than available revenues. Assigning EU ETS revenues to the EU budget without earmarking abolishes incentives for the legislator to intervene in the working of the trading system with a view to preserving, stabilising or increasing overall revenues

and those reserved through earmarking for the various funds. Thus, market forces would be fully allowed to work. Furthermore, using EU ETS revenues as own resource would eliminate potential incentives for Member States to loosen emission-reducing policies to an inefficiently low level with a view to preserving EU ETS auctioning revenues.

Table 8: Sectoral GHG emissions and reductions depending on different scenarios

	MIX-50	REG	MIX	CPRICE	ALLBNK
	Percent change 2030 GHG emissions versus 1990				
Total GHG incl. LULUCF[1)]	-51.0	-55.0	-55.0	-55.0	-57.9
Total GHG excl. LULUCF	-49.0	-52.8	-52.8	-52.8	-55.5
	Percent change 2030 GHG emissions versus 2015				
CO_2 emissions	-37.7	-42.7	-42.6	-42.6	-46.0
Supply side[2)]	-58.0	-67.3	-67.5	-67.5	-73.1
Power generation[3)]	-60.8	-69.6	-70.8	-70.4	-76.1
Industry[4)]	-20.3	-21.0	-22.4	-23.3	-25.1
Residential	-56.5	-63.6	-62.0	-61.0	-64.8
Services	-56.5	-53.5	-57.8	-60.4	-60.6
Agriculture energy	-36.3	-37.0	-37.3	-37.7	-39.2
Transport	-14.9	-17.6	-16.3	-15.6	-17.7
of which Road Transport	-18.3	-20.7	-19.6	-18.9	-20.6
Intra EU aviation & navigation	16.7	11.6	13.7	14.4	8.5
Non-CO2 emissions	-26.7	-31.0	-31.0	-31.0	-34.5

Source: European Commission (2020c), table 6; own representation. – 1) Including domestic and intra-EU aviation and navigation. – 2) Power sector, district heating, energy branch and refineries. – 3) Excluding district heating. – 4) Including process carbon emissions from industry, excluding refineries.

Finally, if transferred to the EU, part of EU ETS revenues could be redistributed via the EU budget to Member States with limited capacities to implement effective climate policies at the national level, by introducing specific programmes supporting the implementation of climate measures in these Member States; while the respective Member States may use EU ETS revenues for less effective climate projects.

4.2.9 Economic performance

Two levels can be distinguished regarding the impact of the EU ETS on economic performance: macroeconomic effects (particularly on growth and employment) on the one hand and microeconomic effects on firms' competitiveness on the other hand. Potential innovation effects are neglected in this section, as they have been addressed already in section 2.3.3.

Empirical studies of the macroeconomic effects of the EU ETS are in short supply. The *ex-ante* simulations for various scenarios regarding the stringency of emission-reducing targets, the degree of international cooperation, and the coverage of the EU ETS by Cunha Montenegro et al. (2019) indicate a trade-off between economic growth and carbon emission reductions achieved by carbon pricing policies. These simulations also suggest that more stringent emission reduction targets by non-EU countries are associated with lower GDP growth in the EU, as the former need to invest in emission abatement measures and therefore will reduce imports from the EU. One channel via which the trade-off between economic growth and emission pricing through the EU ETS materialises is carbon leakage.

From a macroeconomic perspective, the link between carbon emissions and economic growth, which works in the opposite direction, is also relevant. Several recent empirical studies using global data or data for large country groups or regions show that a temperature increase induced by a rising level of carbon emissions harms economic growth, although the link between temperature increase and economic growth is less clear-cut for richer countries than for poorer ones.[34] An increasing contribution by more stringent EU emission trading to the mitigation of climate change may therefore be associated with beneficial effects on longer term economic growth, at least at a global scale.

Focusing on a more microeconomic level, the survey by Muûls et al. (2016) concludes that "… the recent empirical literature finds, on average, very little evidence of adverse economic consequences from the EU ETS…". Most model-based *ex-ante* simulations demonstrate that unilateral carbon pricing could impact competitiveness negatively (Carbone and Rivers, 2017). By contrast, most *ex-post* studies fail to identify statistically significant effects on various dimensions of competitiveness. Based on a recent review of empirical *ex-post* studies focusing on competitiveness (measured by turnover, value added, or employment) at the firm level, Joltreau and Sommerfeld (2019) find that – probably due to the low carbon price – the EU ETS did not harm, or hardly harmed, firms' competitiveness in the first two trading periods of the EU ETS, thus confirming earlier surveys by Arlinghaus (2015), Martin et al. (2016), and Dechezleprêtre et al. (2018). Generally, the findings on the competitiveness outcomes of emission trading systems are mixed, as the review by Penasco et al. (2021) shows.

The proposed revision of the EU ETS could increase its hitherto limited economic impact. Edenhofer et al. (2021) stress that due to high emission reduction costs in the building and road transport sector, an EU carbon price would have to be rather high, implying potential concerns about competitiveness and carbon leakage in the industry and power sector. The proposed design of EU emission trading, with two separate ETS and therefore two separate European carbon prices for industry and the energy sector on the one hand and the transport and building sector on the other hand should avoid this issue. Increasing competitive pressures from outside the EU due to growing stringency of the revised EU ETS for the energy and exposed industry sectors should be cushioned by the envisaged CBAM. As such competitiveness issues as well as the danger of carbon leakage should be largely absent in the road transport and the building sector, granting no free allocation within the new ETS for these sectors should not cause major economic problems.

In their impact assessment analysing policy options to achieve a climate neutral EU economy by 2050, the European Commission (2020c) simulates macroeconomic effects of extending carbon pricing to road transport and the building sector, using their JRC-GEM-E3 model. If revenues, which would increase considerably, were used to cut labour taxes or to grant lump sum payments to households, the impact on real GDP would be slightly negative in the MIX scenario, while employment would rise marginally or remain constant.

[34] See Cunha Montenegro et al. (2019) for an overview of recent empirical studies.

4.2.10 Fairness

Regarding cross-country fairness, several aspects need to be considered.

Based on the latest data for revenues from auctioning ETS certificates for 2020 broken down to Member States, overall revenues (about EUR14.4 billion) in relation to GDP and per capita are distributed rather unevenly across Member States (see table 9).

Revenues for the EU27 in relation to EU27 GDP amount to 0.11%. At about 0.6% of GDP and more, the relation is highest in Bulgaria, Poland, and Estonia, while with a maximum of 0.06% of GDP revenues are negligible in Denmark, Ireland, France, Luxembourg, the Netherlands, Austria, and Sweden. Relating 2020 auctioning revenues to population size shows a similar pattern. In a longer-term perspective, during the period 2012 to 2020, country positions are similar to 2020. Thus, the country-specific burden currently is clearly tilted towards the poorer Member States, thus reflecting a legacy of differing national energy mixes and economic structures (HLGOR, 2016). Substituting national contributions and particularly GNI-based own resources with an ETS-based own resource would therefore imply a redistribution from more carbon-intensive (on average poorer) to less carbon-intensive (on average richer) Member States. Such a reallocation may be justified insofar, as Fuest and Pisani-Ferry (2020) argue, as otherwise, with revenues accruing to Member States also in the future, increasing carbon prices within the EU ETS would cause major revenue gains for emission-intensive Member States. Nonetheless, from a cross-country fairness perspective, the upper and lower boundary for Member States' contributions based on EU ETS revenues granted by the temporary solidarity adjustment mechanism until 2030 appear justified. They limit the already mentioned redistribution from emission-intensive (poorer) to less emission-intensive (richer) Member States and secure a minimum contribution by the latter. Moreover, the percentage of vulnerable households tends to be higher in poorer Member States. On the other hand, its temporary nature should avoid negative incentives for decarbonisation measures of emission-intensive Member States.

These figures for the extent and the cross-country distribution of the burden of payments for ETS certificates in phase 3 of the EU ETS can be used to a limited extent only to project the future distribution of the burden across Member States. The extension of the ETS to aviation and shipping as well as to road transport and the building sector, and the phasing out of free allocations may result in a shift of the country-specific burden caused by the auctioning of ETS certificates. Also, emission-reducing technological progress occurring at differing paces in Member States may lead to a redistribution of the burden across Member States.

The existing revenue projections for an extended EU ETS (see section 4.2.15 for details) are not broken down to individual Member States. However, it is plausible to assume that emission intensity in the road transport and the building sector tends to be higher in the poorer Member States. A uniform carbon price across the EU would imply a disproportionate burden for households and firms in the poorer Member States; this problem would be exacerbated by an increasing carbon price in the future (Urrutia et al., 2021).

Pollitt and Dolphin (2020) simulate economy-wide average carbon prices for an extended EU ETS for 8 selected Member States representing 74% of EU28 GDP and 77% of EU28 emissions, among them 2 "new" Member States (Poland and Romania). Technological differences and differences in the structures of energy systems would result in differing shares of emissions covered by an extended EU ETS across Member States, so that economy-wide average carbon prices (i.e. a European carbon price related to total emissions) would differ accordingly. Correspondingly, increases in European carbon prices would affect Member States differently.

Table 9: Revenues from auctioning ETS certificates, 2012 to 2020

Member State	In million EUR	In percent of GDP	In EUR per capita	In million EUR	In percent of GDP	In EUR per capita
	2020			Yearly average 2012-2020		
EU 27[1)]	14,383.47	0.11	32.15	6,675.7	0.05	15.0
Belgium	356.05	0.08	30.90	188.9	0.04	16.7
Bulgaria	448.55	0.73	64.53	189.5	0.38	26.5
Czech Republic	719.43	0.33	67.27	268.8	0.14	25.4
Denmark	166.46	0.05	28.59	91.6	0.03	16.1
Germany	2,662.37	0.08	32.01	1,471.1	0.05	18.0
Estonia	142.43	0.53	107.17	59.5	0.26	45.0
Ireland	124.54	0.03	25.09	68.4	0.03	14.4
Greece	506.69	0.31	47.27	263.8	0.15	24.3
Spain	1,240.34	0.11	26.20	654.3	0.06	14.0
France	728.12	0.03	10.82	402.5	0.02	6.1
Croatia	72.19	0.14	17.79	39.0	0.08	9.3
Italy	1,290.50	0.08	21.64	707.2	0.04	11.7
Cyprus	40.07	0.19	45.12	11.5	0.06	13.3
Latvia	42.30	0.14	22.17	21.2	0.08	10.8
Lithuania	86.61	0.17	31.00	41.4	0.10	14.3
Luxembourg	17.00	0.03	27.16	9.1	0.02	15.8
Hungary	226.32	0.17	23.17	111.9	0.09	11.4
Malta	15.76	0.12	30.62	8.1	0.08	17.7
Netherlands	441.41	0.06	25.36	244.1	0.03	14.3
Austria	184.22	0.05	20.70	101.8	0.03	11.7
Poland	3,157.63	0.60	83.19	890.6	0.20	23.4
Portugal	255.79	0.13	24.84	133.7	0.07	12.9
Romania	803.11	0.37	41.55	353.6	0.20	17.9
Slovenia	65.03	0.14	31.03	33.6	0.08	16.3
Slovakia	242.07	0.26	44.35	120.5	0.15	22.2
Finland	220.58	0.09	39.92	121.8	0.06	22.2
Sweden	127.90	0.03	12.38	68.0	0.01	6.9

Source: European Energy Exchange (2021), own calculations based on EUROSTAT. - 1) EU 27 without UK.

A related fairness aspect concerns the allocation of allowances destined for auction (Fuest and Pisani-Ferry, 2020). As the lion's share of emission allowances is allocated to Member States based on their historical emissions[35], emission allowances provide some form of a rent to Member States, benefiting them the more the higher the carbon price is. The envisaged reduction of the overall volume of emission allowances to step up decarbonisation would therefore increase the rent particularly for high carbon emitters. Thus, assigning revenues from the ETS-based own resources to the EU can be justified from a cross-country fairness perspective. On the other hand, high carbon emitters are confronted with the need to implement particularly extensive emission reducing measures implying a disproportionate financial burden. The foreseen temporary solidarity adjustment mechanism, setting an upper limit for Member States' EU ETS-based contributions to the EU budget based on the gross national income key, is therefore a useful provision as it leaves more funds to emission intensive Member States which these can use to decarbonise their economies. The acceptance of this solidarity adjustment mechanism by the richer Member States, as well as the effective use of EU ETS revenues by benefiting Member States for climate measures need to be secured, however, by an effective reporting and monitoring system for the use of EU ETS revenues.

4.2.11 Social sustainability/inclusiveness

An ETS-based own resource may be problematic from the perspective of social sustainability, as carbon pricing generally has regressive effects.[36] This expectation is corroborated by *ex-ante* simulations conducted by Cunha Montenegro et al. (2019) based on a CGE model for the EU ETS, indicating that the incidence of carbon prices within the EU ETS disproportionately falls on low-income households in various scenarios. Empirical *ex-post* evaluations of the distributional consequences of the EU ETS to the best of our knowledge are in short supply. In EU ETS phases 1 and 2, power generators succeeded in shifting the costs of allowances (although these were allocated to them for free) to consumers (European Commission, 2015a), which should have resulted in undesirable distributional impacts, based on the empirical consensus resting on numerous studies arriving at clear regressive effects of putting a carbon price on electricity.[37]

The envisaged extension of the EU ETS can be expected to exacerbate unintended social consequences for lower income households (Urrutia et al., 2021; Maj et al., 2021). This should be particularly true for the inclusion of the building sector, as many empirical analyses studying the distributional consequences of carbon pricing suggest: in the empirical literature a consensus has emerged that carbon prices for heating and electricity hit lower income households disproportionately, while pricing transport fuel has no or even progressive effects (Köppl and Schratzenstaller, 2021). Pollitt and Dolphin (2020) stress potential undesirable distributional impacts of a uniform European carbon price which would hit particularly households in the poorer Member States which have considerably lower disposable incomes compared to households in richer Member States.

Therefore, the SCF proposed by the Commission shall focus on the poorer households in EU Member States in general and in poorer Member States in particular, to cushion adverse distributional effects resulting from the implementation of carbon pricing in the road transport and the building sector. The proposed SCF shall support renovation of buildings, the uptake of clean cars by low-income families and small firms, and temporary lump-sum payments to low-income households for the increase of prices in road transport and of heating fuels.

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35 EU ETS certificates are allocated to Member States basically based on their historical emissions in the period 2005 to 2007.

36 See Köppl and Schratzenstaller (2021), who, however, also stress the differentiated distributional effects of carbon pricing identified in empirical studies.

37 See the literature survey by Köppl and Schratzenstaller (2021).

It is, however, questionable whether the measures financed by the proposed SCF are sufficient to effectively avoid undesirable social impacts of increasing carbon prices in building and road transport, considering certain barriers to decarbonisation, as, e.g., the tenant-owner-problem or the lack of public transportation. Moreover, recent empirical evidence suggests that social and political acceptance of carbon pricing crucially depends on revenue use; acceptance is strengthened if revenues are given back to citizens and firms via compensation measures.[38] Against this background, the proposed creation of the SCF may help to overcome public resistance as well as social hardships caused by increasing carbon prices in building and road transport. The SCF will particularly benefit poorer Member States by taking into account, among other factors, the population at risk of poverty living in rural areas and the percentage of households at risks of poverty with arrears on utility bills in the formula used to allocate SCF funds to Member States. Acceptance of channelling a part of EU ETS revenues into the EU budget to repay NGEU debt (instead of into Member States' budgets) could be strengthened by securing that SCF funds indeed mitigate social hardships and that EU ETS revenues going to Member States are indeed used for national climate projects instead of flowing into the general budget. At the same time, the proposed revenue recycling mechanism, while ensuring that at least the share of ETS revenues designated for the SCF is used for compensation measures, may meet public and political opposition in those Member States where governments and citizens prefer national compensation measures not requiring EU consent.

4.2.12 Fiscal integration

The EU initiative to introduce an EU-wide ETS was driven by the fear of fragmentation of the European carbon market through the implementation of differing national carbon pricing schemes at Member State level (Convery, 2009). The extension of the EU ETS strengthens fiscal integration in the EU by aiming at creating a uniform carbon price for a large share of emissions across the EU. Moreover, installations covered by the EU ETS are subject to identical rules across the EU, as would be energy and transport fuel suppliers as well as shipping companies in the new ETS.

4.2.13 Interference with national tax systems

Member States can be expected to oppose this new own resource as they would have to give up revenues from the sale of emission certificates, which currently flow completely into national budgets (HLGOR, 2016). According to Article 10 of the EU ETS Directive, Member States are expected to use at least 50% of these revenues for additional domestic or international climate action. As already mentioned, almost 80% of auction revenues were channelled into expenditure for climate and energy purposes over the period 2013 to 2019, mainly within the EU (European Commission, 2020a). The Commission's proposal suggests using all revenues accruing to Member States for climate-related spending. Assigning revenues to the EU would deprive Member States of a revenue source used to finance climate projects.

Resistance can be expected to be particularly high in those Member States currently receiving – in relation to GDP – comparatively high revenues. After all, in several Member States revenues are as high as 0.3% of GDP or above in 2020; they should rise significantly within an extended EU ETS and with growing carbon prices. Fuest and Pisani-Ferry (2020) had proposed to channel only additional future revenues – at least for a transitional period – into the EU budget to mitigate potential revenue conflicts between Member States and the EU. That way, Member States could have kept the revenues they received in a reference year before making ETS revenues an own resource and would thus have

[38] See Köppl and Schratzenstaller (2021) for a brief review of recent empirical evidence.

foregone future revenues only. With respect to the Commission's recent proposal, this could have implied to allocate only the revenues from the EU ETS extension to international shipping as well as to road transport and the building sector for a transitional period to the EU. Another option with regard to the current ETS1 could have been to transfer only the share of overall ETS1 revenues exceeding the revenues of a base year (e.g. 2020) for a transitional period to the EU.

In the proposal for the amendment of the own resource decision from December 2021, the Commission put forward a different solution, suggesting that 25% of overall EU ETS revenues shall be assigned to the EU. Hereby, an amount equivalent to 25% of EU ETS2 revenues shall be channelled into the EU budget to fund the SCF, which is to be doubled up by Member States inter alia using ETS revenues. Member States would have the remaining part of ETS revenues assigned to them to finance national climate projects.

Another source of interference is an overlap with national carbon pricing systems (in the form of cap-and-trade systems or carbon taxes) (Vollebergh and Brink, 2020). The proposed extension of the EU ETS to the road transport and building sector implies the inclusion of sectors currently underlying national carbon pricing systems in a number of Member States. As the coverage of national carbon pricing systems as well as national carbon prices are limited currently, also the extent of the resulting overlap should be limited; whereby it should be noted that the proposed revision of the Energy Tax Directive (ETD) foresees the increase of minimum tax rates for fossil fuels as well as the inclusion of the energy content into the tax base, which should result in an increase of fossil fuel tax rates in EU Member States. Should Member States reduce national taxes accordingly to avoid this overlap, national revenues will decrease to the extent that EU ETS auction revenues are used as own resource.

Finally, the proposed revision of the ETD includes the abolishment of tax exemptions for aviation and shipping and the extension of the EU minimum tax rate for fossil fuels to polluting fuels for international intra-EU aviation and shipping. Starting with 2023, the EU minimum tax rate in these sectors shall be implemented over a period of ten years. Accounting for aviation and shipping in the ETD could thus also lead to overlaps with the EU ETD.

4.2.14 Predictability/short-term revenue stability

As the carbon price resulting in the EU ETS is rather volatile (Marcu et al., 2021), revenues from auctioning EU ETS certificates are subject to short-term fluctuations and therefore difficult to predict (HLGOR, 2016). The proposed revision of the MSR mechanism should help stabilise EU ETS revenues. By introducing a floor price, i.e. a minimum carbon price as suggested by Demertzis and Tagliapietra (2021), the carbon price could be stabilised further by avoiding large downward fluctuations. Also, further measures to reduce the volatility of the EU ETS, such as a price ceiling (Krenek et al., 2020; Edenhofer et al., 2021), would help further stabilise EU ETS revenues.

As EU ETS-based revenues – in contrast to the other new own resources stipulated in the IIA and the new Own Resources Decision – already exist and currently flow into Member States' budgets, discussing the aspect of revenue stability needs to compare a situation in which revenues are assigned to Member States with a situation in which revenues are assigned to the EU. Currently, the burden of revenue volatility is carried by Member States, and it is disproportionate for large carbon emitters. Assigning revenues to the EU would smoothen this impact: revenue shortfalls would be compensated through higher GNI-based contributions, which, however, would be distributed evenly across Member States.

4.2.15 Sufficiency/fiscal sustainability

Several recent estimates show that the extended EU ETS could yield substantial revenues in the long run.

Auction revenues have been increasing continuously since the establishment of the EU ETS. While average annual auction revenues in the period 2012 to 2020 amounted to about EUR6.7 billion, they reached about EUR14.4 billion in 2020 (see table 9). Phase 3 of the ETS (2013 to 2020) generated cumulative revenues of EUR69 billion for the EU28 (Marcu et al., 2021).

Despite aiming at significantly decreasing GHG emissions in the long run, the EU ETS bears a substantial revenue potential until 2050 should the Commission's proposal be implemented: carbon prices should rise considerably in the future, free allowances shall be phased out, and the EU ETS shall be extended to large sectors currently not covered.

Simulations by Fuest and Pisani-Ferry (2020) demonstrate that even under a very conservative scenario, assuming no carbon price rise, no reduction in the share of free allowances, and no extension of the scope of the EU ETS, total revenues would reach EUR329 billion during the period 2020 to 2050, i.e. EUR11 billion per year (see table 10).

Table 10: ETS revenue scenarios

<table>
<tr><th></th><th>Share of auctioned allowances</th><th>Scope of ETS</th><th>CO_2 price trajectory</th><th>Generated revenue (EUR billion, 2021-2050)</th></tr>
<tr><td>Scenario 1</td><td rowspan="3">57%</td><td rowspan="3">Current scope</td><td>Constant price (EUR25 / tonne CO_2)</td><td>329</td></tr>
<tr><td>Scenario 2</td><td>2016 EU Reference Scenario[1)]</td><td>442</td></tr>
<tr><td>Scenario 3</td><td rowspan="3">'Decarbonisation' price scenario[2)]</td><td>789</td></tr>
<tr><td>Scenario 4</td><td rowspan="2">80%</td><td>1,120</td></tr>
<tr><td>Scenario 5</td><td>Expansion of the ETS to cover 50% of the agricultural and the transport sectors</td><td>1,500</td></tr>
</table>

Source: Fuest and Pisani-Ferry (2020). – 1) EUR25/tCO_2 in 2030, EUR50 in 2040, EUR85 in 2050. – 2) EUR50/tCO_2 in 2030, EUR100 in 2040, EUR200 in 2050.

According to an estimate by Gore et al. (2021), revenues from the extended EU ETS could reach EUR71 billion (for a carbon price of EUR50) to EUR142 billion (for a carbon price of EUR100) annually by 2030.

The Commission has not included a comprehensive set of revenue estimates in their recent proposal for an extended EU ETS from July 2021, nor in the proposal for an amendment of the own resource decision from December 2021.[39] The impact assessment by the European Commission (2020c) for the policy options to achieve a climate neutral EU economy by 2050 mentioned above estimates potential

[39] Concrete estimates are mentioned for different options to extend the EU ETS to the maritime sector.

additional revenues from an extended EU ETS from the sectors covered by an extended EU ETS for various scenarios.

Table 11 contains the estimated revenues (in 2015 prices) for the selected scenarios 2030 as well as (on average per year) for the periods from 2021 to 2030 and 2031 to 2050. In 2030, estimated revenues are highest for the ALLBNK scenario with EUR81.6 billion, followed by the CPRICE scenario with EUR75.4 billion. For the MIX scenario (which comes closest to the 'Fit for 55' package) and for the MIX-50 scenario, respectively, estimated revenues are considerably lower in 2030, at EUR54.9 billion and EUR49.8 billion, respectively, assuming a carbon price of EUR44. Against this background, estimations of annual revenues (in 2018 prices) for the EU budget of EUR9 billion for the period 2023 to 2030 and of EUR12 billion for the period 2026 to 2023, as indicated in the Commission proposal for the amendment of the own resource decision, appear as rather conservative considering the fact that the current carbon price is more than double than that assumed in the Commission's revenue estimation presented in table 11.

Table 11: Carbon pricing payments across selected scenarios[1)]

	Year	MIX-50	REG	MIX	CPRICE	ALLBNK
Carbon price in EUR	2030	36	32	44	60	65
Carbon pricing payments in EUR billion (average annual)	2021-2030	43	18	46	62	66
	2031-2050	92	32	87	132	134
Carbon pricing payments in EUR billion	2030	49.8	15.5	54.9	75.4	81.6
Residential		*4.8*	*0.0*	*5.2*	*7.2*	*7.1*
Tertiary		*2.3*	*0.0*	*2.7*	*3.5*	*3.7*
Transport		*28.4*	*5.9*	*34.1*	*46.9*	*55.3*
Power generation		*13.9*	*9.6*	*12.7*	*17.5*	*15.3*
District heating		*0.3*	*0.1*	*0.2*	*0.2*	*0.1*

Source: European Commission (2020c), table 11; own representation. – 1) In 2015 prices.

4.2.16 Legal aspects

The legal basis of the EU ETS is Article 192 TFEU, which is subject to the qualified majority voting rules. The use of revenues from auctioning emission certificates as own resources would have to be based on a unanimous own resource decision according to Article 311 TFEU.

4.2.17 Implementation aspects

An own resource based on the EU ETS could be introduced within the separation system. An EU ETS can be regarded as a fiscal measure aiming at environmental or energy policy objectives whose primary objective is not the generation of revenue. Articles 191, 192 and 194 TFEU therefore grant legislative competences with regard to the ETS to the EU. Based on Article 311 TFEU the revenues could be used as other own resources, given that the environmental objectives dominate the revenue-raising aspects.

4.2.18 Benefits from introducing a new own resource based on EU ETS revenues

When identifying the specific benefits associated with an own resource based on an extended EU ETS, it is important to distinguish between three aspects: the justification for implementing the emission trading system at the EU level based on EU-wide cooperation (as opposed to unilateral introduction at Member State level); the co-benefits and steering effects of an EU ETS as such; and the benefits generated by using the revenues of an EU ETS as own resource for the EU budget. In addition, the specific link to EU policies is relevant.

An ETS-based own resource is connected to important EU policies and strategies related to climate change which are cornerstones of sustainable growth and development as well as resilience in Europe. The EU ETS, complemented by a CBAM, is a genuine EU policy and a key element of the EU's climate strategy. The proposed extension of the EU ETS to buildings, road transport and international shipping is an element of the Commission's 'Fit for 55' package published on July 14, 2021. Revenues from the EU ETS can therefore be regarded as genuine own resources.

There is a sound justification for the EU ETS to be introduced based on an EU-wide coordinated approach. The EU ETS contributes to fiscal integration in the EU. Uncoordinated introduction of emission trading systems at Member State level could lead to an inefficiently low carbon price due to the cross-border nature of carbon emissions.

The central steering effect exerted by the EU ETS is emission reduction. Besides, it is associated with significant co-benefits related to public health, air quality, and energy security, and it can be expected to drive innovation. Not least, by cutting emissions the EU ETS decreases public expenditure required for climate mitigation and adaptation measures as well as further economic costs associated with climate change.

Using EU ETS revenues as own resource is justified by the cross-border nature of emissions, rendering it impossible to attribute revenues to individual Member States. Revenues result from a common EU policy, making them a genuine own resource. While Member States currently do not fully spend EU ETS revenues for climate measures and are likely to prefer climate measures of a more local nature, the EU proposes to use ETS revenues (as part of overall EU revenues) for cross-border climate projects with a higher European added value. Specifically, if transferred to the EU, a part of EU ETS revenues could be redistributed via the EU budget to Member States with limited capacities to implement effective climate policies at the national level, by introducing specific programmes supporting the implementation of climate measures in these Member States; while individual Member States may use EU ETS revenues for less effective (because local in nature) climate projects or for general spending not related to climate policies at all. Even if, as suggested by the European Commission, 100% of EU ETS revenues channelled into Member States' budgets are to be used for climate projects in the future, the correct use of revenues will be monitored less strictly at the national level compared to the EU level, where a strict monitoring system involving the European Court of Auditors and the EU budget control mechanisms is applied.

Furthermore, financing the Modernisation and Innovation Fund from the general budget (funded inter alia by an ETS-based own resource) instead of earmarked EU ETS revenues should be more cost-efficient and environmentally effective. Financing these funds from the general budget guarantees a steady and reliable financial base, which allows for funding decisions based on the quality of projects rather than available revenues. Not earmarking any longer a share of ETS revenues in the future would abolish incentives for the legislator to intervene in the working of the EU ETS to stabilise or increase earmarked revenues. Incentives for Member States to loosen other emission-reducing policies to an inefficiently low level with a view to preserving EU ETS auctioning revenues are avoided. Assigning

revenues from an ETS-based own resource to the EU is justified also from a cross-country fairness perspective, as otherwise emission-intensive Member States particularly benefit from high and increasing carbon prices (due to the allocation of emission allowances based on historical emissions). Currently, the burden of EU ETS revenue volatility is carried by Member States, and it is disproportionate for large carbon emitters. Assigning revenues to the EU would smoothen this impact: revenue shortfalls would be compensated through higher GNI-based contributions, which, however, would be distributed evenly across Member States.

Channelling EU ETS revenues into the EU budget would interfere with national revenue systems only with regard to the existing EU ETS, whose revenues currently flow almost completely into Member States' budgets. An extended EU ETS would create "fresh money", as stipulated in the IIA, from the envisaged creation of a new ETS2 for the road transport and buildings sector and the inclusion of international shipping into the existing EU ETS. The Commission envisages to establish a EUR72.2 billion Social Climate Fund financed by 25% of revenues from the new ETS2 to cushion adverse distributional effects resulting from the implementation of carbon pricing in the road transport and the building sector. It is, however, questionable whether the measures financed by the proposed Climate Social Fund are sufficient to effectively avoid undesirable social impacts of increasing carbon prices in building and road transport, considering certain barriers to decarbonisation, as, e.g., the tenant-owner-problem or the lack of public transportation. Moreover, recent empirical evidence suggests that social and political acceptance of carbon pricing crucially depends on revenue use; acceptance is strengthened if revenues are given back to citizens and firms via compensation measures.40 Against this background, the proposed creation of the SCF may help to overcome public resistance as well as social hardships caused by increasing carbon prices in building and road transport. It should be the more successful the larger the share of revenues from the new ETS2 that will be given back to households and firms via SCF compensation measures. At the same time, the proposed compensation mechanism, while ensuring that at least the share of ETS revenues designated for the SCF is used for compensation measures, may meet public and political opposition in Member States where governments and citizens prefer national compensation measures not requiring EU consent. Against these arguments, it could be considered for a transitory phase to use only those revenues from the existing EU ETS exceeding the revenues from a base year before the reform as own resources plus the revenues from integrating the maritime sector. In this case it should be established among Member States that revenues from the new ETS should be fully recycled via compensation measures for households and firms, and that revenues from the existing EU ETS going to Member States should be fully used to finance climate adaptation and mitigation measures.

Although the design of an own resource based on an extended EU ETS is complex in itself, and complexity is considerably increased by the proposed reforms, a reformed EU revenue system including inter alia a new ETS-based own resource, the traditional own resources, the simplified VAT-based own resource and the plastic-based own resource, and a GNI-based own resource serving as residual financial source may be more transparent, comprehensible, and acceptable for the general public compared to the system in force until the end of 2020 which did not support important EU strategies and policies. A reformed revenue system based on new own resources as a central pillar can increase the visibility of European added value created by the EU budget.

The proceeds from an ETS-based own resource cyclically sensitive, i.e. they are correlated to the business cycle. Replacing a share of GNI-based own resources by an ETS-based own resource would act

[40] See Köppl and Schratzenstaller (2021) for a brief review of recent empirical evidence.

as an in-built automatic stabiliser in the case of asymmetric shocks hitting particular Member States (European Commission, 2018b). Compared to the current revenue system primarily funded by the GNI-based own resource, the contributions from the affected Member States from an ETS-based new own resource would decrease disproportionately, while the other Member States would carry the burden in the form of increased GNI-based contributions.

4.2.19 Key points

- A revised ETS-based own resources has various links to EU policy:
  - The EU ETS as an EU-wide emission trading system
  - European Green Deal
  - 'Fit for 55' package
  - 2030 Climate and Energy Framework
  - 2030 Climate Target Plan
- An EU ETS has several co-benefits and steering effects, which should be increased by the proposed extension:
  - Evaluations show that the EU ETS, as the key European emission-reducing instrument, has effectively reduced emissions in the EU since its implementation, while exerting a moderately positive effect on innovation and few adverse economic effects.
  - As with all emission-reducing policies, the EU ETS is associated with significant co-benefits related to public health, air quality, and energy security.
  - By cutting emissions the EU ETS curbs public expenditure required for climate mitigation and adaptation measures, as well as further economic costs associated with climate change.
- An EU-wide emission trading system has some advantages compared to uncoordinated national carbon pricing systems:
  - Uncoordinated national carbon pricing systems may lead to inefficiently low carbon prices as cross-border externalities are neglected by national governments, and due to potential downward carbon price competition.
  - An EU-wide emission trading system contributes to fiscal integration in the EU.
- An ETS-based own resource represents a genuine own resource for the EU:
  - Revenues are derived from a common EU policy.
  - Revenues would not exist without EU-wide coordination.
  - Although revenues from auctioning emission certificates can easily be attributed to individual Member States from a technical point of view based on the location of emitting installations as well as the providers of heating and transport fuels, EU ETS revenues can hardly be attributed to specific Member States because of the cross-border nature of emissions.
- The envisaged reform of the EU ETS pays is based on the following design elements:
  - The extension of the EU ETS to the road transport and the building sector is embedded in a transition phase, during which there is a separate ETS for these sectors; a potential future merger of the existing ETS and the new ETS is contingent on an evaluation of the functioning of the new ETS.
  - The creation of a new ETS for road transport and building is a step towards a uniform carbon price in the EU, which may have positive environmental and economic effects but would place a disproportionate burden on poorer Member States.

  - The strengthened market stability reserve mechanism aimed at stabilising the carbon price is economically and environmentally beneficial and mitigates short-term fluctuations of revenues.
  - To avoid carbon leakage, with its economically and environmentally harmful effects, and to protect EU ETS revenues in the face of increasing carbon prices, the proposed implementation of a CBAM shall gradually replace free allowances.
  - The envisaged Social Climate Fund could mitigate potential undesirable distributional impacts on consumers but needs to be embedded in additional measures to overcome barriers to decarbonisation.
  - Intra-EU flights will be covered by the EU ETS (which is more effective environmentally than CORSIA), while only those extra-EU flights to and from countries not participating in CORSIA will be integrated into the EU ETS as of 2027.
  - Intra-EU shipping and 50% of extra-EU routes will be integrated in the EU ETS.
- From a revenue perspective, there are several important aspects:
  - An ETS-based own resource has significant long-term revenue potential, considering the envisaged extensions of the scope of the EU ETS, increasing carbon prices, and the phasing out of free allowances, as demonstrated by various estimations.
  - The proposed separate new EU ETS2 for road transport has the largest impact on future revenue potential, followed by the residential sector; while the envisaged extension to international shipping would contribute relatively little to overall EU ETS revenues.
- Regarding the use of revenues, several aspects are of importance:
  - A 25% share of overall EU ETS revenues assigned to the EU budget could be made more acceptable for Member States by the proposed creation of a SCF giving back 25% of revenues from the new EU ETS2 plus another 25% of EU ETS2 revenues flowing into Member States' national budget to vulnerable households and firms in the period 2025 to 2032.
  - From a cross-country fairness perspective, the upper and lower boundary for Member States' contributions based on EU ETS revenues granted by the temporary solidarity adjustment mechanism until 2030 appear justified, while its temporary nature should avoid negative incentives for decarbonisation measures of emission-intensive Member States.
- Using EU ETS revenues as own resource can result in additional benefits:
  - If transferred to the EU, revenues can be used for climate projects with European added value, while Member States may prefer climate-related spending with local benefits or channelling EU ETS revenues into the general budget.
  - If transferred to the EU, a share of revenues can be redistributed via the EU budget to Member States with limited capacities to implement effective climate policies at the national level, by introducing specific programmes supporting the implementation of climate measures in these Member States; while the respective Member States may use EU ETS revenues for less effective climate projects or for general spending not related to climate policies.
  - It could be more cost-efficient and environmentally effective to finance the Modernisation and the Innovation Fund from the general EU budget compared to earmarking a share of EU ETS revenue for these funds. Financing these funds from the general budget guarantees a steady and reliable financial base, which allows for funding decisions based on the quality of projects rather than available revenues.

  - Incentives for the legislator to intervene in the working of the EU ETS are eliminated by abolishing earmarking of a share of ETS revenues for the Modernisation and the Innovation Fund.
  - Incentives for Member States to loosen other emission-reducing policies to an inefficiently low level with a view to preserving EU ETS auctioning revenues are avoided.
  - Assigning revenues from an ETS-based own resource to the EU is justified also from a cross-country fairness perspective, as otherwise emission-intensive Member States particularly benefit from high and increasing carbon prices (due to the allocation of emission allowances based on historical emissions).
  - Using part of revenues channelled into the EU budget to fund the SCF focusing on the mitigation of social hardships
    - may help secure Member States' acceptance of the revision and extension of the EU ETS implying increasing carbon prices and a growing scope of carbon pricing.
    - may enable stricter monitoring of the intended use of EU ETS revenues, as the SCF would be subject to the existing control mechanisms applying for the EU budget
  - Currently, the burden of EU ETS revenue volatility is carried by Member States, and it is disproportionate for large carbon emitters. Assigning revenues to the EU would smoothen this impact: revenue shortfalls would be compensated through higher GNI-based contributions, which, however, would be distributed evenly across Member States.
- Regarding the administrative burden for public administration and private agents, the envisaged upstream approach appears as the most efficient solution.
- An EU ETS-based own resource is associated with rather low administrative complexity and administrative burden: the provisions for revenue collection are already in place in Member States, which would simply have to transfer revenues to the EU.
- Transparency of an ETS-based own resource has different facets:
  - On the one hand, an ETS-based own resource itself is very transparent: revenues, which are collected at Member State level and currently flowing into national budgets, would simply be transferred to the EU budget. Also, the logic behind the EU ETS as well as its aims and objectives are easily comprehensible.
  - On the other hand, the EU ETS is a relatively complex mechanism not easily understandable by and tangible for EU citizens.
  - Transparency and tangibility of an ETS-based own resource for citizens can be expected to be limited in the planned revised design of the EU ETS and even lower compared to the current design.
- Potential problems associated with the introduction of an ETS-based own resource include:
  - Member States may be reluctant to give up ETS revenues, which currently are channelled into national budgets. Member States' resistance against assigning revenues to the EU can be mitigated by assigned additional future revenues (e.g. compared to revenues accrued in the year before the implementation of the reform of the EU ETS) to the EU budget only.
  - High emission Member States are burdened disproportionately by allocating a share of EU ETS revenues to the EU budget, the more as they are confronted with the need to implement particularly extensive emission reducing measures implying a

disproportionate financial burden. The foreseen solidarity mechanism, setting an upper limit for Member States' EU ETS-based contributions to the EU budget, is therefore a useful provision, as it leaves more funds to emission intensive Member States which these can use to decarbonise their economies; however, its acceptance as well as the effective use of EU ETS revenues by benefiting Member States for climate measures needs to be secured by an effective reporting and monitoring system for the use of EU ETS revenues.

- Public acceptance of the new ETS2 for buildings and road transport may be eroded by transferring a share of auctioning revenues as own resource to the EU; it can be increased, however, by compensating households via compensation measures within the envisaged SCF or within compensation measures implemented on Member State level.
- EU ETS revenues are cyclically sensitive and therefore volatile in the short run. These short-term revenue fluctuations can be buffered, however, by the GNI-based own resource, which will also remain the residual revenue source for the EU budget in the future.

4.3 Own resource based on CBAM

4.3.1 Brief description

In 2005, the EU implemented the Emissions Trading System (ETS) to impose a carbon price on firms operating in energy- and carbon-intensive sectors[41]. While the ETS together with other emission-reducing policies has led to the lowering of emissions in the EU, it has also contributed to the fragmentation of climate policy regimes on a global level, with European companies potentially facing higher and – due to the steadily rising European carbon price – increasing costs compared to their counterparts abroad (Arroyo-Curras et al., 2015).

One negative consequence of this situation may be carbon leakage, i.e. the increase in global emissions as a result of relocating emission-intensive industries and new investments into those industries to countries where climate regulation is absent or more lenient[42]. Until now, empirical evidence for the existence of carbon leakage resulting from the EU ETS is rather weak (see, e.g., the brief overview of recent studies provided by Joltreau and Sommerfeld, 2019). However, more stringent emission-reducing policies and an increasing carbon price, as intended by the proposed reform of the EU ETS (see section 4.2 for details), may well lead to carbon leakage in the future (Joltreau and Sommerfeld, 2019; Lowe, 2019).

Against this background the European Commission announced plans to implement a carbon border adjustment mechanism (CBAM) as part of the European Green Deal. The CBAM is designed to 'level the playing field' by imposing an at-the-border levy on imported goods, thereby correcting for cost differences caused by the absence of comparable carbon pricing systems in foreign countries. After a public consultation process, the "Proposal for establishing a carbon border adjustment mechanism" (European Commission, 2021j) was published as part of the 'Fit for 55' package.

[41] See European Commission (2015a) for more information on the ETS.

[42] Another channel through which carbon leakage may play out is in the price of fossil fuels. Reducing the demand for fossil fuels through climate change policies lowers their prices, eventually leading to higher demand in third countries. This so-called indirect carbon leakage then also leads to higher global emissions but cannot be effectively prevented by a CBAM (Felbermayr and Peterson, 2020).

Following the proposal (European Commission, 2021j), the primary goals of the CBAM are to prevent carbon leakage, the risk of which is supposed to increase as the EU's environmental ambitions grow, and to incentivise third countries to adopt more stringent climate policies. The competitiveness aspect is only mentioned in passing, possibly because the legality of the CBAM could hinge on the argument that it is primarily an environmental and not an economic instrument (e.g., Mehling et al., 2019).

The proposal establishes a clear link between the EU ETS and the CBAM by making clear that the CBAM should reflect the carbon price established through the EU ETS. At the same time, differences between the instruments are also highlighted: whereas the ETS introduces a cap on emissions and aims to reduce the absolute amount of emissions, the purpose of the CBAM is not to curb imports, but rather to align the cost conditions imposed by the ETS on domestic companies in the single market with those faced by international companies. Making this connection early in the proposal is important since the CBAM is envisioned as a non-cap, internationally extended "mirror" of the EU ETS.

The CBAM is also mentioned in relation to existing instruments meant to prevent carbon leakage, namely the free allocation of emission allowances in the EU ETS. The wording used in the proposal shows that the CBAM is seen as an alternative, and not as a complement to those measures. Still, the co-existence of both systems would be a fact until 2035, which should ameliorate the controversy related to the elimination of free allocation.

The CBAM would only come into full force after a 3-year transitory period. During this time, companies would need to report their emissions, however, they would face no monetary requirements. This would provide a "learning period" for all involved parties.

The economic, environmental, legal, political and fiscal implications of a CBAM are highly sensitive to its design (Marcu et al., 2020). The design configuration presented in the CBAM proposal is thus highly consequential to the expected effectiveness and viability of the mechanism. In general, the Commission's proposal draws ideas from various design proposals, presented among (many) others by Ismer et al. (2020), Garicano (2021), Marcu et al. (2020) and the European Parliament (2021): the CBAM would work through the ETS, would not include export rebates, and is relatively narrowly defined in terms of sectoral coverage and scope of emissions. Free allocation would be gradually phased out. Somewhat surprisingly, foreign firms would be able to report the actual emissions embodied in their products instead of having to use EU-based benchmarks, however, the practical difficulties of reporting actual emissions could make the use of benchmarks the more widely used option (see Bierbrauer et al., 2021). Foreign carbon prices would be clearly acknowledged, although geographic exemptions are not discussed.

The Commission did not resort to alternative policy mechanisms as the vessel for the CBAM (either through the carbon tax or customs duties; see Jousseaume et al., 2021; Ismer et al., 2020), but has decided to propose a so-called "notional ETS", i.e., a virtual extension of the ETS. This option introduces CBAM certificates that importers would be required to purchase and surrender once annually or quarterly. Importantly, CBAM certificates would not count towards the ETS cap and therefore would not constitute a true "extension" of the ETS. The carbon price relevant for the CBAM would mirror the weekly price of the ETS Emission Allowance Units (EUAs).

The proposal features no provisions to aid domestic exporters, for example by including export rebates. Thus, the proposed CBAM is not a "full border adjustment". Although the proposal defines the CBAM as its alternative, the system of free allocation would run in parallel with the CBAM for a long while and would be fully scrapped after 2035 only.

Sectoral coverage is limited to selected energy-intensive materials, including cement, fertilisers, iron and steel, aluminium, and electricity. While these sectors are all included in the EU ETS, there are several other energy-intensive sectors, such as chemicals or glass, that would not be included in the CBAM. However, the Commission did add the option to expand the list in the following years.

Electricity is included as a tradable sector; however, this does not mean that the embodied electricity in products is included in the calculation of the CBAM rate. In other words, indirect, or scope 2 emissions are not included in the Commission proposal, contrarily to several other proposals, for example by Garicano (2021). Thus, a significant part of carbon emissions would not be covered by the CBAM.

The calculation of embodied carbon uses a mixture of methods. Foreign firms would be able to account for their actual emissions, or resort to a system of benchmarks which would use national estimates of the carbon intensity of production for each sector.

Table 12: Selected design options and the CBAM proposal (marked in yellow)

Policy mechanism	ETS-based	Excise duty (i.e. import duty)	Carbon tax
Treatment of exports	Not covered	Export rebates (partial or full)	
Free allocation within the ETS	Co-existence with the CBAM	Removal (over a 10-year period)	
Industry coverage	Selected ETS sectors (at risk from carbon leakage)	All ETS sectors	Extended coverage – to additional sectors, or to materials from ETS sectors used as intermediary inputs
Scope of covered emissions	Primary emissions - scope 1	Primary and secondary emissions – scope 1 and 2	Other emissions (transport, etc.) – scope 3
Calculation of embodied carbon	Product-based benchmarks (based on best practice/average)	Calculation at product level (i.e. actual emissions)	
Geographic scope	All countries	Exemptions for countries with similar carbon pricing mechanisms[1)]	Exemptions for least-developed countries

Source: own representation. – 1) While countries with linked ETS systems could be exempt, the proposal does not expand this option to all countries with carbon pricing mechanisms. Instead, foreign carbon prices can be subtracted from the CBAM rate.

There are no geographic exemptions to the CBAM in the proposal. However, the price of carbon that foreign entities would need to pay in their origin countries shall be considered when calculating the CBAM rate. EEA members are exempt and there would be a possibility to exclude countries with cap-and-trade systems that are linked to the ETS (such as Switzerland), a potential first step towards forming a global "climate club"[43].

[43] The idea behind climate clubs is to create a grouping of countries with a common carbon price that is economically strong enough to impose trade barriers against third countries and withstand potential repercussions in form of trade retaliation; see Bierbrauer et al. (2021).

The proposal only briefly touches upon the revenue side. It is indicated that the CBAM revenue would feed the EU's general budget. In the same section, the EU's new debts, related to the pandemic recovery instrument NextGenerationEU, are mentioned as a justification for the introduction of new own resources. In terms of the effect of the proposed design on the size of the revenue, the relatively limited scope and emissions coverage decrease the revenue potential (see Marcu et al., 2020). In their proposal from December 22, 2021, the European Commission (2021b) suggests a uniform call rate of 75% to be applied to the revenues of the sale of certificates of the CBAM, which are estimated at EUR0.5 billion per year for the period 2023 to 2030 and at EUR1 billion per year for the period 2026 to 2030 (chapter 1, table 1).

4.3.2 Link to European policy

A CBAM was first announced in the European Green Deal (EGD) and is a part of the European climate change policy framework aiming to fulfil the recently stepped-up 2030 Climate Target[44] and to achieve climate neutrality by 2050. The 'Fit for 55' legislative package, published by the Commission on July 14, 2021, contains the proposal for a CBAM and its use as an own resource. The connections between 'Fit for 55', the EU ETS and the CBAM are prominently emphasised in the CBAM proposal.

The proposed policy mechanism behind the CBAM links it tightly to the ETS. The Commission chose to implement the CBAM as part of what is described as a "notional" ETS, a system of "CBAM certificates", which mirrors the carbon price determined through the ETS, but does not count towards the cap, and will be administered separately. Among the discussed options for introducing the CBAM, only an extension of the ETS and its cap to foreign entities would represent an even stronger linkage between the two systems.

The second strong link between the CBAM and the ETS is the issue of free allowances. Granting free allowances to energy-intensive industry is a key part of the ETS which aims to protect selected domestic sectors from carbon leakage. In the CBAM proposal, free allocation to trade-exposed sectors is envisioned to gradually decrease until its complete elimination by 2035. In addition, the CBAM on imports will depend only on the proportion of emissions that do not enjoy free allowances (Sapir, 2021).

In the period preceding the proposal, the CBAM was also mentioned in other European policy documents, including in the Commission's 2020 Consultation Note[45] titled "A renewed trade policy for a stronger Europe", where the CBAM is framed as part of the reorientation of the EU's Trade Policy towards more active fostering of global sustainable development through trade policy instruments. The revamped Industrial Policy for the EU[46] aims for a digital and green transformation of the economy and also specifically addresses the CBAM as a way to strengthen and protect the European industry as it becomes less carbon- and resource-intensive.

4.3.3 Sectoral co-benefits and steering effects

Empirical evidence suggests that carbon border adjustments are an effective tool for reducing carbon leakage (Branger and Quirion, 2014). Recent *ex-ante* simulation studies by Korpar et al. (2021, forthcoming), Pyrka et al. (2020) and Kuusi et al. (2020) show that a CBAM can be effective at protecting the competitiveness of the covered domestic sectors. Since these studies include design configurations that are roughly similar to the Commission's proposal, there is reasonably ground to claim the proposed CBAM will be at least partially effective against carbon leakage. This may have positive co-

44 See: https://ec.europa.eu/clima/policies/eu-climate-action/2030_ctp_en.

45 See: https://trade.ec.europa.eu/doclib/docs/2020/june/tradoc_158779.pdf.

46 See: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_416.

benefits for the European economy due to increased demand for domestically produced energy-intensive goods, and positive spill-over effects due to changed prices of imports and domestic products. However, where European companies rely on cheaper imported energy-intensive products, some negative effects, such as decreased exports, can be foreseen and some structural changes cannot be ruled out, for example increased imports of semi-products instead of basic materials (e.g., Ismer et al., 2020; Kuusi et al., 2020).

The steering effect of the CBAM is generally aimed at foreign companies and the goods they import into the EU. As the CBAM is restricted to selected products only, the steering effect is limited accordingly: imports of aluminium, iron and steel and cement account for 3.9% of total imports to the EU (Kuusi et al., 2020). The decarbonisation of domestic companies will be primarily influenced by changing demand patterns, rising carbon prices and other policy measures that incentivise further decarbonisation efforts. As Ismer et al. (2020) point out, the lack of measures aimed at exports means that there are no direct incentives for domestic firms that operate on international markets to decarbonise.

In a more general sense, the CBAM may influence other countries to install their own carbon pricing mechanisms. Bierbrauer et al. (2021) advocate for the creation of a "carbon club", formed together with other large market economies, such as the USA. Rather than the EU acting unilaterally, a large carbon club would be better suited to incentivise other countries to join, to help protect its economic area from carbon leakage, and to be able to protect itself from trade retaliation.

4.3.4 Attributability of revenues to Member States

The proposed CBAM imposes an at-the-border levy on the carbon content of imported goods. It is thus similar to customs duties, the collection of which is the domain of the EU. Any allocation of the proceeds collected at the external EU border to individual Member States would be difficult to justify and to operationalise. Further, the benefits and costs of climate change mitigation cannot be distributed neatly to individual countries since the climate is not subject to national borders. Thus, revenues of the CBAM should be attributed to the EU (Krenek and Schratzenstaller, 2019; Fuest and Pisani-Ferry, 2020).

4.3.5 Enforceability/implementability

The CBAM proposal envisions the CBAM to be enforced and implemented at the EU level. The proposed design provides additional arguments for this decision. The proposed implementation of the CBAM through a system of auctionable CBAM certificates may be relegated to national authorities, but is best monitored and enforced by an EU-led body, similar to the system of auctions featured in the EU ETS. In addition, the option for foreign operators to report and verify their actual emissions will require additional coordination and administrative efforts, which is more effectively orchestrated at the EU level, even if the actual process is led by national authorities.

Additional arguments apply to any configuration of the CBAM. Since climate change mitigation cannot be limited to national borders, countries can enjoy its benefits even if they do not engage in it themselves. This could make Member States inclined to free riding by setting the rate of the CBAM below the optimal level to increase their competitiveness against their neighbours and would imply an inefficient use of production factors and lower welfare for the EU as a whole, as well as lower revenue.

4.3.6 Transparency

The CBAM system, as proposed by the Commission, ensures an appropriate degree of transparency, despite its inherent complexity.

Still, since it envisions a separate system of CBAM certificates, and will only apply to selected basic products, European citizens will not be directly engaged with it, except for cost pass-overs to end-products or energy prices. Still, as Pyrka et al. (2020) show, a limited scope of the CBAM is not likely to significantly impact consumer prices as long as the price of carbon remains relatively low. Even if a CBAM indirectly leads to consumer price increases, a CBAM-based own resource will not be visible and transparent for citizens.

A key point for the transparency of the CBAM will be the cooperation between the EU-based "central authority" and national authorities. One area of concern is the legitimacy of reported data on actual emissions from foreign operators. To avoid accusations of cheating and greenwashing, the EU will have to ensure that reported emissions are monitored and verified by credible institutions.

The proposed registry of foreign entities and the keeping of data on the surrendering of CBAM certificates can also contribute to the transparency of the system.

4.3.7 Administrative complexity

The considerable complexity of the CBAM is a point of criticism (e.g. Zachmann and McWilliams, 2020). Due to the large number of firms that would be subject to the CBAM, as well as the fact that these firms are subject to foreign legal jurisdictions, the CBAM will require additional administrative resources to function properly. In addition, it will also create additional administrative burdens for foreign firms. The extent of the administrative complexity depends heavily on the design of the CBAM. In general, a trade-off exists between the economic and environmental effectiveness of the CBAM and the administrative requirements to fulfil its purpose (Böhringer et al., 2012).

Based on the analysis of the administrative complexity of different designs offered by Jousseaume et al. (2021), Ismer et al. (2020), Marcu et al. (2020) and Mehling et al. (2019), the Commission's proposal leans towards medium to high administrative complexity, primarily due to two factors.

First, the need to surrender CBAM certificates will require additional administrative efforts by the affected firms. Only EU-established firms can surrender certificates, meaning that foreign entities will need to have a linked EU-based entity which will declare the number of payable certificates to the relevant authority annually or quarterly. The system will also require the registration of domestic and foreign operators. All this will put additional strain on both domestic and foreign firms. The changing prices of CBAM certificates which will be linked to prices of EU emission allowances will create another layer of complexity.

Second, the option to monitor and verify actual emissions, as opposed to using only benchmark values for determining the embodied carbon in products, will also require extra administration and specific skills needed to deal with the CBAM's requirements. In cases where benchmark values will be used, less resources will likely be needed; however, this option is less economically and environmentally efficient.

Additionally, the management of the system, to be shared between the Central Authority and "competent authorities" in Member States, to which administrative tasks will be delegated to, will also add to the administrative complexity.

From the standpoint of revenue collection, some resources will be also required to pool the surrendered CBAM certificates to the EU budget, as well as to monitor and enforce the system, and to issue penalties.

4.3.8 Environmental sustainability

The purpose of a carbon border adjustment mechanism is to reduce emissions through decreasing carbon leakage. As a supplementary instrument to the European carbon price established through the EU ETS, the CBAM has a clear environmental goal. While the CBAM can be effective at reducing emissions on a global level (to a certain extent) (e.g. Böhringer et al., 2012), its impact on European emissions could be ambiguous and indeed negative. Logically, if more carbon intensive production is brought back to the EU, domestically produced emissions could rise. Thus, the CBAM could counteract the goals of the European Green Deal. Nevertheless, as a second-best instrument, it leaves space for complementary policies aiming to reduce the overall level of emissions in Europe through other means.

The proposal can be evaluated from the environmental standpoint by estimating the extent to which the proposed design can induce domestic and foreign firms to reduce their emissions and bring about emission reductions on a global level.

The relative narrowness of the CBAM as envisioned by the Commission, specifically the limited range of covered sectors, and the exclusion of scope 2 emissions (embodied electricity) mean that the instrument will only cover a limited share of emissions that enter the EU from abroad. Available studies, such as Korpar et al. (2021, forthcoming) show that even a narrowly designed CBAM can reduce global emissions, but only by a very small margin (less than 0.1%).

The absence of compensation for exporters combined with the future elimination of free allocation could still lead to carbon leakage as the carbon price rises (Ismer et al., 2020), thus rendering the CBAM less environmentally effective in the long term.

It should be stressed that the emission reductions modelled in above-mentioned studies happen primarily due to trade diversion. As a result of higher import prices, less carbon-intensive domestic firms replace foreign ones. Dynamic effects, i.e. the choice of individual firms to adopt greener technologies are not considered.

While the CBAM does not incentivise domestic firms to decarbonise even further, it may have a positive effect on foreign ones. The method for calculating embodied emissions based on their actual value is rated as having the highest environmental benefit by Marcu et al. (2020) since it is the most accurate measurement. In addition, it allows foreign firms that operate with a better-than-average carbon intensity to surrender less CBAM certificates, thus incentivising foreign decarbonisation efforts. Although there is a possibility that foreign firms will rather reroute their trade towards third trade partners, the EU will remain an important market and therefore, as the price of carbon rises, the costs of technological upgrades could become more attractive compared to the costs of CBAM certificates. However, the existing literature offers little insight in the extent to which this may happen.

From the own resource standpoint, the decision to direct the CBAM revenue to the general budget could deliver additional environmental benefits compared to channelling revenues into Member States' budgets, due to the NextGenerationEU funds' strong orientation towards green investments

4.3.9 Economic performance

While there are no clear-cut criteria for assessing the economic performance of a CBAM, a well-designed CBAM should be able to satisfy two goals in particular: first, strengthening the competitiveness of the domestic economy, which can be measured with different indicators, such as exports, output, employment, etc.; and second, having a positive, or at least neutral effect on domestic GDP. Trade-offs, such as negative spill-overs due to price increases of imported basic materials, should be avoided.

Although none of the existing economic simulations captures exactly the same design configuration of the CBAM, a number of studies include modelling choices that are reasonably similar to the proposed CBAM and give insight into the expected economic effects of the proposed CBAM. Pyrka et al. (2020), Kuusi et al. (2020) and Korpar et al. (2021, forthcoming) show that the effect of a CBAM featuring limited sectoral scope and no inclusion of indirect emissions on GDP is small. For example, Kuusi et al. (2020) simulate the introduction of a CBAM in the EU: The European GDP drops by 0.025% as trade inside the EU increases, and exports to third countries outside the EU (?) decrease slightly. Thus, it can be concluded that the proposed CBAM will not have significant negative (or positive) effects on the European economy even if the carbon price rises in the future.

The effects of the chosen CBAM design on competitiveness are limited by its scope and sectoral coverage. The proposed CBAM is likely to restore competitiveness to some degree as affected sectors might see an increase in output due to higher demand from the EU (Kuusi et al., 2020). However, the playing field will only be levelled for the covered sectors and for scope 1 emissions. Since these sectors constitute a relatively small share of the EU economy and its exports, the overall contribution of the CBAM to EU competitiveness is likely to be positive, but small. In addition, the absence of export rebates and the planned elimination of free allocation are likely to put European exporters in a more difficult situation as before (Korpar et al., 2021; Joussaume et al., 2021).

Of the few available studies that include the effects of CBAM revenue spending, none assumes that CBAM revenues are spent by the EU to reduce its debt (and thereby enjoys higher potential expenditure in the future). Revenue use in the form of tax reductions (Krenek et al., 2020; Larch and Wanner, 2017; McKibbin et al., 2017; Fischer and Fox, 2012) or international transfers (Böhringer et al., 2012) can cushion potential negative effects of the CBAM.

4.3.10 Fairness

A domestic and an international fairness aspect can be highlighted. The first aspect relates to the question how the burden of a CBAM-based own resource is distributed among Member States. The CBAM does not directly impact Member States. However, if the structure of the economy is skewed towards sectors that would suffer losses due to the CBAM, then some individual Member States could be more negatively impacted than others (Pyrka et al., 2020). The Commission proposal does not mention this aspect.

The CBAM shifts the costs of climate change regulation to importers, and thus to the EU's trade partners (Böhringer et al., 2012). With some exceptions, the majority of these are poorer than the EU, and some countries whose export structure leans heavily towards carbon-intensive products belong to the list of low-income (or least developed) countries. In these cases, the key principle of climate justice, known as "common, but differentiated responsibility", may be put into question. A study commissioned by the European Parliament (2020) shows that the CBAM could be perceived as a protectionist measure in disguise. The final political decision how to use CBAM revenue could give further ground to such claims or disprove them. For example, there are proposals to transfer the revenue to low-income countries, for example through the Green Climate Fund (Weko et al., 2020), which could improve the perception of fairness in the eyes of the rest of the world (Mehling et al., 2019).

Although the proposal does not include any mechanism to redirect a part of the CBAM revenue to give additional support to less-developed countries (LDCs), it does address the above-mentioned distributional issue. Exempting LCDs from the CBAM is explicitly discarded as an option, since the Commission argues such exemptions would be temporary in nature and would foster the growth of carbon-intensive industries in LDCs. The proposal mentions recommended actions, such as assisting

governments of LDCs in adjusting to the CBAM, offering technical assistance, or technology transfers, but makes no concrete decisions on this matter.

While there are no design choices that would make the CBAM proposal even more controversial in the eyes of the EU's trade partners, there are also no legal or procedural actions foreseen that would alleviate potential disputes – such as including the EU's trade partners more closely into the deliberation process for the final version of the mechanism.

4.3.11 Social sustainability/inclusiveness

The application of the CBAM on industrial products, as foreseen in the proposal, is likely to have a limited impact on the prices of final goods faced by European consumers. However, an indirect burden on EU consumers cannot be completely excluded (Fuest and Pisani-Ferry, 2020). In general, carbon pricing can be regressive, since it disproportionately impacts the purchasing power of lower-income groups.[47] Kuusi et al. (2020) argue that a CBAM could result in higher prices of final goods because the prices of intermediate goods would increase. However, according to the authors' simulations it would also increase average domestic consumption by a small margin of 0.1%, resulting from the intended change in relative prices of less carbon-intensive domestic goods and of more carbon-intensive imported goods.

If the CBAM results in higher prices of basic consumer goods, then it could potentially contribute to rising inequality, even though its projected effect on GDP is small as long as the CBAM is designed not to cover an extensive range of products (e.g. Korpar et al., 2021; Kuusi et al., 2020). While no studies on the distributional effects of the CBAM exist, the analyses both by Korpar et al. (2021) and Kuusi et al. (2020) imply that the CBAM is not likely to have large negative social implications in the short term. However, if the scheme is expanded to cover most economic sectors, and if the price of carbon continues to rise considerably in the future, concerns over the distributional effects of the CBAM could be heightened. Considering the proposal and available research, it can be concluded the CBAM in its proposed form will not deliver immediate negative social impacts.

4.3.12 Fiscal integration

The proposed design of the CBAM contributes to fiscal integration between Member States, since it features a system for determining the CBAM rates (accounting for the carbon content of imported goods) that shall be harmonised on the EU level. Moreover, the proposal does not distinguish between individual Member States in any way that would affect the functioning of the system. Thus, the final destination of goods imported to the EU has no consequence to the CBAM.

4.3.13 Interference with national tax systems

The proposed CBAM does not interfere with national tax systems. It represents a new type of revenue source that does not interfere with any of the existing ones, neither on the national nor on the EU level.

4.3.14 Predictability/short-term revenue stability

The short-term revenue stability of the CBAM depends on the price of carbon and on the total volume of imports of covered goods to the EU in a given time period. Their potential volatility may result in fluctuations of revenue. Both the price of carbon, reflected in the market price of European emission permits, and the size of the imports can be subject to market forces and external shocks. However, only

[47] See the extensive review of empirical evidence by Köppl and Schratzenstaller (2021).

the former can be directly affected through policy, since not much can be done to prevent the fall in revenue in case international trade is disrupted for whatever reason.

In choosing to mirror the (weekly) price of carbon, determined through the EU ETS, the proposed CBAM subjects the revenue stability to price fluctuations that cannot be controlled only through the CBAM system. The Market Stability Reserve, a quantity-based correction mechanism introduced in 2019, already has a stabilising impact on the price of allowances. An additional carbon price floor implemented in the EU ETS would mitigate carbon price fluctuations further. Thus, the stability of the carbon price can be influenced to some extent, but only through changes to the EU ETS.

4.3.15 Sufficiency/fiscal sustainability

In general, the fiscal sustainability of the CBAM in the long run depends on i) its evolution in terms of industry coverage, ii) the longer-term growth trend of carbon prices, iii) the establishment of carbon price mechanisms abroad, iv) technological development of EU's trade partners, v) the dynamics of imported emissions, and (vi) the concrete design (Fuest and Pisani-Ferry, 2020).

Based on the present CBAM proposal, a few assumptions can be made on the long-term fiscal developments. First, the new rules pertaining to the EU ETS cap, the Market Stability Reserve, and the allocation mechanism for emission allowances that have just entered into force for phase 4 of the EU ETS (2021 to 2030) are likely to ensure that the price of carbon in the EU will keep growing; its longer-term growth trend would be even more dynamic should the revisions to the EU ETS proposed by the Commission within the 'Fit for 55' package be implemented. Second, although the industry coverage would be limited to a few basic materials according to the Commission's proposal, the Commission will have the power to increase (or reduce) the number of covered sectors in the future. It can be reasonably expected that the CBAM will in time grow to include the production of paper, glass and chemicals. Third, with no export rebates foreseen in the proposal, there is no pressure on revenues to be spent to compensate domestic exporters. The establishment of carbon pricing systems in an increasing number of foreign countries is also likely, but to what extent is difficult to predict. Technological progress dampening carbon intensity in foreign countries is also uncertain, especially in relation to that of the EU, which most likely will increase as regulations become ever more stringent.

The Financial Development Statement in the CBAM proposal states that the CBAM would not generate any revenues in the introductory period between 2023 and 2025. In 2026, the expected revenue would amount to EUR1.5 billion, and by 2030, it is assumed to reach EUR2.1 billion annually[48] (European Commission, 2021j). Based on the December 2021 own resource proposal by the Commission, a uniform call rate of 75% would generate annual revenues (in 2018 prices) of EUR0.5 billion from 2023 to 2030 (whereby no revenues would accrue in the transitional period from 2023 to 2025) and of EUR1 billion from 2026 to 2030, respectively, for the EU budget.

This is considerably less than the projected size of the revenue used by the European Commission previously (e.g., European Parliament, 2021); which would have ranged between EUR5 billion and EUR14 per year[49]. Possible reasons for this smaller-than-expected projection, the assumptions behind which have not been published by the Commission, could be the limited sectoral scope, a lower future carbon price estimation, and/or other model-specific issues.

Available model projections predict substantially larger potential revenues. Krenek et al. (2020) simulate the introduction of a specific option of a CBAM, namely a classic border tax adjustment, titled

[48] These results are generated through the JRC GEM-E3 model.

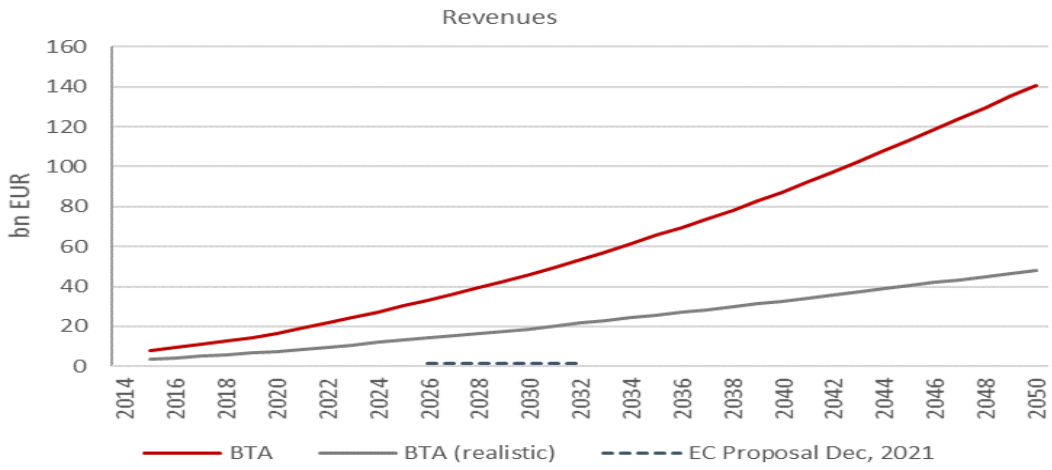
[49] No underlying assumptions were given to support this estimate.

"BTA realistic", that is WTO-compatible and practical and assumes no export rebates. Its sectoral scope, with the exception of the electricity sector, would be identical to that of the EU ETS. Estimated revenues of this scenario are EUR19 billion for 2030 and EUR48 billion for 2050. In contrast, a scenario titled "BTA" which includes the electricity sector and thus also accounts for scope 2 emissions, i.e. indirect emissions from electricity inputs, yields much higher revenues, reaching up to EUR46 billion by 2030 and EUR141 billion by 2050. The authors assume a nominal carbon price path rising from EUR130 in 2030 to EUR400 per tonne of CO_2 in 2050. Thus, the rising carbon price path, but also the rising share of imports in EU GDP, will increase CBAM revenues over time. A graphic presentation of the potential development of the CBAM revenue is shown in figure 4.

Fuest and Pisani-Ferry (2020) point out that the CBAM could have a positive indirect effect on EU ETS revenues. The share of auctioned EU ETS allowances shall be increased in the current decade by phasing out free ETS allowances, thus increasing the burden for carbon-intensive sectors which are particularly exposed to international competition. Since the CBAM proposal envisions a reduction and finally an abolition of free allocation, it will also indirectly increase revenues from the EU ETS, since all emission permits will henceforth be auctioned.

Overall, in the short run revenues from the CBAM for the EU budget would be almost negligible due to the very narrow scope of the proposed CBAM according to the Commission proposal from December 2021: a CBAM-based own resource according to the design suggested by the Commission would contribute a yearly amount of EUR1 billion (which would amount to a share of 6% of overall revenues from the proposed new own resources and of less than 1% of the yearly EU budget in the 2021-2027 MFF period) between 2026 and 2030. Expanding the scope of the CBAM in the longer run combined with a steadily increasing EU carbon price would result in a significant additional revenue potential.

Figure 4: Long term projections of the CBAM revenue



Source: Krenek et al. (2020), European Commission (2021b).

4.3.16 Legal aspects

From an intra-EU legal perspective, revenues from an EU CBAM could be introduced based on Article 311 (1) TFEU. As for all new own resources, the implementation of a CBAM-based own resource needs to follow a specific legislative procedure according to Article 311 (3) TFEU: the decision on its introduction not only requires the unanimous support of the Council after consulting the European Parliament and the European Economic and Social Committee, but also the approval of the national parliaments according to their constitutional requirements. An additional legal basis for a CBAM-based

own resource is Article 192 (2), allowing the introduction of fiscal measures to pursue environmental or energy purposes whose primary goal is not revenue generation, which is also the legal basis for the EU ETS. A CBAM can be regarded as a fiscal measure aiming at environmental or energy policy objectives whose primary objective is not the generation of revenue. Articles 191, 192 and 194 TFEU therefore grant legislative competences with regard to the CBAM to the EU.

The issue of legality of the CBAM from an international law perspective, namely its WTO compatibility, has been raised by numerous authors, who mostly agree that a CBAM can be compatible with the obligations of WTO members under the General Agreement on Tariffs and Trade (e.g. Krenek et al., 2020; Mehling et al., 2019; Pauwelyn, 2009 and 2013; Hillman, 2013). The WTO itself has sent positive signals. A joint report with the UN Environmental Programme (UNEP) states that GATT and WTO "rules permit, under certain conditions, the use of border tax adjustments on imported and exported products" (WTO-UNEP, 2009, p. xix). The relevant general rules for the introduction of a CBAM can be found in article I., II., III., XI. and XVI. of the GATT. The article that might allow a member state to deviate from these general rules is Article XX. However, there are disagreements on what CBAM design options would be considered WTO-compatible and to what extent WTO-compatibility relies on article XX of the GATT. According to Ismer et al. (2020) an import charge similar to an excise duty would be permitted, as similar instruments were already implemented without objections by the WTO.

Legal assessments of the CBAM proposal are not readily available. Based on the available literature, the proposal does at the very least not contain any features that were unanimously assessed as being highly risky from the WTO-standpoint. Still, the general issues, described above, also apply to this proposal. Marcu et al. (2020) assess the legality of specific design options, according to which the CBAM proposal could be given a favourable assessment, although the core design choice – to use the ETS is evaluated as riskier than introducing a carbon tax or a customs duty. The options to include electricity, consider carbon costs incurred in other countries, and the option to verify actual emissions all have a strong case to be legal.

Jousseaume et al. (2021) express doubts that the current proposal is WTO-compatible. The policy mechanism that uses CBAM certificates but is not a part of the cap-and-trade system per se (i.e., a notional ETS) is seen as problematic. Following WTO rules, this makes it akin to a "fiscal measure", however, the additional administrative costs that the CBAM certificate system will impose on foreign importers could be used to dispute this definition. Instead, the authors support keeping the current system in place since it is said to be less at risk from being challenged by the WTO.

While featuring no compensation for domestic exporters helps avoid one aspect that was deemed problematic from the WTO-perspective (see above), maintaining free allocation together with the CBAM, albeit temporarily, has also been marked as potentially problematic by Ismer et al. (2021), because it could be claimed to offer double protection to European companies. Josseaume et al. (2021) do not share this opinion since free allocation has not yet been challenged by any of the EU's trade partners.

Finally, while revenues are not explicitly earmarked beyond stating they would accrue to the EU budget (which is assessed as neutral from a legal standpoint by Marcu et al. (2020)), and the proposal states that the primary objective of the CBAM is not generating revenue, the explicit mention of the need to use new own resources to finance the EU's debts could be seen by the EU's trade partners as troubling, especially in absence of any other fiscal measures that would target international cooperation (see Mehling et al., 2019).

4.3.17 Benefits from introducing a new own resource based on a CBAM

This section summarises the key benefits from assigning a CBAM-based new own resources to the EU and on its respective co-benefits and steering effects. It is important to distinguish between three aspects: the justification for implementing a CBAM-based own resource at the EU level based on EU-wide cooperation (as opposed to unilateral introduction at Member State level); the co-benefits and steering effects of a CBAM as such; and the benefits generated by using the revenues of a CBAM for the EU budget. In addition, the specific link to EU policies is relevant.

A CBAM-based own resource is connected to important EU policies and strategies related to climate and change, which are cornerstones of sustainable growth and development as well as resilience in Europe. A CBAM complementing the EU ETS is a genuine EU policy and a key element of the EU's climate strategy. The proposed CBAM is an element of the Commission's 'Fit for 55' package published on July 14, 2021. Revenues from a CBAM can therefore be regarded as genuine own resources.

There is a sound justification for a CBAM to be introduced based on an EU-wide coordinated approach. A CBAM would contribute to fiscal integration. Inefficiently low carbon border levies may result from an uncoordinated implementation of CBAM at Member State level. A centralised approach regarding the introduction of a CBAM at the EU level could shield Member States from potential lawsuits when it comes to legal international conflicts, for instance in the framework of the WTO.

A CBAM prevents carbon leakage and protects the competitiveness of European industry. It is thus beneficial from an environmental as well as an economic point of view. Furthermore, it also provides an incentive to foreign companies to adopt less carbon-intensive technologies.
Using revenues from a CBAM as own resources for the EU budget has additional benefits. Revenues from a CBAM cannot be attributed to individual Member States because of the cross-border nature of emissions. Assigning revenues to individual Member States is also complicated due to cross-border value chains. Therefore, CBAM revenues present themselves as genuine EU own resources, also considering that they stem from a common EU policy. Furthermore, individual Member States may be more inclined to spend CBAM revenues in ways that could be interpreted by the WTO as subsidies, thus endangering the CBAM. The single Member States typically have only limited capacities with regard to their international cooperation aid institutions when it comes to international support for the green transition. If a share of CBAM revenues was spent for international transfers compensating poorer EU trading partners, centralised decision making and implementation of such transfers at the EU level would be more cost-efficient, and it would avoid free-riding and non-participation by individual Member States. The Commission proposal does not foresee a fully-fledged CBAM including rebates for European exporters. If, however, the EU should decide to enlarge the proposed mechanism to a fully-fledged CBAM, channelling CBAM revenues into the EU budget would avoid a situation in which individual Member States have to pay more in export rebates than they receive in CBAM import levies.

A CBAM would create "fresh money", as stipulated in the IIA, and does not interfere with national revenue systems.

4.3.18 Key points

4.3.18.1 General

- Assessing the proposed CBAM design:
    - The proposed EU CBAM is an appropriate tool for reducing carbon leakage, reducing global emissions, and strengthening the competitiveness of European industries.

  - When assessed against alternative designs and literature, the Commission's proposal is not ideal in terms of efficiency and effectiveness: the narrow industry coverage and scope of covered emissions, and the exclusion of export rebates somewhat limit its environmental and economic efficiency while imposing relatively high administrative demands on foreign companies.
  - Despite positive signals that the proposal may indeed by WTO-compatible, the legality is likely to remain an open issue for years to come.
- Assessing the proposed CBAM as an own resource:
  - The Commission's proposal makes the CBAM a viable own resource and provides solid arguments for its imposition at the EU level.
  - Potential revenues are substantial, especially in the long-term; however, the projected revenue in the proposal is smaller than expected and is limited by the CBAM's narrow design.

4.3.18.2 Specific remarks

- The proposed CBAM has strong links to EU policy:
  - The EU ETS as an EU-wide emission trading system
  - European Green Deal
  - 'Fit for 55' package
  - 2030 Climate and Energy Framework
  - 2030 Climate Target Plan
- The Commission's proposal strongly emphasises that the primary goal of the proposed CBAM is environmental, not economic or fiscal
  - The stated goals of the CBAM are to reduce carbon leakage, to help the EU realise its long-term climate targets and to incentivise third countries to implement climate policies.
  - Strengthening competitiveness and generating revenue are not mentioned as the CBAM's goals.
  - This argumentation is more likely to be accepted by the WTO.
- The proposed CBAM is best implemented, enforced, and monitored on the EU level
  - The EU and the affected Member States already deal with customs and have the respective infrastructure and know-how.
  - It represents a genuine EU own resource since it covers a cross-border issue (i.e. emissions) and prevents free-riding among Member States.
  - Uncoordinated introduction of CBAM at Member State level can lead to inefficiently low carbon border levies due to the cross-border nature of emissions.
  - An EU-wide coordinated approach could shield Member States from potential lawsuits regarding potential conflicts with the WTO framework.
- The CBAM will start to fully function in 2026 after a 3-year transition period (2023-2025).
- The design configuration of the proposal has the following elements:
  - The CBAM will be imposed through a "notional" ETS: Importers will need to purchase and surrender CBAM certificates that will mirror the price of carbon of EU emission allowances.
  - To CBAM will only cover foreign exports to the EU, there are no export rebates envisioned for domestic exporters.
  - Sectoral coverage will be limited to cement, iron and steel, fertilizers, aluminium and electricity; however, the Commission can include new sectors.

  - Only direct (scope 1) emissions are covered, electricity generation (scope 2) are not included.
  - Foreign entities will have the option to report the actual emissions embedded in their products, or to use a system of country-based benchmark values to calculate the CBAM rate.
  - The costs of carbon imposed on companies by their origin countries will be subtracted from the CBAM rate.
  - Free allocation will be eliminated only gradually and will co-exist with the CBAM until 2035.
  - No geographic exemptions will be given – developing countries will not be exempt.
  - The revenue will accrue to the EU's general budget. The repayment of debts, related to the instrument NextGenerationEU is mentioned as the justification for the imposition of new own resources.
- The economic effects of the proposed CBAM are likely to be small in size, but positive for the EU:
  - According to available literature covering similar design configurations, the GDP and total exports of the EU will likely grow, but by a very small margin of less than 0.01%.
  - The competitiveness of the covered sectors is likely to be strengthened and reflected in their output.
  - Potentially positive spill-over effects could arise due to improved competitiveness of the covered sectors.
  - Design choices that prevent the proposed CBAM from having stronger effects on competitiveness are the small number of covered sectors, the exclusion of indirect emissions and the absence of export rebates.
- The administrative complexity of the proposed design is relatively high:
  - The requirement to obtain and surrender CBAM certificates will create new administrative burdens for foreign companies.
  - Accounting for actual emissions covered in products of each individual company will require additional efforts by the companies themselves, as well as by authorities who will verify and monitor reported emissions.
- The CBAM is likely to have a positive, but very limited effect on global emissions:
  - The available literature shows that even a narrowly defined CBAM can reduce global emissions, but by a very small margin, also due to its limited coverage.
  - EU-based emissions could still rise if domestic energy-intensive sectors increase their output due to the CBAM.
  - The carbon price will remain a key factor for the environmental effectiveness of the CBAM.
- The expected revenue of the CBAM is potentially sizeable in the longer run, but its full amount is unclear:
  - The CBAM will generate no revenue in the introductory phase (2023-2025).
  - The CBAM legislative proposal (July 2021) envisions less expected revenue (about EUR2 billion) than was previously reported by the Commission (up to EUR14 billion) or the available scientific literature.
  - The Commission proposal for the amendment of the Own Resource Decision (December 2021) expects yearly revenues of EUR1 billion for the period 2026 to 2030 for the EU budget for a uniform call rate of 75% applied to overall CBAM revenues; the CBAM-based own resource would thus contribute an almost negligible share of 6% to

overall revenues from the IIA first basket of new own resources in the period 2026 to 2030.
    - The proposed design configuration has implications on the size and stability of the revenue:
        - Industry coverage is limited to a few basic materials, and only direct emissions are covered, which greatly diminishes potential revenue.
        - The absence of export rebates effectively raises potential revenue.
        - The introduction of the CBAM through the ETS will expose the revenue to the fluctuations of the European carbon price, which would not be the case if it was introduced as part of a carbon tax.
    - In the long term, the size of the revenue will depend on the trend in growth of the carbon price, the evolving structure of imports, and the carbon intensity of EU trade partners; it can be reasonably expected to grow substantially over time.
- The proposal does not feature any provisions that would provide counter-arguments to using CBAM revenues as own resources financing the EU budget:
    - The CBAM will cover raw materials, which may be imported into one Member State and used as an intermediate good in another one, which makes attributing the revenue to individual Member States difficult.
    - The CBAM addresses emissions, which are a cross-border issue: benefits and damages are not neatly distributed to Member States to which goods are exported.
    - Although Member States have different levels of economic development, purchasing power and different levels of technologies which determine carbon intensity of production, the ETS price and the CBAM rate are the same for all, which could lead to a misallocation of revenues.
    - There are differences in the needs and abilities of Member States to implement the Green Deal. Therefore, revenues could be used more efficiently if collected and spent by the EU.
    - Individual Member States might be more likely to spend the revenue in ways that could be interpreted by the WTO as subsidies, therefore potentially endangering the CBAM.
- The proposal does not include policy or procedural provisions that would aim to lower the potential of trade disputes:
    - EU trade partners could see the CBAM as a protectionist measure.
    - The lack of specific measures designed to assist developing countries will add to the concern about the international acceptance of the CBAM.
- WTO compatibility will remain an open issue for years to come:
    - According to the literature, there is reason to be cautiously optimistic about the legality of the proposed design configurations.
    - There is no consensus on the legality of the introduction of the mirrored ETS system as the basis of the CBAM; however the additional administrative requirements of this option could contribute to the view that EU-based and foreign companies do not face the same conditions.
    - The co-existence of free allocation and the CBAM could lead to accusations of double protection for EU-based companies.
    - The absence of export rebates will make the legal assessment of the CBAM easier.
    - The explicit mentioning of debt repayment in the proposal could contribute to the view that there is a fiscal purpose behind the CBAM.

4.4 Own resource based on the reallocation of profits of large MNE according to Pillar I. of the OECD/G20 Inclusive Framework on BEPS

4.4.1 Brief description

The European Commission's initiatives to address the tax challenges of the digitalisation of the economy started in 2013. The concrete concept for digital taxation at the EU level was published in 2018 in the form of two Council Directives[50].

Although the European Parliament supported both short- and long-term solutions, the Council announced the postponement of the decision on an EU solution to mid-2021 as a global solution is preferred. In October 2020, the OECD published two reports (OECD, 2020a and 2020b) addressing tax challenges arising from digitalisation based on two pillars (Pillar I. and Pillar II.), with the aim of reaching an international consensus-based solution by mid-2021.

On November 1, 2021, the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (i.e. 137 countries representing 90% of the global economy)[51] agreed on a global tax reform so called two-pillar solution (see table 13). In comparison with the previous OECD' proposals a broader approach to the definition of a taxpayer is identified, i.e. not just digital business. Moreover, although it seems that two-pillar solution aims to different issue, it relates to the issues linked to the increasing globalisation and digitalisation of the economy, which requires a global tax reform.

Based on the agreement a global minimum corporate effective tax rate of 15% was agreed for MNEs with worldwide revenue greater than EUR750 million[52], which must be paid in the countries where they operate and not just where they have their headquarters. Furthermore, according to this agreement, global MNEs with worldwide revenue greater than EUR20 billion will have to reallocate 25% of their residual profit exceeding a 10% profitability[53] to the country where the customers and users of those MNEs are located (i.e. to market jurisdictions) with nexus using a revenue-based allocation key. The new nexus permits an allocation to market jurisdiction when the in-scope MNE derives at least EUR1 million in revenue from that jurisdiction, or at least EUR250,000 for smaller jurisdictions with GDP lower than EUR40 billion. Based on the revenue-based allocation key and the definition of in-scope MNE, it is assumed that Pillar I. will address approx. 100 of the biggest and most profitable MNEs. The two-pillar solution should take effect by 2023.

As a reaction to these recent developments, the European Commission has stated that the consistent implementation of both Pillars in all EU Member States requires new EU Directives[54]. The European Commission has committed to propose a Directive in 2022 implementing the global agreement (particularly based on the Pillar I.[55]) in line with the requirements of the single market. Moreover, the own resource will enter into force once this Directive should be transposed into national law. Further, the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting's agreement includes the removal and standstill of Digital Services Taxes and other relevant, similar measures, which are currently effective. It also means that no new Digital Service Taxes or other similar measures will be

[50] The first proposal as a long-term solution lays down rules relating to the corporate taxation of a significant digital presence (hereinafter SDP Proposal; European Commission, 2018d) and the second one as an interim solution lays down the common system of a digital services tax on revenues resulting from the provision of certain digital services (hereinafter DST Proposal; European Commission, 2018e).

[51] Currently only four countries have not signed with the global minimum corporate tax rate: Kenya, Nigeria, Pakistan, Sri Lanka. Mauritania agreed on it on 4 November 2021.

[52] It is the same threshold as in case of the CbCR reporting.

[53] I..E. pre-tax profit margin (profit before tax / revenues).

[54] The first proposal for a council directive on ensuring a global minimum level of taxation was introduced on 22 December 2021 (European Commission, 2021k, COM(2021) 823 final). The second one ensuring a consistent implementation of the Multilateral Convention on a partial reallocation of taxing rights was announced during 2022.

[55] Pillar II. relates more to the corporate taxation and will be discussed in the part of BEFIT as another possibility of own resource.

enacted, imposed or implemented in future, besides to the tax resulting from the global agreement. Therefore, the previous European Commission´s concept of a digital levy should be forgotten. The new directive implementing the global agreement shall be designed according to the mechanism stated in Pillar I. (i.e. the relocation of 25% of the residual profit of the in-scope MNEs to the market jurisdictions, the simplified application of the arm's length principle to in-country baseline marketing and distribution activities, and an abolishment of the digital taxes or similar measures).
Finally, the proposal of amending Decision (EU, Euratom) 2020/2053 on the system of own resources of the European Union[56] states that EU Member States would make a national contribution to the EU budget via a uniform call rate of 15% to the share of the residual profits of the in-scope MNEs (i.e. the largest and most profitable MNEs) re-allocated to Member States in case they are end market jurisdictions where goods or services are used or consumed.

The OECD's two-pillar solution – Pillar I. – as a new concept of digital tax

In January 2021, the European Commission launched a roadmap and a public consultation, respectively, on "a fair & competitive digital economy – digital levy".[57] According to the IIA roadmap, the Commission should have put forward a digital levy proposal, with a view to introducing the new own resource by 1 January 2023 at the latest. However, no design options which were suggested in the IIA roadmap and the Commission inception impact assessment remain for the further consideration. As all EU Member States (except Cyprus) are also members of the Inclusive Framework and they have already agreed on the main aspects of two-pillar solution and committed to apply the OECD rules. Therefore, the EU does not have policy options and choices available in the design of rules, as they have already been prescribed and agreed on.

Based on the global agreement, the future directive proposal on re-allocation of taxing rights (profits) imposing a new nexus rule to a global MNE with global turnover above EUR20 billion and profitability above 10%, which should ensure the mechanism of the reallocation of the part of residual profit to market jurisdictions, can be presented as a new concept of digital taxation. Moreover, in addition to the new nexus rule, the global MNEs that meet the EUR750 million threshold must apply GloBE rules (based on the Pillar II.) providing a global minimum tax of 15%. For this purpose, the European Commission introduced the directive proposal[58] on ensuring a global minimum level of taxation on 22 December 2021 (hereinafter EC directive proposal on a global minimum taxation). In general, the agreed two-pillar solution can be presented as a global corporate tax reform. The new concept of digital taxation in the EU should closely follow the OECD rules (see table 14) to ensure their implementation in a coherent and consistent way across Member States.

Whereas the Multilateral Convention (MLC) will be used for the implementation of the re-allocation of taxing rights, the European Commission has announced a proposal of Directive ensuring a consistent implementation of the Multilateral Convention on a partial reallocation of taxing rights, or a proposal of Directive on implementation of the global agreement on re-allocation of taxing rights, to be presented during 2022.[59] Both suggested proposals of Directives can be considered as a digital-tax solution in the area of the EU.

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56 European Commission, 2021b, COM(2021) 570 final.

57 For more details see the European Commission's initiative webpage to a fair & competitive digital economy – digital levy: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12836-A-fair-competitive-digital-economy-digital-levy.

58 European Commission, Proposal for a council directive on ensuring a global minimum level of taxation for multinational groups in the Union was introduced on 22 December 2021 (European Commission, 2021k, COM(2021) 823 final).table 9

59 For more details see European Commission, 2021b, COM(2021) 570 final. Proposal for a council decision amending Decision (EU/Euratom) 2020/2053 on the system of own resources of the European Union.

The next sub-chapters will consider rules agreed by OECD and Inclusive Framework in the Pillar I., which are more related to the concept of digital taxation.

Table 13: Summary of the OECD's two-pillar solution

Pillar I.	Pillar II.
Pillar I. – **connects taxing rights more closely with local market involvement** • introduces profit allocation rules and a new nexus rule[60] for jurisdictions where the customers and users of in-scope MNEs are located (i.e. market jurisdictions). The new taxing rights are not depending on the physical presence of businesses in the jurisdiction • focuses on MNE groups (with global turnover above EUR20 billion and profitability above 10%) as a whole rather than single-entity approach as usual • the allocated tax revenue will be affected by both the selected (via international consensus) profitability threshold (i.e. Amount B – standard arm's length remuneration[61] for routine marketing and distribution activities) and the selected (via international consensus) allocation percentage (i.e. Amount A) which allows the transfer, of 25 % of the global non-routine profit (residual profit)[62] of MNE groups defined as profit in excess of 10% of revenue, to the market jurisdictions (so-called revenue- and profitability-based threshold) • taxing rights over 25% of the residual profit of the in-scope MNEs will be re-allocated to the market jurisdictions if MNEs derive revenues from those jurisdictions fulfilling the revenue-based allocation key • tax certainty through mandatory and binding dispute resolution, with an elective regime to accommodate certain low-capacity countries • removal and standstill of Digital Services Taxes and other relevant, similar measures • the establishment of a simplified and streamlined approach to the application of the arm's length principle in specific circumstances, with a particular focus on the needs of low capacity countries.	Pillar II. – introduces **domestic- and treaty-based rules** related to corporate taxation • domestic tax rules: GloBE rules provide a global minimum tax of 15% on all MNEs with annual revenue over EUR750 million. It covers two domestic tax rules, the Income inclusion rule (IIR) and its back-stop, the Under taxed payments rule (UTPR)[63] • treaty-based rule: Requirement for all jurisdictions that apply a nominal corporate income tax rate below 9% to interest, royalties and a defined set of other payments to implement the "Subject to Tax Rule (STTR)" into their bilateral treaties with developing Inclusive Framework members when requested to, so that their tax treaties cannot be abused • gives countries the right to tax profit that is currently taxed below the global minimum effective tax rate (global ETR) • global ETR is calculated on a jurisdictional basis • provides foreign de minimis revenue exclusion[64] • carve-out to accommodate tax incentives for substantial business activities[65]

Source: OECD (2021a).

60 New nexus rules extend taxing rights between jurisdictions (i.e. change the definition of permanent establishment) and change profit allocation.

61 The arm's length principle is defined in the OECD Model Tax Treaty, Art. 9 "Associated enterprises". The essential of the principle is that the profits of associated enterprises shall be determined under the fiction that the associated entity is a separate enterprise and that such an enterprise is independent from the rest of the group of which it is a part as well as from any other person. It means that conditions are made or imposed between the two associated enterprises in their commercial or financial relations do not differ from those which would be made between independent enterprises.

62 Residual profit meaning is the excess of aggregate profits of MNE over its total routine earnings, which were disbursed to the routine entities in the MNE group.

63 Under this system, the parent entity of an MNE located in a Member State has the obligation to apply the IIR to its share of top-up tax relating to any entity of the group that is low-taxed, whether this is located within or outside the Union. The IIR ensures that the MNE in a given jurisdiction is not low-taxed i.e. that the effective tax rate is 15 %. The UTPR should act as a backstop to the IIR through a reallocation of any residual amount of top-up tax in cases where not the entire amount of top-up tax relating to low-taxed entities could be collected by parent entities through the application of the IIR.

64 De minimis revenue exclusion is used if profits of the MNE in a jurisdiction are below EUR1 million and revenues below EUR10 million. As a result, the top-up tax of the MNE in this jurisdiction is deemed to be zero for GloBE purposes, even if its ETR is below the minimum tax rate in that jurisdiction.

65 It will provide a formulaic substance-based income exclusion.

Table 14: The key elements of the OECD's two-pillar solution – Pillar I.

Key elements	OECD Pillar I.
Scope	In-scope MNEs are those with global turnover above EUR20 billion and profitability above 10% Extractives and Regulated Financial Services are excluded.
Nexus	The new nexus permits an allocation to market jurisdiction when the in-scope MNE derives at least EUR1 million in revenue from that jurisdiction, or at least EUR250,000 for smaller jurisdictions with GDP lower than EUR40 billion. Taxing rights over 25% of the residual profit (defined as profit in excess of 10% of revenue) of the in-scope MNEs would be reallocated to the market jurisdictions
Revenue sourcing	Revenue will be sourced to the end market jurisdictions where goods or services are used or consumed. Detailed source rules for specific categories of transactions will be developed.
Tax base determination	The relevant measure of profit or loss of the in-scope MNE will be determined by reference to financial accounting income, with a small number of adjustments. Losses will be carried forward.
Marketing and distribution profits safe harbour	Where the residual profits of an in-scope MNE are already taxed in a market jurisdiction, a marketing and distribution profits safe harbour will cap the residual profits allocated to the market jurisdiction through Amount A (i.e., 25% of residual profit). Design of the safe harbour will be developed.
Elimination of double taxation	Double taxation of profit allocated to market jurisdictions will be relieved using either the exemption or credit method.
Tax certainty	In-scope MNEs will benefit from dispute prevention and resolution mechanisms, which will avoid double taxation for Amount A, including all issues related to Amount A (e.g., transfer pricing and business profits disputes), in a mandatory and binding manner.
Amount B	The simplified application of the arm's length principle to in-country baseline marketing and distribution activities will streamlined, with a particular focus on the needs of low capacity countries. This work will be completed by the end of 2022
Administration	The tax compliance will be streamlined (including filing obligations) and allow in-scope MNEs to manage the process through a single entity.
Unilateral measures	The Multilateral Convention (MLC) will require all parties to remove all Digital Services Taxes and other relevant similar measures with respect to all companies, and to commit not to introduce such measures in the future.
Implementation	The MLC through which Amount A is implemented will be developed and opened for signature in 2022, with Amount A coming into effect in 2023.

Source: OECD (2021a).

4.4.2 Link to European policy

At the EU level, the EC previous proposals (i.e. the DST and the SDP proposal) and newly announced proposal on the implementation of the re-allocation of taxing rights to market jurisdictions are consistent with the Digital Single Market strategy (European Commission, 2015b) and follow both the Communication of the Commission "A Fair and Efficient Tax System in the European Union for the Digital Single Market" (European Commission, 2017a) adopted on 21 September 2017 and the Communication of the Commission "Time to establish a modern, fair and efficient taxation standard for the digital economy" published on 21 March 2018 (European Commission, 2018f). A fair and competitive digital economy is also one of three strategic priority areas in the agenda on "Shaping Europe's Digital Future" (European Commission, 2020e). The EU initiatives in the area of digital taxation should be consistent with the Digital Service Act package (European Commission, 2020f) and the Commission's digital strategy to ensure a fair and competitive digital economy, as announced in the Communication "Shaping Europe's Digital Future". Digital taxation is also covered in a newly adopted Tax Package of 15 July 2020 (European Commission, 2020g), namely as a reform of the corporate tax system to fit an increasingly digitalised economy, where a minimum level of effective taxation of business profits is secured. The upcoming European Commission proposal should be also consistent with this Tax Package and its Action plan for fair and simple taxation supporting the recovery from the economic effects of the COVID-19 pandemic.

The digital-tax solution based on the concept of the re-allocation of taxing rights and the simplified application of the arm's length principle to in-country baseline marketing and distribution activities could be considered a genuine basis for an EU own resource, as revenues from the taxation of the digital economy have a direct link to EU policies (High Level Group on Own Resource, 2016).

Another connection as an own resource with EU policy can be found in the new EU budget itself, as it allocates a great deal of resources to digitalisation of EU Member States. Specifically, 20% of RRF funds should be allocated to digitalisation as well as EUR132.8bn in MFF. Therefore, through the digital taxation via re-allocation of profits paid by companies with no physical presence on EU territory but using the European digital infrastructure, its development and further improvement can be financed, namely in these EU Member States with limited capacities to develop and implement the digital transition. Thus, using tax revenues from the re-allocation of profits as an own resource with the aim of financing projects to support the digital transition in these EU Member States yields benefits for the whole EU, as it supports a single digital market.

From a general point of view, the digital taxation via re-allocation of profits can increase the coherence of EU budget policies.

4.4.3 Sectoral co-benefits and steering effects

As the global agreement to the two-pillar solution was reached, positive co-benefits can be expected from digital taxation (i.e. relocation of profit to market jurisdictions). It is assumed that the global agreement of the OECD rules (particularly those from the Pillar I.) will improve tax equity, as jurisdictions will receive a new taxing right resulting in a fairer allocation of taxing rights and distribution of tax revenues between sovereign states, as demonstrated by Gadžo (2018), Arnold and McIntyre (2002), European Commission (2018g) and OECD (2021a). Moreover, a level playing field will be created for firms worldwide.

Another potential benefit is the decrease of profit shifting, as effective tax rate differentials between MNEs operating in different jurisdictions will decrease (OECD, 2020c). Furthermore, as stated by OECD (2020c and 2021a), Ludwig et al. (2019), and Olbert and Spengel (2019), a global agreement will

increase tax and legal certainty, as it eliminates the unilaterally introduced digital taxes and different tax positions of MNE operating in digital sectors (i.e. eliminating a distortion for MNE within the scope of taxation in states levying a digital services tax versus MNEs out of the scope of taxation in the majority of states not levying a digital tax). The removal and standstill of the current digital taxes and similar measures was agreed via members of the OECD/Inclusive Framework (i.e. 137 countries).

Finally, the introduction of a new nexus rule which is not based on the physical presence but on a preferable destination-based approach (Devereux and Vella 2018; Schön, 2018) would improve current corporate tax systems to reflect the current economic reality (i.e. fairer corporate taxation system) and support the long-term sustainability of the corporate tax system (OECD, 2020c).

4.4.4 Attributability of revenues to Member States

According to the new nexus rule based on the revenue-based allocation rule and the definition of in-scope MNEs, the re-allocation of 25% of residual profit to the market jurisdictions will be effective globally only for approx. 100 biggest and most profitable MNEs. Moreover, the re-allocation will be effective only if the in-scope MNE derives at least EUR1 million in revenue from that jurisdiction, or at least EUR250,000 for smaller jurisdictions with GDP lower than EUR40 billion. This approach ensures a contingent on successful implementation and re-allocation of 25% share of residual profit. In addition, revenue newly sourced to the market jurisdictions can be easily attributed to Member States if they are end-market jurisdictions.

4.4.5 Enforceability/implementability

The global agreement on the OECD's rules which are "a common approach" requires a uniform implementation of those rules in the EU to ensure a common minimum level of protection in the internal market. This can only be achieved if legislation is enacted centrally and transposed in a uniform fashion. The example of "digital tax-solution" or "a global tax reform" related to the increasing globalisation and digitalisation of the economy is a suitable example. The upcoming European Commission proposal for a re-allocation of profits shall be based on the global agreement. However, no newly enacted Digital Service Taxes or other relevant similar measures will be imposed on any company, as the members of the Inclusive Framework/OECD agreed the global coordinated approach instead of the unilateral actions.

4.4.6 Transparency

The introduction of a digital tax-solution based on the OECD's rules via uniform implementation at the EU level would bring greater transparency and effectiveness in corporate taxation. It ensures a fairer distribution of profits and taxing rights among countries.

As regard to the exchange of information on taxation of MNEs which improves tax transparency, on 22 March 2021, the Council of the European Union adopted new rules revising the Directive on administrative cooperation in the field of taxation (Council Directive 2011/16/EU or DAC) to extend the EU tax transparency rules reporting by digital platforms on their sellers (hereinafter DAC7). Based on the DAC7, EU member states are to automatically exchange information about cross-border revenues generated by sellers on digital platforms, whether the platform is located in the EU or not. The new rules will apply as of 1 January 2023.

Transparency and tangibility of the agreed OECD's rules as regard to the digital-tax solution for citizens can be expected to be limited. The digital-tax solution itself is a relatively complex mechanism: a revenue-and profitability-based threshold, revenue-based allocation key, safe harbour application and

profit margin-based approach which are used for digital-tax solution can hinder transparency. Further, it is expected that the citizens as end consumers would be involved indirectly via price increases. However, the empirical research of tax incidence in the case of highly digitalised companies is still limited. Therefore, there is a considerable degree of uncertainty (Belleflamme and Toulemonde, 2016; Kind and Koethenbuerger, 2017; Bibler et al., 2019) as to how a digital-tax solution will be visible to citizens. However, as an own resource, it could be very transparent. A uniform call rate 15% to the share of residual profits of the MNEs re-allocated to Member States would be transferred to the EU budget (European Commission, 2021b).

4.4.7 Administrative complexity

The considerable complexity of the digital-tax solution is a point of criticism as it will require action across domestic law and public international law. It is essential to implement procedures to administer, levy and collect the amount A (i.e. re-allocation of 25% of residual profit defined as profit in excess of 10% of revenue to market jurisdictions) based on the new nexus rule. It will cover namely foreign entities with the new obligation to pay a tax in the market jurisdiction without their physical presence in that country. Administrative and compliance costs are expected very high. The aim is to limit these costs to a minimum. Therefore, the simplified administration process involves a centralised computation of amount A and related compliance activities (i.e. a payment and tax liability related to the amount A, a self-assessment tax return and its submission to the lead tax administration[66]) a single entity (i.e. usually an ultimate parent entity which is also required for Country by Country (CbCR) reporting). Moreover, to facilitate the procedural aspects the MLC will contain the rules necessary to determine and allocate the amount A and eliminate double taxation, as well as the simplified administration process, the exchange of information process and the process for dispute prevention and resolution in a mandatory and binding manner between all jurisdictions. This new innovative approach/tool will remove tax treaty obstacles to the implementation of the agreed key elements of Pillar I.

However, the digital-tax solution based on the OECD's rules uses a new nexus rule, new mechanism of tax base determination, segmentation, safe harbour and etc., which needs the establishment of legal and technical processes for the tax administration and tax collection. Furthermore, additional administrative costs will also result from using the newly received tax revenues as own resource (particularly 15% share of residual profits of in-scope MNEs reallocated to Member States); these administrative costs, however, should be rather low, as an implementation system would be used a transfer system implying the transfer of revenues collected by Member States to the EU budget.

4.4.8 Environmental sustainability

The digital tax-solution based on the agreed OECD's rules should not have any direct environmental impact and are not able to increase environmental sustainability.

4.4.9 Economic performance

The impact assessment was not newly prepared to estimate the impact of the two-pillar solution. In essence, therefore, we can take over the estimates presented in the previous impact assessment produced by the OECD in consultation with the Inclusive Framework in 2020.

As regards the impact on economic growth, a global consensus-based solution as suggested by the OECD in 2020 would cause an increase in the cost of capital and a decrease in economic growth:

[66] Lead tax administration will be responsible for the Exchange of the tax return with other tax administrations.

specifically, it is assumed that the change in the investment rate by -0.04% would be translated into a reduction in GDP of around 0.07% over a medium- to long-term horizon (OECD, 2020c). However, the subsequent effects should outweigh the above-mentioned negative effect. Specifically, it is assumed that the reduction in the effective tax rate (ETR) differentials (mainly due to a global minimum tax) should reduce profit shifting, resulting in the improvement of the global capital allocation across jurisdictions (OECD, 2020c).

Furthermore, based on the updates in 2021 and the global agreement of two-pillar solution, the OECD (2021a) assumes that under Pilar I. taxing rights on more than USD125 billion of profit are expected to be re-allocated to market jurisdictions. Further, there are no assumptions on how many profits from this amount will be re-allocated to the EU market jurisdictions. However, under the Commission's communication to the European Parliament as regard to the Next generation of own resources for the EU Budget (European Commission, 2021a), there it is assumed that revenues for the EU budget could amount to up to EUR2.5 to EUR4 billion per year[67].

4.4.10 Fairness/equity, social fairness

The principle of ability to pay is a dominant measure of equity for tax policy purposes used in many countries (Schön, 2009). From that perspective, taxable income should be defined as broadly as possible. Based on the new nexus, an in-scope MNE shall re-allocate 25% of residual profits to market jurisdictions if the in-scope MNE derives at least EUR1 million in revenues from that jurisdiction or at least EUR250,000 in case of the smaller jurisdictions with GDP lower than EUR40 billion. Moreover, horizontal equity is not violated. A new nexus for the digital-tax solution is designed via profit margin-based approach (i.e. 25% of residual profit defined as profit excess of 10% of revenue). This approach takes into account loss-making companies. Moreover, in case of loss, it can be carried forward. However, ring-fencing still arises as enterprises performing the same activities are not being taxed in the same manner (i.e. enterprises below the turnover- and profitability-based threshold: turnover EUR20 billion and 10% profitability, are excluded from taxation), as Simmonds (2019) and Schön (2018) state.

The international dimension of tax equity is concerned with a fair allocation of taxing rights and tax revenues between sovereign states (Gadžo, 2018; Arnold and McIntyre, 2002), which will be improved via the global agreement. As more market jurisdictions would receive a new taxing right.

Furthermore, it can be assumed that intensity of the re-allocation to the market jurisdictions via in-scope MNEs would differ significantly from one Member State to the other, as it also relates to the level of income of end-consumers and available digital technologies, and to the high levels of digitalisation accompanied with the access to internet. Therefore, newly received tax revenues in relation to GDP and taxable in each Member State (a market jurisdiction) would be distributed rather unevenly between them (currently it is assumed a transfer, via 15% uniform rate to the share of residual profits of in-scope MNEs reallocated to Member States, to the EU budget). Therefore, the potential disproportionate financial burdens imposed by this tax as own new resource on individual Member States should be mitigated by certain correction mechanisms.

4.4.11 Social sustainability/inclusiveness

In theory, the burden of additional company taxes could fall on MNE shareholders in the form of lower dividends, on workers in the form of lower wages, and on consumers in the form of higher prices. The

[67] This assumption is based on a series of broad assumptions and cannot be further qualified also due to data limitation issues as regards the potential in-scope MNEs under the global agreement.

tax incidence depends on the specific circumstances and a range of factors including supply and demand elasticities, as well as market structure (Fullerton and Metcalf, 2002; Auerbach, 2006). Gravelle (2013) and Clausing (2012 and 2013) add that according to recent empirical research the shareholders bear a larger share of company taxes than it was previously assumed. However, as regards highly digitalised companies operating in multi-faceted markets, empirical research of tax incidence is still limited and therefore there is a considerable degree of uncertainty (Belleflamme and Toulemonde, 2016; Kind and Koethenbuerger, 2017; Bibler et al., 2019).

4.4.12 Fiscal integration

Despite ongoing multilateral negotiations, several European countries have decided to introduce unilateral digital taxation in the last few years. Currently six European Member States have implemented some form of a digital services tax: Austria, Hungary, France, Italy, Poland and Spain. However, those national digital service taxes must be abolished based on the global agreement to prevent harmful trade disputes. Further, a uniform implementation of the global agreement in the EU would contribute to fiscal integration in the EU. In addition, the newly received revenues can resolve some issues related to fiscal equivalence and fiscal coherence. By strengthening the link between EU expenditures (at least 20% RRF should be allocated to digital change) and revenues, coherence within the EU budget is improved.

4.4.13 Interference with national tax systems

Currently there are six Member States with an effective DST as a unilateral and interim solution in the EU, which must be abolished, as it was agreed via the global agreement. Therefore, the consideration of a uniform call rate (15%) to the share of residual profits of MNEs re-allocated to Member States (market jurisdictions) as a new own resource will not interfere with national tax systems of Member States and will not create vertical tax competition as well as conflicts regarding the distribution of revenues.

4.4.14 Predictability/short-term revenue stability

Currently, we are witnesses to how digital technology is transforming the global economy and society. The internet is a key driver of digital transformation in consumption behaviour and experience (Oxford Economics and Huawei, 2017). We are at the beginning of digitalisation and entering into the "Intelligence Era"[68] which can be considered as a new engine for digitalisation and accelerated and sustained economic growth (Oxford Economics and Huawei, 2017).

Furthermore, considering that 1/4 of the worldwide worth of the digital economy estimated by Oxford Economics and Huawei, 2017 at amount USD11.5 trillion (15.5% of global GDP in 2016) is produced in the European Economic Area, with the assumption of massive growth during the next decade, it can be assumed that revenues resulting from the digital taxation will be stable, without significant fluctuations.

4.4.15 Sufficiency/fiscal sustainability

Based on the updates in 2021 and the global agreement, it is assumed that under Pillar I., taxing rights on more than USD125 billion of profit are expected to be re-allocated annually to market jurisdictions, although it is not known how many profits from this amount relate to the EU market jurisdictions

[68] Intelligence era means that companies effectively use data assets to reach desired outcomes faster using next-generation technologies and with minimum level of risk or lower risk.

(OECD, 2021a). However, under the Commission's communication to the European Parliament as regard to the Next generation of own resources for the EU Budget (European Commission , 2021a), there it is assumed that revenues for the EU budget could amount to up to EUR2.5 to 4 billion per year[69].

Further, globally about approx. 100 of the biggest and most profitable MNEs are responsible for this re-allocation, although only 23 of them are situated in the EU.[70] Based on the assumption of the OECD (2021a), the expanding of the in-scope MNEs would not necessarily increase the amount of re-allocated profit to market jurisdictions. However, it would add complexity as well as increase the administrative and compliance costs.

4.4.16 Legal and implementation aspects

The digital-tax solution (via re-allocation of profits) according to the global agreement and an announced tax-based own resources have to comply with the EU's tax competences, addressed mainly in Articles 113 or/and 115 of the TFEU (referring to the harmonisation of direct and the approximation of indirect taxes). The decision to use these revenues would have to be based on a unanimous own resource decision according to Art. 311 TFEU (Schratzenstaller and Krenek, 2019b).

As the global agreement was reached, the OECD's members and the members of the Inclusive Framework on BEPS (i.e. all EU Member States except of Cyprus) agreed with the implementation of agreed rules. There is an extreme political urgency to support an effective and swift coordinated implementation of agreed OECD's rules to eliminate the risk of fragmenting the internal market and distorting its proper functioning. The preferred vehicle, which would ensure a uniform implementation of the agreed rules and ensure a common minimum level of protection in the internal market is the EU directive through Article 115 of the TFEU. A similar approach was taken for the Anti-Tax Avoidance Directive (ATAD) when the anti-BEPS measures were introduced at the EU level.

The Union may adopt these kind rules, in accordance with the principle of subsidiarity (art. 5(3) of the TFEU) and the principle of proportionality (art. 5(4) of the TFEU).

4.4.17 Benefits from introducing a new own resource based on "digital tax solution" via reallocation of profits

This section summaries the key benefits from assigning the European Commission´s directive on re-allocation of profits as a new concept of digital taxation (particularly, the relocation of 25% of the residual profit of the in-scope MNEs to the market jurisdictions) and as new own resources to the EU. It is important to distinguish between three aspects: the justification for implementing the digital-tax solution at the EU level based on EU-wide cooperation (as opposed to unilateral introduction at Member State level); the co-benefits and steering effects of the digital-tax solution as such; and the benefits generated by using the revenues of the digital-tax solution as own resource for the EU budget. In addition, the specific link to EU policies is relevant.

The suggested own resource based on the re-allocation of profits (as a digital-tax solution) is connected to important EU policies and strategies related digital economy which are cornerstones of sustainable growth and development as well as resilience in Europe. The introduction of digital-tax solution would also contribute to fair and efficient corporate taxation on the Single Digital Market. In addition, it can

[69] This assumption is based on a series of broad assumptions and cannot be further qualified also due to data limitation issues as regards the potential in-scope MNEs under the global agreement.

[70] For more details see Lorraine Eden (2021). Taxing the Top 100 – Part 1: Who´s In, Who´s Out?". Available at: https://news.bloombergtax.com/daily-tax-report/taxing-the-top-100-part-1-whos-in-whos-out.

increase the coherence of EU budget policies. There is a clear sound justification for a digital-tax solution to be introduced based on an EU coordinated approach as a global agreement was reached and all EU Member States (except of Cyprus) agreed with the global agreement. The digital-tax solution would contribute to fiscal integration.

There are various co-benefits and steering effects connected with a global agreement, which will be implemented by the EU Member States. It would generate additional tax revenues, improve the corporate tax system and support its long-term sustainability, and improve tax equity via creating a level playing field and fairer allocation of taxing rights. It also increases tax and legal certainty, as it abolishes the unilaterally introduced digital taxes.

The administrative complexity is expected to be very high; however, simplified administrative processes are introduced and most procedural aspects are facilitated via MLC. Administrative costs related to the use of the proceeds as own resource should be low, as an implementation system a transfer system would be used, implying the transfer of revenues collected by Member States to the EU budget.

Although the design of this new own resource is not known yet (currently only known form is a 15% share of residual profit of in-scope MNEs reallocated to Member States), revenues from the partial transfer of the re-allocated profits to the EU budget can contribute to the attainment of EU digital change, and it strengthens various areas of the single market. Existing revenue estimates suggest that annual revenues from a digital-tax solution (i.e. the relocation of 25% of the residual profit of the in-scope MNEs to the market jurisdictions and its partial transfer via 15% uniform rate to the EU budget) can help to service debt incurred for NGEU (European Commission, 2021a). It is assumed that revenues for the EU budget could amount to up to EUR2.5 to 4 billion per year (European Commission, 2021a). Moreover, as 20% of the Recovery and Resilience Facility shall be allocated to digitalisation; the revenues from the digital-tax solution via re-allocation of profits paid by companies with no physical presence in the EU but using European digital infrastructure can finance its development and further improvement based on the pay as you use principle. In addition, in face of limited capacities in some Member States to develop and implement the digital transition, using revenues from a re-allocation of profits as own resource financing inter alia projects to support the digital transition in these Member States yields benefits for the whole EU, as it contributes to the development and further improvement of digital transition and a single digital market.

However, based on the different intensity of the re-allocation to the market jurisdictions via in-scope MNEs between Member States, the newly received tax revenues in relation to GDP and taxable in each Member State (a market jurisdiction) would be distributed rather unevenly between them; therefore, the potential disproportionate financial burdens imposed by this tax as own new resource on individual Member States should be mitigated by certain correction mechanisms.

4.4.18 Key points

- A digital tax solution via a re-allocation of profits has a strong link to EU policy:
    - 20% of RRF should be allocated to digitalisation, therefore there is a clear link between a re-allocation of profits based on the global agreement as an own resource and EU policy
    - The introduction of a re-allocation of profits based on the global agreement would contribute to fairer and efficient corporate taxation on the Single Digital Market

  - A tax paid by companies with no physical presence in the EU territory but using the European digital infrastructure can finance its development and further improvement based on the pay as you use principle.
  - The digital-tax solution in the form of re-allocation of profits can increase coherence of EU budget policies.
- Co-benefits and steering effects connected with the global agreement:
  - The digital-tax solution based on the global agreement will improve the current corporate tax system, supporting its long-term sustainability and improving tax equity.
  - It increases tax and legal certainty, as it abolishes the unilaterally introduced digital taxes.
  - It would ensure a level playing field and fairer allocation of taxing rights.
- Revenues from the digital-tax solution based on the global agreement are attributable to EU Member States. Thus, own resource based on the reallocated profits could not help to overcome Member States' net position thinking.
- The digital-tax solution via a re-allocation of profits contributes to efficient enforceability and implementability. The coordinated approach based on the global agreement is preferable as it is able to ensure a more effective and efficient solution compared to unilateral uncoordinated national solutions, which shall be abolished via the global agreement
- The digital-tax solution based on the global agreement brings greater transparency into corporate taxation:
  - The exchange of information on taxation of MNEs in scope of taxation, their revenues, profits and other requirements would ensure more certainty about where taxes are paid and to what extent they are paid.
  - The transparency for EU citizens would be lower due to the complexity of the tax design. It may be visible if the tax burden is shifted onto the consumers, however, the research in that area is still limited.
- The administrative complexity is expected very high due to the complexity of tax design based on the global agreement. However, administrative costs related with own resource should be low. Based on the implementation system, revenues collected by Member States would be transferred to the EU budget.
- The digital-tax solution based on the global agreement should not have any direct environmental impact and is not able to improve environmental sustainability.
- Internationally coordinated approach based on the global agreement would improve fairness and equity via a fairer allocation of taxing rights and tax revenues between sovereign states.
- There are theoretical and practical aspects of social sustainability:
  - In theory the burden of additional company taxes could fall on MNE shareholders in the form of lower dividends, on workers in the form of lower wages, and on consumers in the form of higher prices.
  - In practice the tax incidence can be split between these categories in proportions depending on specific circumstances and a range of factors including supply and demand elasticities, as well as market structure.
- The digital-tax solution via a re-allocation of profits can contribute to fiscal integration between Member States.
- The criterion of non-interference is not violated.
- Based on the updates in 2021 and the global agreement, it is assumed that under Pillar I., taxing rights on more than USD125 billion of profit are expected to be re-allocated annually to market jurisdictions, although it is not known how many profits from that amount relate to the EU

market jurisdictions (OECD, 2021a). However, it is assumed that revenues for the EU budget could amount to up to EUR2.5 to EUR4 billion per year (European Commission, 2021a).

5 ASSESSMENT OF THE SECOND BASKET OF NEW OWN RESOURCES ACCORDING TO THE IIA

This section provides an assessment of the second basket of new own resources to be proposed by the European Commission by the end of 2023 and to be introduced by 2026. Due to the lack of concrete design and implementation details, the following considerations focus on general aspects of the options envisaged for the second basket of new own resources, namely a new own resource based on the taxation of financial transactions and another one based on the taxation of the corporate sector.

5.1 Own resource based on the taxation of financial transactions

5.1.1 Brief description

The idea of a financial transaction tax (FTT) is not new. While early proposals focused on currency transactions, the policy debate, mainly inspired by the recent financial and economic crisis, has shifted towards a general FTT levying a uniform tax rate on all financial transactions since the end of the 2000s (Schulmeister et al., 2008). Taxation of the financial sector has been under discussion at the EU level since 2011, when the European Commission (2011b) first proposed an FTT at EU level aiming at stabilising the financial sector and increasing equity in taxation. After the FTT proposal had been rejected by the majority of EU Member States, eleven EU Member States[71] started to negotiate its introduction based on the enhanced cooperation procedure (hereinafter FTT proposal under enhanced cooperation, see European Commission, 2013a).

As in the subsequent years not much progress was achieved, the German Finance Minister issued a revised FTT proposal under enhanced cooperation (hereinafter German FTT proposal) in 2019. According to the IIA Roadmap, the Commission will issue an FTT proposal by June 2024 with a view to its implementation by the beginning of 2026.

Various options to tax the financial sector have been examined since 2010. These analyses resulted in the reflection that the FTT could serve as one option for tax-based own resources (HLGOR, 2016; European Commission, 2012 and 2017b; Schratzenstaller et al., 2017; Solilova, Nerudova and Dobranschi, 2017). Table 15 summarises the key features of all Commission FTT proposals and the German FTT proposal.

[71] Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Spain, Slovakia and Slovenia (EU11). Estonia has not been involved in the FTT discussion since March 2016.

Table 15: FTT proposals (EC, 2013a and GFM, 2019) – key elements

	FTT Proposal (European Commission, 2011b)	FTT Proposal under Enhanced Cooperation (European Commission, 2013a)	German FTT proposal (GFM, 2019)
Area	EU28	EU11(10)	EU10
System of taxation	Triple A approach – all markets, all instruments and all financial sector actors, based on the residence principle. Tax is payable by each financial institution involved in transaction.	Triple A approach based on the residence and issuance principle. Tax is payable at each level of intermediation.	Only acquisition of ownership of listed shares, admitted to trading on an EU trading venue or similar third country venue, if issuing company has a market capitalisation that exceeds EUR1 billion. Including a physical settlement of derivatives, the exchange, redemption or conversion of a debt instrument, and the acquisition by means of an exchange of shares.
Nexus (right to tax) based on:			
Residency/deemed residency of counterparties[72]	Yes	Yes	No
Residency of issuer[73]	Yes	Yes	Yes
Strengthened issuance principle[74]	No	Yes	Yes
Location of Transaction[75]	Yes	No	No
Tax rate:			
Equities	0.2%	Minimum 0.1%	Minimum 0.2%

	FTT Proposal (European Commission, 2011b)	FTT Proposal under Enhanced Cooperation (European Commission, 2013b)	German FTT proposal (GFM, 2019)
Tax rate (continued):			
Debt (bonds)	0.1%	Minimum 0.1%	Out of scope
Derivatives	0.01%	Minimum 0.01%	Out of scope

72 Nexus is based on residency/deemed residency of counterparties – residency or deemed residency of counterparty in the FTT jurisdiction.

73 Nexus is based on the residency of issuer, which must be in the FTT jurisdiction.

74 Nexus is based on the issuance principle, particularly if none of the parties to a financial transaction is established in the FTT jurisdiction, but the financial transaction concerns a **financial instrument issued in the FTT jurisdiction**, then regarding the issuance principle, a taxable event exists when the asset or the underlying asset to the financial transaction is issued in an EU Member State and therefore financial institution involved in the financial transaction is taxed **in that state of issuance of this instrument/asset or underlying asset**.

75 Nexus is based on the location of a financial transaction – **FTT jurisdiction**.

	FTT Proposal (European Commission, 2011b)	FTT Proposal under Enhanced Cooperation (European Commission, 2013b)	German FTT proposal (GFM, 2019)
Value	Consideration paid (standard transaction) Notional value (derivatives)	Consideration paid (standard transaction) Notional value (derivatives) Market value, if not at arm's length	Consideration paid or market value, if not at arm's length (and in case of the acquisition of financial instrument arising from the physical settlement of derivatives)
Taxpayer	Financial institution	Financial institution	Financial institution
Mutualisation mechanism	No	No	Under the mutualisation mechanism, FTT revenue generated will be allocated between the participating Member States so as to ensure that all participating jurisdictions reach a guaranteed minimum annual revenue of EUR20 million.
OTC subject to tax?	Yes	Yes	Yes
Tax on original issuance (primary market transactions)?	No	No	No
Tax on spot currency transactions?	No	No	No
Tax on secondary markets?	Yes	Yes	Yes
Market makers included?	Yes	Yes	No
Government debt included?	Yes	No	No
Financial transactions without any involvement of a financial institution included?	No	No	No
Financial transactions with the ECB or central banks of the EU MS included?	No	No	No

Source: European Commission (2011b and 2013a), Burman et al. (2016), GFM (2019), KPMG (2021), own representation.

5.1.2 Link to European policy

The FTT is linked to European policy. It aims at ensuring a more coherent tax framework, avoiding a distortion of competition and eliminating a source of fragmentation of the single market (European Commission, 2011c-h). Furthermore, there is a close link between the existence of the single market and the development of the highly mobile and integrated financial industry in Europe, with highly speculative and potentially destabilising short-term financial transactions which could again lead to financial and economic crises (High Level Group on Own Resources, 2016; Nerudova, Schratzenstaller and Solilova, 2017).

5.1.3 Sectoral co-benefits and steering effects

The most important steering effect intended with an EU-wide broad-based general FTT is a reduction of incentives for high frequency trading, short-term trading and speculation trading, which are considered to have a destabilising and harmful effect (Miller and Tyger, 2020; Weldon, 2012; Westerhoff,2003; Palley, 1999; Summers and Summers, 1989). However, empirical evidence on the ability of an FTT to correct financial market failures is not clear-cut (Bijlsma et al., 2011; Raciborski et al., 2012; Pekanov and Schratzenstaller, 2019; Miller and Tyger, 2020).

An EU-wide wide broad-based general FTT can improve the functioning of the internal market. It can also reduce the fragmentation of the single market and eliminate distortions of competition through the abolition or the harmonisation of existing national FTTs. Solilova, Nerudova and Dobranschi (2017) further state that the FTT can help to decrease some of the existing sustainability gaps in European taxation. For example, an FTT can help to establish fair tax competition via harmonisation of tax bases and tax rates, so that the market participants would receive symmetrical information about the effective tax rate. Moreover, the closing of existing loopholes between the different national FTT systems via harmonisation of rules could decrease tax fraud.

Potential steering effects and benefits, particularly with regard to stabilising financial markets, cannot be achieved sufficiently with national FTTs introduced unilaterally, as tax rates would be inefficiently low due to negative cross-border externalities resulting from the cross-border nature of financial trading, and also because of potential downward tax competition. Therefore, an FTT should be introduced based on international or at least EU-wide cooperation.

5.1.4 Attributability of revenues to Member States

Revenues from the FTT cannot be easily attributed to the individual EU Member States due to the cross-border character of taxable financial transactions, potential negative externalities of highly speculative financial transactions, the high mobility of tax bases and the use of the taxable financial transactions by non-resident actors (Nerudova, Schratzenstaller and Solilova, 2017). The impossibility of the exact national attribution of the FTT represents the main argument in favour of assigning the FTT to the EU as new own resource (Schratzenstaller, 2013; Nerudova, Schratzenstaller and Solilova, 2017; Krenek and Schratzenstaller, 2019; Fuest and Pisani-Ferry, 2020).

5.1.5 Enforceability/implementability

A unilateral uncoordinated introduction of the FTT at the national level would lead to limited effectiveness of such a tax (Schäfer, 2015), due to the cross-border nature of taxable activities and high mobility of the tax bases (HLGOR, 2016; Nerudova, Schratzenstaller and Solilova, 2017). A coordinated implementation of an EU-wide broad-based general FTT would reduce tax avoidance and fragmentation of the internal market. Furthermore, it would ensure more effective and efficient enforceability of the taxation of financial transactions, and eliminate the erosion of tax revenues (i.e. trade migration and massive relocation of financial activity to non- or low-tax jurisdictions would be eliminated via broader geographic coverage of the tax) (HLGOR, 2016; Nerudova, Schratzenstaller and Solilova, 2017; Solilova, Nerudova and Dobranschi, 2017; Solilova, Nerudova and Litzman, 2019; Pekanov and Schratzenstaller, 2019). In the case of the introduction of the FTT based on Enhanced Cooperation, it could serve as the first step towards an EU-wide broad-based general FTT implementation.

5.1.6 Transparency

An FTT probably would not be very visible and tangible for citizens, as only a small share of the population is involved in financial transactions. The increased costs of capital may increase the prices of consumer goods in the longer run, thus affecting all consumers indirectly (Miller and Tyger, 2020). However, any indirect effect of an FTT on prices should be limited for low tax rates, and it would not be visible and transparent for consumers.

5.1.7 Administrative complexity

Only 3 EU Member States (Italy, France, and Spain) levying a rather broad-based FTT have already established legal and technical processes for tax administration and tax collection, so that the additional administrative costs related with the own resource may be assumed to be lower compared to the other Member States not applying an FTT. Therefore, the establishment of an EU-wide broad-based general FTT as own resource would be associated with high administrative costs and complexity. However, as almost all financial transactions are carried out electronically, it can be assumed that the setting-up cost of the relevant IT systems for the tax administration and collection would remain limited. For example, the European Commission (2013b) estimates annual costs of about EUR50 to EUR150 million for the EU11 in the case of central implementation.

5.1.8 Environmental sustainability

The FTT should not have any direct environmental impact, and is not able to increase environmental sustainability.

5.1.9 Economic performance

A broad-based FTT would raise both explicit and implicit transaction costs, resulting in increased cost of capital and borrowing, reducing owners' returns to capital, potentially decreasing trading volume and lowering asset prices (Miller and Tyger, 2020; Lo, Mamaysky and Wang, 2004; Amihud and Mendelson, 1992; AIMA, 2012). A lower trading volume would negatively affect the revenue raised by the tax. A significant reduction of the trading volume could also be caused by a trade relocation, substitution of the financial product or a massive relocation of financial activity to non-tax or low-tax jurisdictions (Solilova, Nerudova and Litzman, 2019). Therefore, global or at least EU-wide implementation is preferable. The risk of relocation depends mainly on the geographic coverage of the tax and its scope (wide range of financial products and markets affected) (Nerudova, Schratzenstaller and Solilova, 2017; Solilova, Nerudova and Dobranschi, 2017; Pekanov and Schratzenstaller, 2019). This kind of risk is lower the broader the geographic coverage of the tax and its scope.

In its impact assessment, the European Commission (2011b) estimated the macroeconomic costs of the FTT (based on the first Commission proposal in 2011) at long-run output losses of 0.2% to 0.3%. Based on the FTT proposal under enhanced cooperation, the European Commission (2013b) estimated that the net effect of introducing an FTT in the long run on the level of GDP would be in the range between –0.1 and 0.1 percentage points. Furthermore, the European Commission (2011b) states that negative market effects are expected to be minor due to the low tax rates at which the FTT is proposed.

Opponents of the FTT argue that the tax would have further negative economic effects. For example, Schwert and Senguin (1993), Matheson (2010) and Baltagi et al. (2006) warn that the increased transaction costs would have a significant impact on asset valuations, asset prices and the cost of capital. Further, they underline that trading volumes would significantly decline after introduction of the FTT, which can erode expected tax revenues. However, Schäfer and Karl (2012) argue that financial assets held for a long period, as well as long-term strategies of investment and financing, would be

much less affected by an FTT, as these are based on their fundamental characteristics and not for speculative purposes. The substantial body of empirical studies does not yield clear-cut results concerning the question of whether an FTT would increase volatility via increasing transaction costs. Green et al. (2000), Hau (2006), Pomeranets and Weaver (2011), and McCulloch and Pacillo (2011) show an increase of volatility, while other authors find a negative relationship between taxing transactions and volatility (Jones and Seguin, 1997; Liu and Zhu, 2009) or no effect (Baltagi et al., 2006; Roll, 1989; Saporta and Kan, 1997).

Another concern is the potential impact of an FTT on employment. The introduction of an FTT could in the long run result in a loss of jobs, with a detrimental impact on Member States if jobs are lost to other financial centres outside the EU. Nerudova and Solilova (2015) assume a decline both of the overall number of employed in the NACE sector K Financial and insurance activities and industry sectors linked to this sector, as well as of their share in overall employment in the long run. According to Schwabish (2004) the cascade effect of an FTT affecting the financial sector in New York amounts to USD2.5 billion in lost wages, costing 10,000 to 11,000 jobs, and job losses in other sectors, leading to overall employment losses of between 23,000 and 33,000 jobs. However, the European Commission (2013b) states that the potential labour market effect in financial centres depends on the business strategies of the institutions affected: for example, in France the introduction of the FTT had a positive effect on employment, in contrast to Italy.

5.1.10 Fairness/Equity

Increasing pressure regarding fairness aspects of taxation could lead to increasing pressure on policymakers to tax the financial sector. The taxation of financial transactions/services which are currently exempted from VAT would have positive equity effects between economic actors (HLGOR, 2016; European Commission, 2011b and 2013a; Pekanov and Schratzenstaller, 2019). Moreover, it could improve equity between economic actors as the financial sector is generally considered as under-taxed, which was underlined during the last global financial and economic crisis (GFC) 2007/2008 (Cannas et al., 2014).

Concerning horizontal equity (i.e. between EU Member States), the FTT may be regarded as unfair. Major financial centres, a large number of financial institutions and consequently a high volume of financial transactions, are concentrated in a limited number of EU Member States (HLGOR, 2016). Therefore, the FTT burden would be distributed unequally between EU Member States (see table 16). At the same time, the richer Member States would carry a higher burden.

5.1.11 Social sustainability/inclusiveness

An FTT could negatively affect final consumers through lower owners' returns to capital or through higher borrowing costs. Moreover, end consumers could be affected by the cascade effect of an FTT. As a result, the cost of hedging, the cost of capital and the price of finished goods could increase. Oxera (2011) highlights that the incidence of an FTT depends on the coverage of the tax, the nature of services' competition and price elasticities of demand and supply. Fullerton and Metcalf (2002) and Auerbach (2006) add that market structure is also a significant determinant of tax incidence. In the short run, the effect of an FTT will fall on those holding financial assets. In the long run, the tax will be borne by customers of the financial sector. However, the FTT would primarily fall on the wealthy, as they hold and trade financial assets most frequently (Miller and Tyger, 2020). Wolff (2012) stresses that the top 1% of U.S. households hold almost two thirds of all financial securities. Further, according to the microsimulation by Burman et al. (2016) 75% of the burden of a broad-based FTT would fall on taxpayers in the highest income quintile and more than 40% would fall on the top 1% in the US. In

addition, the authors find that an FTT of 0.1% imposes a tax burden of 0.5% of after-tax income for the lowest income group, compared to 5% of after-tax income for the top 1%. Hence, an FTT should be a highly progressive tax. Moreover, ordinary investors who do not make transactions very frequently would bear very small FTT charges in comparison to the other transaction costs like fees and commissions (Schulmeister et al., 2008; European Commission, 2011g), while an FTT would imply a proportionately higher burden on financial market participants that trade at very high speed (Pekanov and Schratzenstaller, 2019).

Table 16: Potential revenues from a Financial Transactions Tax, 2017

Member State	In million EUR	As percentage of GDP	In EUR per capita
	2017		
EU[1])	41,036.6	0.32	94.0
Belgium	1,404.8	0.32	123.7
Bulgaria	136.4	0.26	19.2
Czech Republic	439.1	0.23	41.5
Denmark	3,071.3	1.04	534.3
Germany	8,856.7	0.27	107.3
Ireland	580.0	0.19	121.2
Greece	346.2	0.20	32.1
Spain	2,904.6	0.25	62.4
France	8,850.0	0.39	132.5
Italy	3,542.4	0.20	58.5
Latvia	63.0	0.23	32.3
Lithuania	81.2	0.19	28.5
Luxembourg	1,022.9	1.80	1731.7
Hungary	304.4	0.24	31.1
Netherlands	3,508.5	0.48	205.4
Austria	1,133.8	0.31	129.2
Poland	1,067.8	0.23	28.1
Portugal	408.0	0.21	39.6
Romania	405.3	0.22	20.6
Slovakia	212.4	0.25	39.1
Finland	742.2	0.33	134.9
Sweden	1,955.6	0.41	195.7

Source: Pekanov and Schratzenstaller (2019), own calculations based on EUROSTAT. – 1) EU without Croatia, Cyprus, Estonia, Malta, Slovenia.

5.1.12 Fiscal integration

There is a long history of taxes on financial transactions in Europe with various forms of taxation, often as a stamp duty, capital duty or transfer tax on shares, bonds and other securities (see table 17 below for details). This means there is a wide range of exemptions in place, which contributes further to the fragmentation of the internal market. Currently only France (since 2012), Italy (since 2013) and Spain (since 2021) levy an FTT based on the proposal of the European Commission. A uniform EU-wide FTT would therefore contribute to fiscal integration in the EU.

5.1.13 Interference with national tax systems

As mentioned above, there are three Member States (France, Italy and Spain) with an FTT based on the Commission's FTT proposals. Table 18 shows the differences between the existing national FTTs and the current German FTT proposal. With regard to these three Member States, the introduction of an EU-wide broad-based general FTT as a new own resource would interfere with the national tax systems and create vertical tax competition, as well as conflicts regarding the allocation of revenues.

Additionally, a number of other Member States (see table 17) impose some kind of FTT, so that an EU-wide FTT would overlap somewhat with national taxation. To avoid double taxation, national FTTs would have to be abolished, and the respective Member States would have to give up the corresponding revenues. As only eleven Member States are affected and revenues from national FTTs are rather low, however, the extent of interference of an EU-wide FTT would be rather limited.

Table 17: Different forms of FTT taxes in EU Member States as of January 1, 2016

State	Type of the tax		
	Capital duty[1]	Transfer tax on shares, bonds and other securities	Stamp duty
Austria	-	-	0.8% - 2%[13]
Belgium	-	EUR2.7 per EUR1,000 worth of securities (max. EUR800 per transaction) EUR13.2 per EUR1,000 for capitalisation stock (max. EUR2,000 per transaction) EUR0.9 per EUR1,000 of bonds, max. EUR650 on the secondary market	EUR0.15[14]
Denmark	-	-	1.1%[15]
Ireland	-	-	1%[16]
Greece	1%	0.2%[2]	2.4% - 3.6%[17]
Spain	1%	-	1%[18]
France	EUR500	0.1% - 5%[3] 0.01%; 0.2%[4]	-
Italy	EUR200[6]	0.1%; 0.2%[5]	-
Cyprus	EUR105 plus 0.6%	0.15%[7]	0% - 0.2%[19]
Luxembourg	EUR75	-	-
Hungary	-	4%[8]	-
Malta	-	2%, 5%[9]	0.1%; 11%[20]
Netherlands	-	2-6%[10]	-
Poland	0.5%	1%[11]	0.5%[21]
Portugal	-	-	2-4%[22]
Finland	-	1.6%[12]	-
Sweden	-	-	1.5%, 4.25%[23]

Source: Primary source: IBFD Research platform, Database Taxes in Europe, European Tax Handbook 2016, secondary source Solilova, Nerudova and Dobranschi (2017). - 1) Usually levied on the increase of a company's capital. – 2) Tax is levied on the proceeds from the sale of shares listed on the Athens Exchange or any other reorganised stock exchange in the world. Tax is also levied on OTC stock lending. – 3) Tax is levied on the transfer of shares and acquisition of shares. – 4) FTT levied based on the proposal of the European Commission – a tax rate of 0.2% is applied on acquisitions of shares issued by French listed companies and a tax rate of 0.01% is applied on high frequency and automated trading operations, and on credit default swaps on bonds. – 5) FTT levied based on the proposal of the European Commission – tax on transfer of shares and financial instruments representing securities issued by Italian resident companies, and on transfers of other financial instruments representing those securities. – 6) Transfers of shares, bonds and similar securities based on contracts executed in Italy before a public notary are subject to a lump-sum registration tax of EUR200. – 7) Special fee is imposed on transactions that take place on the Cyprus Stock Exchange or which are announced on the Stock Exchange. – 8) Tax is levied only on acquisition of shares in real estate holding companies. – 9) Tax is levied on transfer of marketable securities; however, there is a wide range of exemptions in place. – 10) Tax is levied only on acquisition of shares in real estate companies. – 11) Tax is levied on the sale and exchange of shares, bonds and other securities if the underlying rights are exercised in Poland. However, there is a wide range of exemptions in place. – 12) Tax is levied on the transfer of shares and other securities, other than in housing and real estate companies if the transfer is not made through the stock exchange. There is a wide range of exemptions in place. – 13) Tax is levied on commercial and legal documents, such as lease and rental agreements, guarantee agreements, assignment agreements and others. – 14) Tax is levied on bank transactions. – 15) Tax is levied on the insurance premium. - 16) Tax is levied on stocks and marketable securities; however, there is a wide range of exemptions in place. – 17) Tax is levied on the wide range of commercial and legal documents, such as transactions on rents/lease of properties, various insurance transactions, insurance of loans and others. – 18) No stamp duty is levied, where the transaction is subject to capital duty. – 19) Tax is levied on commercial and legal documents. – 20) Tax is levied on transactions related to insurance. – 21) Tax is levied on proceedings before public administration. – 22) Tax is levied on operations of financial institutions, such as interest, given guarantees and other transactions; however, there is wide range of exemptions in place. – 23) Tax is levied on the transfer of immovable property as a contribution to the capital of a company or as a distribution of such property by a company.

Table 18: Comparison of key elements of the German FTT proposal and national FTTs in Spain, France and Italy

Key elements	German FTT proposal	National FTTs based on the EC Proposal		
		Spain	France	Italy
(Proposed) start date	unknown	16 January 2021	1 August 2012	1 May 2013 and 1 September 2013
Scope of the FTT				
Equities	included	included	included	included
Bonds	not included	not included (acquisition of qualifying equities upon the redemption of convertible bonds will be in-scope)	not included	not included (with the exception of transactions in bonds and debt securities that contain the unconditional obligation to repay at maturity a specific amount)
Derivatives	not included	not included (acquisition of qualifying equities upon the physical settlement of financial instruments will be in-scope)	not included	included (transfers of equity derivatives only)
Stock loans and repos	no	no	yes, but exempt	no
American Depository Receipts (ADRs)	no	yes	yes	yes
Residency/deemed residency basis of taxation	no	no	no	no
Issuance basis of taxation	yes	yes	yes	yes
Netting[76]	yes	yes	yes	yes
Market marker exemption	yes	yes	yes	yes
Intra-group exemption	yes	yes	yes	yes
Rate	at least 0.2% (equities)	0.2% bps (equities)	0.3% (equities) – since 2017 0.01% (high-frequency trading)	0.1%/0.2% (equities) (on market/OTC) Fixed amounts (derivatives)
Who is the taxpayer for the FTT?	Financial institutions	The economic taxpayer is the acquirer[1])	ISP / custodian of the buyer	buyer (equities) all parties in the transaction (derivatives)

Source: KPMG (2021). – 1) The taxable person will be investment services companies or credit institutions performing acquisitions for third parties and custodians, in certain cases.

5.1.14 Predictability/short-term revenue stability

The revenue stability of the FTT depends on the design of the tax, notably tax rates, tax bases, exemptions and principles regarding the territorial application of the tax (residence principle and/or issuance principle)[77], and the market reactions (such as relocation, tax evasion, reduction of trading volume) (Hemmelgarn et al., 2015; HLGOR, 2016; Solilova, Nerudova and Dobranschi, 2017; Pekanov and Schratzenstaller, 2019). However, as HLGOR (2016) states, FTT revenues are hard to project due to the high volatility of financial transactions.

[76] Netting is a method of reducing risks between two or more parties in financial transactions by combining or aggregating multiple financial obligations to arrive at a net obligation amount.

[77] For example, the combination of residence and issuance principle means that a taxable event exists when at least one of two legs of the trade involves an investor resident in the EU (i.e. based on the residence principle) and/or when the asset or the underlying asset to the transaction is issued in an EU Member State (i.e. based on the issuance principle). This means that taxable financial transactions involving either a party resident in the EU or a financial asset issued in the EU are taxable, provided there is at least one financial institution involved.

5.1.15 Sufficiency/fiscal sustainability

A broad-based general FTT can be a substantial revenue source (Miller and Tyger, 2020; Murphy, 2020; Pekanov and Schratzenstaller, 2019 and 2018; Solilova et al., 2019 and 2017; Bijlsma et al., 2011; Stiglitz, 1989 and Summers and Summers, 1989). The long-term revenue potential depends on the design of the tax and its administration (Summers and Summers, 1989), and it is, as Pekanov and Schratzenstaller (2019) add, higher the wider the geographic coverage of the tax, as tax avoidance options decrease accordingly. Table 19 shows that total revenue estimations vary significantly depending on the scope of tax, tax rates, geographic coverage, tax base, and assumptions on the degree of relocation / evasion as well as the tax elasticity of the trading volume.

Most existing FTT revenue estimates are based on a tax rate of 0.01% for derivatives and 0.1% for securities. The German FTT proposal suggests a tax rate of at least 0.2% to be applied on a very narrow tax base (i.e. only securities are covered); however, there are no revenue estimates available.

Table 19: Survey of FTT revenues estimates on the EU level

Author	Area	Tax rate in percent	Volume Elasticity	Relocation, evasion in percent	Transaction costs - as percentage of transaction volume	Tax base	Model reflects issuance principle	Total revenue estimation, in billion
Solilova, Nerudova and Litzman (2019)	EU10 enhanced cooperation – considering Brexit	0.1 0.01	-2 to 2 (with 50 basis points of changes)	Static scenario – no evasion, relocation 10 to 50% Maximum evasion scenario – evasion 60 to 90% (derivatives) and 5 to 25% (securities), relocation 10 to 50% No evasion scenario – no evasion, relocation 10 to 50%	Several variants Securities – 0.032 to 0.6 Derivatives – 0.0024 to 0.7	Securities, Exchange derivatives, OTC derivatives	no	FTT10: Static scenario – USD34.3 to 39.6 (0 to 50% relocation) Maximum evasion scenario – USD4.2 to 6.7 (0 to 50% relocation) No evasion scenario – USD15.7 to 18.6 (0 to 50% relocation)
Pekanov and Schratzenstaller (2019)	EU28	0.1 0.01	-1.5 -1.0 -0.5	15 (securities) 90, 70, 50 (derivatives)	no	Securities, Exchange derivatives, OTC derivatives	yes	EU28 conservative scenario USD37.7 baseline scenario USD64.7 optimistic scenario USD92.5
Pekanov and Schratzenstaller (2018)	EU10 enhanced cooperation	0.1 0.01	-1.5 -1.0, -0.5 -0.75, -0.5	10, 15, 20 (securities) 90, 85, 80 (derivatives)	0.6 – securities 0.3 – exchange derivatives 0.7 – OTC interest rate derivatives	Securities, Exchange derivatives, OTC derivatives	yes	FTT10: conservative scenario EUR7.7 middle scenario EUR10.6 optimistic scenario EUR14.4
Solilova, Nerudova and Dobranschi (2017)	EU11 enhanced cooperation EU28	0.1, 0.01 (A) 0.01, 0.0025 (B) 0.05, 0.005 (C) 0.1 (D) 0.001 (E)	-2 to 2 (with 50 basis points of changes)	Static scenario – neglects all market reactions Maximum evasion scenario – evasion 60 to 95% (derivatives) and 5 to 25% (securities), No evasion scenario – no evasion	Several variants Securities – 0.032 to 0.98 Derivatives – 0.0024 to 0.7	Securities, Exchange derivatives, OTC derivatives	yes	FTT11: (A) – up to EUR19.9 (B) – up to EUR0.46 (C) – up to EUR5.3 (D) – up to EUR275 (E) – up to EUR1.2 EU28: (A) – up to EUR58.2 (B) – up to EUR1.36 (C) – up to EUR15.7 (D) – up to EUR503 (E) – up to EUR2.6

Author	Area	Tax rate in percent	Volume Elasticity	Relocation, evasion in percent	Transaction costs - as percentage of transaction volume	Tax base	Model reflects issuance principle	Total revenue estimation, in billion
Schäfer (2015)	Selected EU countries	0.1 0.01	-2 -1.5 -1	15 (securities) and 75 (derivatives), 50 (derivatives) 0	0.6 – securities 0.3 – exchange derivatives 0.024 – OTC currency linked derivatives 0.7 – OTC interest-, equity- and commodity-linked derivatives	Securities, Exchange derivatives, OTC derivatives	yes	Germany: EUR18-44 France: EUR14-36 Italy: EUR3-6 Austria: EUR0.77-1.5
Naess-Schmidt, Hansen and Ringsted (2014)	Germany	0.1 0.01	-2 -1.5 -1	10 (securities) and 80 (derivatives) 0	0.6 – securities 0.3 – exchange derivatives 0.024 – OTC currency linked derivatives 0.7 – OTC interest-, equity- and commodity-linked derivatives	Securities, OTC derivatives, exchange derivatives	yes	EUR17.6-33.4 (dynamic approach) EUR57.3-87.5 (static approach)
Nerudova and Dvorakova (2014)	EU-11	0.1 0.01	-1.5 -1 0 1 1.5	40 90 10 dependent on the market/instruments	0.6 – securities 0.3 – exchange derivatives 0.024 – OTC currency linked derivatives 0.7 – OTC interest-, equity- and commodity-linked derivatives	Securities, OTC derivatives, exchange derivatives	no	EUR24.9-28.3
European Commission (2011c-h)	EU-11	0.01-0.1	-2 to 2	15-75	0.6 – securities 0.3 – exchange derivatives 0.024 – OTC currency linked derivatives 0.7 – OTC interest-, equity- and commodity-linked derivatives	Securities, OTC derivatives, exchange derivatives	no	EUR30-35

Author	Area	Tax rate in percent	Volume Elasticity	Relocation, evasion in percent	Transaction costs - as percentage of transaction volume	Tax base	Model reflects issuance principle	Total revenue estimation, in billion
Schulmeister and Sokoll (2013)	EU-27 EU-11	0.01-0.1	none	85 and 25 15 and 75 0	None	Securities, exchange derivatives, OTC derivatives	no	EUR70.7 EUR65.8
European Commission (2011b)	EU-27	0.01-0.1	-2 to 2	40 90 10 dependent on the market	0.6 – securities 0.3 – exchange derivatives 0.024 – OTC currency linked derivatives 0.7 – OTC interest-, equity- and commodity-linked derivatives	Securities, exchange derivatives, OTC derivatives	no	EUR16.4 – 433.9
Schulmeister (2011)	EU-27	0.05	none	2.4-83.8 dependent on the instruments (68.6 on average)	None	Exchange derivatives, OTC derivatives, Securities	no	USD310.9
European Commission (2010a)	EU-27	0.1	none	30 (bonds) 20 (shares)	n.a.	Securities, exchange derivatives, OTC derivatives	no	EUR145-372 EUR57-64 (only bonds and stocks)
Schulmeister, Schratzenstaller and Picek (2008)	EU-27	0.01 0.05 0.1	none	15-35 50-75 65-85	0.3 – Stocks 0.2 – Bonds 0.003 - OTC 0.003 – 0.005 – Exchange derivatives	Exchange derivatives, OTC derivatives, Securities	no	USD28.6-38.1 USD35.7-95.3 USD47.7-143
Jetin and Denys (2005)	EU level - Eurozone	0.01 0.02 0.05 0.1	-0.5 -1 -1.5	15-67	0.02 0.1	Foreign exchange transaction	no	USD6-10 USD8-35 USD10-38

Author	Area	Tax rate in percent	Volume Elasticity	Relocation, evasion in percent	Transaction costs - as percentage of transaction volume	Tax base	Model reflects issuance principle	Total revenue estimation, in billion
Spratt (2005)	EU level	0.005	none	2.5	none	Sterling foreign exchange transaction in UK	no	USD2.07 up to 4.4
Spahn (2002)	EU level and Switzerland	0.01 0.02	none	15	0.01% for banks and 0.02% for customers	Foreign exchange transaction in EU and Switzerland	no	USD16.6 – 20.8
Belgian Ministry of Finance (2001)	EU level	0.01-1	-1.75 -1.1 -0.55	5-100	0.1 for others 0.02 for financial institutions 0.05 for banks	Foreign exchange transaction	no	USD9-39
French Ministry of Finance (2000)	EU level	0.01-0.20	-0.5 -1 -1.5	67 in central estimate	0.02 and 0.05	Foreign exchange transaction	no	USD22

Source: Solilova, Nerudova and Dobranschi (2017); Solilova, Nerudova and Litzman (2019).

5.1.16 Legal and implementation aspects

The EU wide broad-based general FTT as a potential tax-based own resource or additional own resource has to comply with the EU's tax competences, addressed mainly in Article 113 of the TFEU (referring to the harmonisation of direct, and approximation of indirect, taxes). The decision to use these revenues would have to be based on a unanimous own resource decision according to Art. 311 TFEU (Schratzenstaller and Krenek, 2019b).

The FTT proposal in 2011 was initiated by the European Commission based on Art. 113 TFEU with the aim of harmonising legislation concerning indirect taxation on financial transactions, which is needed to ensure the proper functioning of the internal market and to avoid distortion of competition, similarly to the FTT proposal under enhanced cooperation in 2013. For the purpose of the introduction of an FTT under enhanced cooperation, Art. 20 of the Treaty on the EU and Art. 326 and 334 of the TFEU were applied. Based on the Council Decision 2013/52/EU of 22 January 2013 authorising enhanced cooperation in the area of an FTT, eleven EU Member States listed in Art. 1 were authorised to establish enhanced cooperation in the area of FTT.

5.1.17 Key points

- An EU-wide broad-based general FTT would be associated with several co-benefits and steering effects:
    - The resulting reduction of high-frequency trading and short-term speculative trading would increase the efficiency of financial markets and the overall economy.
    - It would internalise negative cross-border externalities caused by the cross-border nature of financial transactions.
- An EU-wide broad-based general FTT would avoid an uncoordinated implementation of national FTT taxes at Member State level potentially resulting in harmful tax competition and impairing the proper functioning of the single market.
- An EU-wide broad-based general FTT would contribute to fiscal integration in the EU: it would prevent the fragmentation of the single market through uncoordinated national FTTs and would improve tax and legal certainty within the single market.
- The potential revenues generated by an EU-wide FTT depend on the design of the tax, namely on the scope of the tax, tax rates and base, geographic coverage, possible relocation and tax evasion and the elasticity of the trading volume with regard to the tax. However, based on previous revenue estimates, an EU-wide FTT can be expected to generate significant tax revenues.
- If applied at low tax rates, an EU-wide FTT would not significantly impact on prices and would therefore not be highly visible to citizens.
- If applied at low tax rates, an EU-wide FTT would not have a significant negative impact on growth and employment.
- An FTT can be expected to be a highly progressive tax, as its burden would primarily fall on the wealthy, therefore undesirable distributional consequences would be avoided. Moreover, an FTT would imply a disproportionate burden on financial market participants trading at very high speed.
- The administrative complexity of an EU-wide FTT would depend on the concrete design of the tax provisions. Generally, a broad-based FTT has not yet been collected and administered in most of the EU Member States; however, EU Member States have experiences from previous, abolished FTT or similar taxes imposed on the financial markets.

- An EU-wide FTT would only marginally interfere with national tax systems in the EU.
- An EU-wide FTT would constitute a suitable new own resource:
    - revenues due to the cross-border nature of financial transactions cannot easily be attributed to individual Member States
    - even at low rates, the revenue potential is substantial

5.2 New own resource based on the taxation of corporations: CCCTB/BEFIT

National governments stand in competition with each other when it comes to attracting mobile tax bases from neighbouring jurisdictions. Tax bases are mobile across borders, so that governments have an incentive to strategically attract taxpayers from other jurisdictions. As individual governments impose competitive tax cuts, they put downward pressure on corporate tax levels in the EU (e.g. Leibrecht und Hochgatterer, 2012; Heimberger, 2021). The current situation with 27 national corporation taxation systems provides incentives for tax avoidance, tax base erosion and non-taxation of firms, which reduces overall tax efficiency and tax revenues. There is also substantial evidence for profit-shifting (e.g. Cobham and Janský, 2019; UNCTAD, 2015; Bolwijn et al., 2018; OECD, 2015). The OECD/Inclusive Framework and the EU have been working on a solution to address these issues since 2013. However, the situation in the area of corporate taxation has never been so dynamic as in the last 2 years. The boost of the digital transformation of society and businesses, which was accelerated by COVID-19 created even bigger pressure on policymakers to use revenues collected from the taxation of digital business to finance the costs of the crisis. It is difficult to categorise the possible reform options that could contribute to a more effective and adequate taxation of MNE either as a digital tax, a tax on the digital sector, or as a corporate tax, as there are many overlaps.

Based on the global agreement reached on October 8, 2021, the OECD and the Inclusive Framework agreed on a global tax reform in the form of a so-called two-pillar solution (for more details see table 13, section 4.4). It includes the re-allocation of taxing rights towards market jurisdictions via Pillar I. and a global minimum effective tax rate at 15% for large MNEs via Pillar II. (i.e. so-called GloBE rules). As suggested by the Biden Administration, Pillar I. focuses on about 100 of the biggest and most profitable MNEs having a global turnover above EUR20 billion and profitability above 10%, while Pillar II. focuses on MNEs that meet the EUR750 million global turnover threshold (similar to the CbCR reporting obligation). Moreover, the two-pillar solution insists on the abolishment of all kinds of digital levies. Furthermore, it is highlighted that Pillar II. does not substitute a digital-tax solution which concept is incorporated in the Pillar I. via a re-allocation of taxing rights and discussed in section 4.4.

The global agreement is the beginning of the envisaged global corporate tax reform. The global MNEs that meet the EUR750 million turnover threshold must apply GloBE rules (based on the Pillar II.) providing a global minimum effective tax of 15%. For this purpose, the European Commission introduced the directive proposal[78] on ensuring a global minimum level of taxation on 22 December 2021 (hereinafter EC directive proposal on a global minimum taxation). This proposal ensures the implementation the GloBE rules only, as a treaty-based rule (STTR), which is also a part of the Pillar II., is naturally suited to be addressed in bilateral tax treaties. The OECD rules agreed by the Inclusive

[78] European Commission, Proposal for a council directive on ensuring a global minimum level of taxation for multinational groups in the Union was introduced on 22 December 2021 (European Commission, 2021k, COM(2021) 823 final).

Framework related to the Pillar II. (i.e. income inclusion rule - IIR and undertaxed payments rule – UTPR representing GloBE rules) would be adopted via this proposal.[79]

We consider the rules agreed in Pillar II. to relate more to corporate taxation, so that they will be discussed in this section, as they can be incorporated into the announced Business in Europe: Framework for Income Taxation (hereinafter BEFIT) as another new own resource option included in the second batch of new own resources according to the IIA.[80] BEFIT was presented via the Communication on Business Taxation for 21st century (European Commission, 2021l) in mid-2021 as a single corporate tax rulebook, which should be proposed by 2023. Although it also includes withdrawing the Proposal on the Council Directive on a Common Consolidated Corporate Tax Base (hereinafter the CCCTB proposal[81]), the concept of the BEFIT is based on a formulary apportionment and a common tax base.

Moreover, the Commission proposed a new Directive to fight against the misuse of shell entities for improper tax purposes on 23 December 2021, which shall ensure that all entities and legal arrangements resident for tax purposes in the EU without or with minimal economic activity are unable to benefit from any tax advantages.[82] In addition, the Commission has a plan to promote innovation via a legislative proposal for a Debt Equity Bias Reduction Allowance (DEBRA)[83], which would be proposed in the first quarter of 2022. However, both initiatives are considered as a short-term EU tax policy without knowing whether they would be incorporated into the BEFIT, therefore they will not be taken into account in the next parts.

5.2.1 Brief description

In May 2021, the European Commission published its "Communication on Business Taxation for the 21st century" comprising a long-term as well as a short-term vision to support the recovery from COVID-19 and to ensure sufficient revenue. The Commission will present by 2023 a new framework for business taxation called BEFIT to promote a robust, efficient and fair business tax system in the European Union. BEFIT should provide a single corporate tax rulebook providing fairer taxation and allocation of taxing rights between Member States. Even though BEFIT seems to be based on CCCTB, it goes further and tries to build on a global consensus of the OECD Pillar I. and II.

BEFIT should consolidate the profits of the EU members of in-scope MNEs into a single tax base based on the common rules, which should then be allocated to Member States using a formula, to be taxed at national corporate income tax rates. Moreover, based on the other currently published EC directive proposal on a global minimum taxation, in-scope MNEs would pay in a given jurisdiction a minimum effective tax rate at 15%. Common rules for determining the corporate tax base for the purposes of applying agreed Pillar II. would present the relevant measure of profit or loss of the in-scope MNE via reference to financial accounting income, with a small number of adjustments. As regards the

[79] As all EU Member States (except Cyprus) are also members of the Inclusive Framework and they have already agreed on the main aspects of Pillar II., and committed to apply the OECD rules, the EU does not have policy options and choices available in the design of rules, as they have already been prescribed and agreed on. The EC directive proposal on a global minimum taxation follows the agreed OECD's rules in the Pillar II.

[80] Rules agreed by OECD and Inclusive Framework in the Pillar I., which are more related to the concept of digital levy, as it focuses on the market jurisdictions, are discussed in section 2.1.

[81] The European Commission (2016b) published the Proposal on the Council Directive on a Common Consolidated Corporate Tax Base in October 2016. At this time CCCTB was understood to be a tool to fight tax evasion and tax fraud, that is able to prevent market distortion and to ensure that taxation is linked to the places where profits and value are generated.

[82] European Commission (2021m), Proposal for a Council Directive laying down rules to prevent the misuse of shell entities for tax purposes and amending Directive 2011/16/EU, COM(2021) 565 final.

[83] The initiative will introduce an allowance for equity-financed new investment, to mitigate debt bias. Furthermore, it also incorporates a number of robust anti-tax avoidance rules to ensure tax fairness.

allocation to Member States, BEFIT would use a formula approach build on the formula used in Pillar I. (i.e. re-allocation of tax base). However, under BEFIT, formulary apportionment would replace the current rules for the allocation of the taxable base for the in-scope MNEs.[84] Moreover it is expected that a combination of formulary apportionment with a common rulebook for the tax base via BEFIT is an important step to create a more robust and simple business tax system in the Single Market. However, key considerations will include how to reflect the significant changes in the global economy and how to ensure a balance distribution of corporate tax revenues across EU Member States since the CCCTB was originally proposed[85].

Table 20: Key elements of BEFIT and CCCTB proposal

Key elements	BEFIT (assumed)	CCCTB
In-scope MNEs	Above EUR750 million of a global turnover threshold	• Above EUR750 million of a global turnover threshold • Reduction to zero over a maximum period of seven years (European Parliament, 2018)
Tax base determination	Via common rules with a small number of adjustments	Via common rules with a small number of adjustments
Reallocation of taxing rights / tax based across EU Member States	Via formulary apportionment – details are not known	Via formulary apportionment – three equally weighted factors, i.e. capital (assets), labour (payroll and number of employees), sales and data factor as a fourth added based on the recommendation of the European Parliament, 2018
Digital sector	Covered	Covered via "data factor" in formulary apportionment based on the European Parliament suggestion
Tax rate	National corporate tax rate, but via the EC directive proposal on a global minimum taxation, MNEs must be taxed via effective tax rate higher than 15%	National corporate tax rate of the jurisdiction

Source: European Commission (2021l), European Commission (2016b), European Parliament (2018), own representation.

As there are no concrete shapes of the BEFIT proposal, the evaluation of this source as own resource is based on the shape of CCCTB together with the EC directive proposal on a global minimum taxation. This approach is based on the consideration that the key elements of the BEFIT (i.e. common rules for determining the tax base and formulary apportionment, see table 20) are same as for the CCCTB.

[84] Under Pillar I., the current rules and the re-allocation of profit according to a formula would operate in parallel.

[85] For example, based on the ECON Committee report in February 2018, it was suggested to reduce the group turnover threshold from EUR 750 million to zero over a maximum period of seven years (European Parliament, 2018). Furthermore, the report takes into account the digital change in the business environment, as the digitalisation of the world economy, e-commerce and new business models offer significant opportunities for businesses, and as a result suggests adding a new factor (i.e. collection and use of personal data of online platforms and services users) into the formulary apportionment. As a result, the formulary apportionment for the consolidated tax base comprises four equally weighted factors, i.e. capital (assets), labour (payroll and number of employees), sales and data factor. The European Parliament adopted its opinion in a plenary session in March 2018, and the Council has since discussed the matter.

However, it should be mentioned here that the European Commission will have to decide which from the below mentioned concepts (BEFIT and CCCTB) would like to implement, as they cannot be applied both.

The EC directive proposal on a global minimum taxation closely follows the OECD rules. It extends its scope only in a few parts in order to ensure compliance with the fundamental freedoms, namely the application of the IIR to large-scale domestic groups (for more details see table 21).

Table 21: Comparison of the key elements of the EC directive proposal on a global minimum taxation and Pillar II

Key elements	EC directive on a global minimum taxation	OECD Pillar II.
GloBE rules	It covers two domestic rules, IIR (income inclusion rule) and UTPR (undertax payment rule): • IIR – imposes top-up tax on a parent company in respect of the low-taxed income of a constituent entity • UTPR – works by allocating top-up tax to a jurisdiction to the extent the low-tax income of a constituent entity is not subject to tax under an IIR. It denies tax deductions, or requires an equivalent adjustment to the extent the low tax income of a constituent entity is not subject to tax under the IIR.	
Scope	In-scope MNEs having a consolidated group revenue of at least EUR750 million in at least two of the four preceding years (determined under CbCR) Excluded entity: governmental entities, international organisations, non-profit organisations, pension funds (provided that they are at the top of the group structure), investment entities and real estate investment vehicles. Entities that are owned at least 95% by excluded entities.	
Rule design	• The IIR allocates top-up tax based on a top-down approach subject to a split-ownership rule for shareholdings below 80%. • The UTPR acts as a backstop to the IIR and applies in situations where there is no qualifying IIR in the jurisdiction of the ultimate parent entity (UPE) or where a low level of taxation arises in the jurisdictions of the UPE. It allocates top-up tax based on a two-factor formula (tangible assets and number of employees).	
Effective tax rate (ETR) calculation	It is calculated on a jurisdictional basis and computed by dividing the adjusted covered taxes of the group by the adjusted income earned by the group for the fiscal year.	
Minimum ETR of 15%	Yes for the purposes of the IIR and UTPR Not only to foreign subsidiaries but also of all constituent entities resident in that Member State and PEs of the MNE group established in that Member State	Yes for the purposes of the IIR and UTPR only to foreign constituent entities

Key elements	EC directive on a global minimum taxation	OECD Pillar II.
Substance carve-outs / substance-based income exclusion	For MNE groups in a jurisdiction, where they are carrying out real economic activities → it is based on the payroll and the value of tangible assets in a given jurisdiction. Transition period is 10 years to reach a targeted 5% of the carrying value of tangible assets and payroll.	
Special rules for mergers and acquisitions	Yes	Yes
Other exclusions	• For international shipping income • *De minimis* exclusion for those jurisdictions where the MNE has an average revenue of less than EUR10 million and an average qualifying income/loss of less than EUR1 million	
Simplifications	No	Yes – allows the development of certain safe harbours No details about safe harbours design
GILTI[86] co-existence	It is not covered. But in a separate process, the OECD/Inclusive Framework will establish conditions under which the US GILTI regime will co-exist with the GloBE rules, to ensure a level playing field.	
Subject to tax rule (STTR)	It is not covered	It is covered, but the amendments of tax treaties are needed.
Specific application of the IIR to large-scale domestic groups	To avoid any risk of discrimination, the large-scale domestic groups if they meet the EUR750 million threshold, will compute their ETR, and be charged any top-up tax due under the IIR.	Domestic groups are not covered
Administration	The tax return must be filed within 15 months after the end of the fiscal year. The tax return may be filed by either the constituent entity itself or by a designated local entity on its behalf.	
Implementation	To be effective in 2023, the UTPR in 2024	

Source: European Commission (2021k), OECD (2021a), own representation.

5.2.2 Links to EU policies

At the EU level, the EC directive proposal on a global minimum taxation builds on the European Commission's "Communication on Business Taxation for the 21st Century" (European Commission, 2021l) published on 18 May 2021. Further, this proposal together with the BEFIT are consistent with the Communication of the Commission "Time to establish a modern, fair and efficient taxation standard for the digital economy" published on 21 March 2018 (European Commission, 2018f). A fair and competitive digital economy is also one of three strategic priority areas in the agenda on "Shaping Europe's Digital Future" (European Commission, 2020e). BEFIT is linked to the single market. It should

[86] GILTI represents Global intangible low-taxed income that is earned abroad by U.S.-controlled foreign corporations and is subject to special treatment under the U.S. tax code.

remove inefficiencies and administrative burden stemming from 27 different corporate taxation systems. It would contribute to deepening the internal market and to increasing fairness (High Level Group on Own Resource, 2016). Notably, BEFIT was designed to provide a single corporate tax rulebook providing a fairer allocation of taxing rights between Member States and not as a new own resource of the EU budget.

5.2.3 Sectoral co-benefits and steering effects

It is assumed that the introduction of the BEFIT and EC directive proposal on a global minimum taxation would improve tax equity, as the allocation formulae would ensure that taxation is linked to the places where profits are generated and where value is created; and as an efficient, fairness and coherent framework for the minimum level of taxation at Union level is created (Arnold and McIntyre, 2002; and European Commission, 2018g, 2021k and 2021l,). Moreover, if BEFIT were to be based on OECD Pillar I. and Pillar II., a level playing field could be created for at least large-scale MNEs[87] worldwide (OECD, 2021a).

Another potential benefit of BEFIT and EC directive proposal on a global minimum taxation would be a reduction in the incentives for profit shifting of large firms, as it would provide a single corporate tax rulebook for the EU, providing for fairer allocation of taxing rights between Member States together with minimum level of taxation. The application of a formula to allocate profits/taxing rights would also remove the need for the complex transfer pricing rules between in-scope MNEs within the EU. In this context, the introduction of a new nexus rule on the destination-based approach (Devereux and Vella, 2017; Schön, 2018) – would improve the current corporate tax system by making it fairer, thereby also supporting its long-term sustainability (OECD, 2020c).

Furthermore, both initiatives would increase tax and legal certainty, as the companies in the internal market would be subjected to the unified set of rules. Common set of rules would also bring a significant simplification for in-scope MNEs operating in the single market and decrease administrative and compliance costs. In addition, the EC directive proposal on a global minimum taxation would significantly limit "tax rate shopping" across the single market as a minimum level of taxation would be created. To summarized, both initiatives would contribute to tax harmonisation, fairer tax competition, an efficient and long-term sustainable corporate taxation system within the single market, which would be able to combat tax avoidance and profit shifting, and support job creation, growth, and investment.

According to OECD's estimates Pillar I. would apply to approximately 100 MNEs. The number of MNEs covered could be lower though. In an estimation based on the Fortune Global 500 in 2020 Devereux and Simmler (2021) estimate Pillar I. to cover 78 MNEs. An inclusion of the financial sector, which is not included in the current compromise would according to their estimations cause the number of companies subject to Pillar I. to increase by 70%.

5.2.4 Attributability of revenues to Member States

Although the concrete design elements of BEFIT are not yet known, Pillar I. is generally based on the allocation of taxing rights among the jurisdictions and on applying allocation formulae, Pillar II. is based on the introduction of a global minimum effective taxation at 15%, which would be adopted by the EC

[87] Currently the Pillar I. focuses on about 100 of the biggest and most profitable MNEs (two thresholds are used: global turnover above EUR20 billion and profitability above 10%), and the Pillar II. has a broader definition of the in-scope MNEs as the threshold is EUR 750 million of global turnover.

directive proposal on a global minimum taxation. Therefore, it can be assumed that revenues from BEFIT will be directly attributable to the EU Member States.

5.2.5 Enforceability/implementability

The concrete proposal of BEFIT is not yet proposed. However, if BEFIT tries to build on a global consensus of the OECD Pillar I. and II. (i.e. it seems to take over the re-allocation of taxing rights via a formulary apportionment, common rules for the determination of tax base and a global minimum taxation), we can expect that the summarization of the agreed rules reached via the global agreement into the one package in the form of BEFIT should not cause a political pressure against its implementation within the EU. Currently, as regard to the global agreement, after intense EU coordination efforts and OECD/Inclusive Framework cooperation, it now seems that all EU Member States are willing to adopt the OECD's rules. Although only Cyprus, who is not a member of the OECD/Inclusive Framework, should join to the global agreement via unanimous agreement among EU Member States.

Furthermore, the EC directive proposal on a global minimum taxation could have implications for existing rules under the Anti-tax Avoidance Directive (ATAD 1 and ATAD 2); specifically the controlled foreign company rules (CFC rules), which could interact with the income inclusion rule (IIR). However, based on the EC opinion, the application of ATAD rules can be in parallel to the GloBE rules.[88] In addition, the transposition of Pillar II. should make possible the adoption of the pending proposal for recasting the Interest and Royalties Directive to make its benefits conditional on the interest or royalties being subject to tax in the destination state.

5.2.6 Transparency

The introduction of BEFIT together with a global minimum taxation at the EU level would bring greater transparency in corporate taxation. The exchange of information on taxation of MNEs in terms of taxation, their revenues, profits and other requirements would ensure increased knowledge about where and to what extent taxes are being paid in every jurisdiction. However, BEFIT measures in the EU may not be highly visible for the EU's citizens, since the implications of national corporate taxes (even in the form of minimum effective tax rate) are not highly visible for citizens either. Increased transparency may, therefore, require a consistent information campaign on the implications of BEFIT and a minimum effective tax rate.

5.2.7 Administrative complexity

In its Communication, the European Commission indicated that BEFIT should be based on Pillar I. and Pillar II. of the OECD proposal (currently on the global agreement of the two-pillar solution). According to Gadžo (2018), the new nexus rules within Pillar I. should be designed so that they only cause small distortions and little efficiency losses, i.e. the taxes should be collected in an efficient manner with small administrative costs in relation to the revenue collected. However, the tax solution based on the global agreement can lead to a decrease in the compliance costs of taxation for businesses and to lower administrative costs for governments in the EU as well.

Generally, there should not be any excessive administrative costs connected with introducing changes to the corporate tax system or by implementing the minimum level of taxation, as EU Member States will need to make use of the existing administrative infrastructure. However, there might even be a

[88] In practice, ATAD CFC rules will apply first and any additional taxes paid by a parent entity under the CFC regime will be taken into consideration in the GloBE rules in a given fiscal year.

reduction of administrative costs depending on the concrete design of the corporate tax rules (for example by elimination of transfer pricing, common set of rules for the tax base determination, one stop shop, a single EU corporate tax return for a group).

If BEFIT were to serve as new own resource, it should not be associated with high administrative costs and complexity as all the EU Member States already have in place their own infrastructures for collecting corporate taxes.

5.2.8 Environmental sustainability

BEFIT and the EC directive proposal on a global minimum taxation should not have any direct environmental impact and are not able to increase environmental sustainability. However, it is necessary to mention, that the global agreement of the two-pillar solution as well as European Commission's legislative proposal exclude international shipping incomes from taxation. International shipping is a sector that accounts for approximately 2.5% of global greenhouse gas emissions (IMO, 2021). And which the Commission has called "a large and growing source of greenhouse gas emissions" (European Commission, 2021n). Hence a key pollutant in the transport sector has been excluded in the global agreement of the two-pillar solution and is consequently also excluded in the Commission's legislative proposal (the EC directive proposal on a global minimum taxation).

5.2.9 Economic performance

The impact of BEFIT on GDP growth depends on the concrete design of the tax and also on whether the rules will be based on globally agreed OECD rules or merely on consensus among EU governments. In theory, harmonisation of taxation may lead to a higher tax rate because – given reduced competitive pressures – governments may establish higher taxes (Nerudová and Solilová, 2018). Somewhat higher corporate tax rates, however, will not necessarily hinder economic growth as suggested by the meta-analysis by Gechert and Heimberger (2021), although higher tax rates may still discourage some foreign capital (e.g. Feld and Heckemeyer, 2011), especially if the introduction of the new tax rules does not rest on a global consensus.

5.2.10 Fairness/Equity, social fairness

BEFIT represents an instrument that should contribute to deepening the EU's internal market, make it more competitive and fairer. It should ensure that each company is paying tax and each Member State will get its "fair share".

The international dimension of tax equity is concerned with a fair allocation of taxing rights and tax revenues between sovereign states (Gadžo, 2018; Arnold and McIntyre, 2002). Therefore, it would be preferable that BEFIT rests on a global agreement of the OECD's rules (two-pillar solution).

However, the so-called carve-out in Pillar II. is to account for the carrying value of tangible assets and payroll. It excludes a certain share of tangible assets and payroll from the calculation of the tax. It is to be lowered in a ten-year transition period stipulated in both the global agreement of the two-pillar solution and the EC directive proposal on a global minimum taxation to 5% within ten years from an initial level of 10% for the payroll carve-out of and 8% for tangible assets. This exception lowers the effective tax rate paid by large MNEs and consequently fiscal revenue.

5.2.11 Social sustainability/inclusiveness

In theory, the burden of new company taxes could fall on MNE shareholders in the form of lower dividends, on workers in the form of lower wages, and on consumers in the form of higher prices. The

tax incidence depends on the specific circumstances and a range of factors including supply and demand elasticities, as well as on market structures (Fullerton and Metcalf, 2002; Auerbach, 2006). Furthermore, there is a considerable degree of uncertainty as regard tax incidence in case of highly-digitalised companies, thus the negative social consequences for lower income households are not known yet (Belleflamme and Toulemonde, 2016, Kind and Koethenbuerger, 2017; Bibler et al., 2019). Moreover, given that both the global agreement of the two-pillar solution and the EC directive proposal on a global minimum taxation exclude investment entities and real estate investment vehicles from its scope, and bearing in mind the origins of the last financial crisis, excluding investment entities and vehicles from its scope does not make the Commission's proposal fully meet the criterion of social sustainability and inclusiveness.

5.2.12 Fiscal integration

All tax-based own resources introduced on a harmonised basis in all EU Member States would directly contribute to fiscal integration in the EU through tax harmonisation (Schratzenstaller and Krenek, 2019a). Therefore, BEFIT together with a global minimum taxation would contribute to fiscal integration. By setting minimum standards and rules for the taxation of large MNEs fiscal revenue is expected to increase by EUR64 billion for the EU as a whole (Baraké et al., 2021).

5.2.13 Interference with national tax systems

Depending on the details of the implementation, BEFIT together with a global minimum taxation will interfere to some extent with national tax systems, for each of the EU Member States is currently applying its own national corporation tax system having own imposed national tax rates. For some member states such as Hungary and Ireland this will mean increasing their minimum corporate tax rate. However, all member states (except by Cyprus) which are part of the OECD and Inclusive Framework have joined the framework and consequently agreed to giving up some of their tax-sovereignty. The EC directive proposal on a global minimum taxation does not go any further with the sole exception that it shall be applied to large-scale domestic groups (with a combined group turnover of at least EUR750 million). A difference to the global agreement of the two-pillar solution, which only covers foreign subsidiaries of MNE group. Member states may still raise the tax-level above the minimum threshold.

5.2.14 Predictability/short-term revenue stability

Corporate income tax revenues are quite sensitive to fluctuations in the business cycle (e.g. Sobel and Holcombe, 1996); therefore, it can be expected that BEFIT would generate a revenue stream which would be sensitive to variations in the business cycle. As regard to the global minimum taxation, under Pillar II., the global minimum tax, with a rate of 15%, is expected to generate around USD150 billion in new tax revenues globally (OECD, 2021a). The EU as a whole is expected to generate an additional revenue of EUR64 billion annually. This is expected to increase over time up to EUR72 billion (Baraké et al., 2021). The gradual increase can be attributed to the gradual reduction of the so-called carve-outs, which are to be lowered in steps to reach the target value of 5% in 2033, ten years after the corporate minimum tax will have been introduced. This target value and transitional path have also been stipulated in the global agreement of the two-pillar solution. Consequently, revenues are expected to be stable and increasing, due to the reduction of the carve-out.

5.2.15 Legal and implementation aspects

The future BEFIT proposal as well as the proposal on a global minimum taxation would have to comply with the EU's tax competences, addressed mainly in Article 115 of the TFEU (referring to the

harmonisation of direct taxes). The decision to use these revenues as an EU own resource would have to be based on a unanimous own resource decision according to Art. 311 TFEU (Schratzenstaller and Krenek, 2019b).

As the global agreement was reached, the OECD's members and the members of the Inclusive Framework on BEPS (i.e. all EU Member States except of Cyprus) agreed with the implementation of agreed rules (two-pillar solution). There is an extreme political urgency to support an effective and swift coordinated implementation of agreed OECD's rules to eliminate the risk of fragmenting the internal market and distorting its proper functioning. The preferred vehicle, which would ensure a uniform implementation of the agreed rules and ensure a common minimum level of protection in the internal market is the EU directive through Article 115 of the TFEU.

Therefore, if BEFIT would be introduced and were to be based on the global agreement, it is necessary to implement it at the EU level via the most appropriate legal basis of Article 115 TFEU.

5.2.16 Key points

- BEFIT and a global minimum taxation have a strong link to EU policy.
- BEFIT and a global minimum taxation can increase coherence of EU budget policies.
- BEFIT and a global minimum taxation can create co-benefits and steering effects connected with the global agreement:
    - Both initiatives would improve the current corporate tax system, supporting its long-term sustainability and improving tax equity.
    - They can also increase tax and legal certainty and bring a significant simplification.
    - They would also ensure fairer allocation of taxing rights and limit “tax rate shopping”.
    - In addition, they would contribute to tax harmonisation, fairer tax competition, an efficient and long-term sustainable corporate taxation system within the single market, which would be able to combat tax avoidance and profit shifting, and support job creation, growth, and investment.
- Revenues from a global minimum taxation as well as from BEFIT set based on the global agreement are attributable to EU Member States. Thus, this tax as own resource could not help to overcome Member States’ net position thinking.
- If BEFIT was built on a global agreement, it could contribute to efficient enforceability and implementability; similarly the case of a global minimum taxation.
- BEFIT and a global minimum taxation set based on the global agreement brings greater transparency into corporate taxation. Although, they may not be highly visible for the EU’s citizens.
- The administrative complexity is expected low as EU Member States will need to make use of the existing administrative infrastructure.
- BEFIT as well as a global minimum taxation set based on the global agreement should not have any direct environmental impact and is not able to improve environmental sustainability.
- With regard to social sustainability, it is not clear whether BEFIT and a global minimum taxation would have negative social consequences.
- BEFIT as well as a global minimum taxation would contribute to fiscal integration between Member States.
- The criterion of non-interference is violated.
- Based on the updates in 2021 and the global agreement, it is assumed that under Pillar II. (a global minimum tax) around USD150 billion of tax revenues would be generated globally

(OECD, 2021a). The EU as a whole can expect additional revenues of EUR64 billion annually (Baraké at el., 2021).

6 FURTHER OPTIONS FOR NEW OWN RESOURCES

This chapter briefly presents further options for new own resources which may contribute to a sustainable, inclusive, green and digital recovery and transition in the EU. These include various options for green own resources, own resources based on the taxation of high incomes and wealth, and own resources based on other revenue.

6.1 New green own resources

6.1.1 A new own resource based on national fuel taxes[89]

Transport emissions represent around 25% of the EU´s total greenhouse gas emissions and show an increasing trend over recent years. The current Energy Taxation Directive (ETD) which also regulates fuel taxation is insufficient to ensure the stepped-up climate goals. Therefore, the new environmentally-oriented tax for fossil fuel envisaged in the Commission's proposal for a revised ETD, which is part of the 'Fit for 55' package, can be an additional key instrument in EU climate policy. According to the ETD proposal, fuel tax rates will be set based on their climate impact so that they can better contribute to EU efforts to reduce emissions. The proposal for a revised ETD suggests tax rates which are more aligned with climate objectives, as tax rates would be ranked according to their "environmental performance"[90], i.e. conventional fossil fuels, such as gas, oil and petrol would be taxed at the highest rate. The introduction of higher tax rates for inefficient and more polluting fuels would remove existing disadvantages for clean technologies. It would also help to reach strategic goals of reducing the dependence on fossil fuel imports.

An own resource based on the taxation of transport fuel would have a direct link to the European Green Deal, the 2030 Climate Target Plan and the 'Fit for 55' package. It would also be linked to the proposed extension of the EU ETS, which envisages covering road transport from 2026 onward. The reduction of emissions in the transport sector is also mentioned in the Effort Sharing Regulation.

Considering that currently fossil transport fuels are taxed in all Member States, a surcharge on national fuel taxes, with revenues being transferred to the EU to finance the EU budget, appears to be the most preferable option for an own resource based on fuel taxes: as it would not interfere with national tax systems and would not create vertical tax competition, a surcharge would be a politically more acceptable solution than transferring a share of fuel tax revenues currently collected by Member States to the EU (HLGOR, 2016). It could contribute to fiscal integration regarding the taxation of transport fuels, as currently national fuel tax rates lie within a rather broad range. The existing substantial cross-country fuel tax rate differentials lead to "fuel tourism" which significantly reduces the efficiency of fuel taxation and hampers the achievement of the climate goals (Thöne, 2016). A fuel tax surcharge may limit such harmful tax competition and related negative environmental effects, and reduce the fragmentation of the single market (Thöne, 2016). As the surcharge would be equal for diesel and petrol, it would somewhat decrease the tax bias in favour of diesel existing in almost all Member States by reducing the relative difference between diesel and petrol.

An own resource based on transport fuels would be highly visible and transparent to citizens and taxpayers (HLGOR, 2016). Moreover, administrative costs would be low, as the legal and technical provisions to collect fuel taxes are in place in all Member States already. Revenues from fuel taxation

[89] This section is based on Nerudova et al. (2018).

[90] The 'environmental performance' has been defined in relation to other EU policies under the European Green Deal and in particular to the rest of the proposals in the 'Fit for 55' package.

can be easily attributed to the individual EU Member States. However, as the tax base – particularly after the implementation of the revised ETD proposed by the Commission within the 'Fit for 55' package – is strongly associated with the emission intensity of fossil fuels, there is a significant cross-border element in transport fossil fuel consumption, which justifies the allocation of a portion of fuel tax revenues to the EU.

Transport generates significant external costs to our society. The most important ones are greenhouse gas emissions, noise and air pollution, car accidents and congestion (Leicester, 2005; Parry, Walls and Harrington, 2007; Johnson, Leicester and Stoye, 2012; Williams, 2016). As Pigovian taxes, transport taxes aim at the internalisation of externalities related to transport. The most important steering effect is a reduction of greenhouse gas emissions (Nordhaus and Boyer, 2000; Nordhaus, 2006; Sallee, 2010, Stern et al., 2006). Another related co-benefit is the reduction of local air pollutants (nitrogen oxides, NOx), whose concentration levels exceed EU air quality standards in urban areas across Europe (Adolf and Röhrig, 2016), as road transport contributes more than 30% of total EU NOx emissions. Empirical work demonstrates that a fuel tax can be an effective instrument within EU climate policy (Fullerton and West, 2000; Sterner, 2007; Johnson, Leicester and Stoye, 2012). In that sense, the tax could promote the decarbonisation of the transport sector. Another co-benefit and steering effect is related to green innovation. Acemoglu et al. (2013 and 2014) and Popp, Newell and Jaffe (2010) state that fuel taxation can effectively redirect innovation towards environmentally friendly technologies and energy-efficient innovation. Using a share of fuel tax revenues as own resources, and redistributing them via the EU budget to Member States with limited capacities to implement effective climate policies at the national level by introducing specific programmes supporting the specific climate measures with EU added value, would strengthen the effectiveness of EU climate policies.

Regarding social inclusiveness, the overwhelming majority of the rather large body of empirical studies shows that transport fuel taxes are not regressive or may even be progressive (Köppl and Schratzenstaller, 2021, for an extensive survey of the existing empirical evidence). Therefore, an own resource based on a surcharge on national fuel taxes should not be associated with substantial undesired distributional effects.

An important aspect is the economic impact of an increase of transport fuel taxation. With transport contributing around 5% to EU GDP and employing more than 10 million people in Europe, the transport system is critical to European businesses and global supply chains. The turnover generated by the auto industry represents more than 8% of EU GDP; the automobile sector employs 14.6 million people, accounting for 6.7% of all EU jobs (ACEA, 2021). Therefore, any taxation reducing the consumption of fossil fuels and the use of fossil fuel vehicles could have a significant impact on the transport system and auto industry, unless other alternatives are more easily available and more affordable (for example electric vehicles with charging points regularly available). Although any tax has a negative impact on economic growth if considered in isolation, the European Commission (2021o) highlights that increased demand for low-carbon and energy-efficient goods and environmentally-sustainable new technologies would promote both the growth of the markets offering this kind of goods and economic growth. However, the overall impact of (increased) fossil fuel transport taxation on economic growth is unclear.

A surcharge on national fuel taxes would represent a stable substantial revenue source (HLGOR, 2016). Due to the relatively inelastic demand for transport fuels particularly in the short run[91], increasing transport fuel taxes would lead to substantial additional revenues. Although in the long run potential

[91] See Köppl and Schratzenstaller (2021) for empirical estimates of the short- and long-run elasticities of demand for transport fuels.

revenues can be expected to decrease due to the envisaged reduction of fossil fuel transport consumption, transport fuel taxes could provide substantial revenues in the medium run. In the longer run, revenues could be stabilised by taxing all motor fuels (CNG, LNG, hydrogen and electricity) based on their environmental performance (European Commission, 2021p).

According to the simulations by Nerudova et al. (2018), a surcharge on national fuel taxes between EUR0.03 and EUR0.20 per litre of fuel would have generated potential revenue between EUR11.5 and EUR76 billion for the EU27 in 2014. These simulations show that based on the relation between potential revenues and GDP, most of the poorer countries would carry a disproportionate burden.

6.1.2 Taxation of aviation[92]

In the European Union as well as worldwide, air traffic was growing considerably before the outbreak of the COVID-19 pandemic. In 2018, carbon emissions from aviation accounted for 3.7% of overall carbon emissions, or 15.7% of transport carbon emissions in the EU. The EU contributed 15% to global aviation emissions; whereby 50% of these emissions were caused by intra-EEA aviation and another 50% by flights to and from extra-EU countries. Recent forecasts predict a considerable expansion of air traffic in the EU for the future: carbon emissions are expected to grow by 24% by 2030 and another 27% by 2050.

Since the beginning of the 2000s, aviation taxes have been attracting increasing attention among policymakers. Hereby, the primary motivation was not only the search for effective instruments to curb the ever-growing climate-damaging air traffic with its increasing share in carbon and other GHG emissions. Taxes on aviation have also come into focus as financing instruments with the positive side effect of displaying Pigovian characteristics, and thus to offer a good justification for their intensified use as innovative instruments to finance development aid introduced globally or by a group of countries within a coordinated move as so-called global taxes.[93]

Aviation taxes are strongly linked to European policies aiming at containing climate change. The European Green Deal as well as the Climate Law and the Climate Target Plan pursue the objective of making the EU climate neutral by 2050. The EU has just increased its climate ambition by raising its 2030 emission reduction target from at least 40% to at least 55% compared to 1990 levels. All sectors, including the aviation sector, are required to contribute to the achievement of this stepped-up economy-wide emission reduction commitment.

In the EU, the potential contribution of an air ticket tax as an innovative financing instrument to increase financial resources for development aid was debated rather intensely in the second half of the 2000s (European Commission, 2005a, 2005b and 2010b). However, no agreement on its EU-wide implementation could be reached. Besides this international debate on flight tickets as innovative financing instruments for development, aviation charges were also suggested repeatedly in the relevant EU Commission documents in the discussion about tax-based own resources, and were mentioned as one potential option by the HLGOR (2016).

The principal rationale for aviation taxes is that they are potentially powerful instruments to internalise the social costs of aviation (Leicester and O'Dea, 2008; Keen and Strand, 2006; Jones et al., 2012; Larsson et al., 2019). As Pigovian taxes, aviation taxes aim at the internalisation of externalities, which for the case of aviation range from local (e.g. noise at airports or NOx emissions at the take-off or landing of

[92] This section draws heavily on Krenek and Schratzenstaller (2016 and 2017).

[93] See for early contributions on global taxes to finance development Landau (ed.) (2004), Atkinson (2005), and Kaul and Conceição (eds.) (2006).

aircraft) to global external costs (carbon emissions and other GHG emissions). Levying taxes corresponding to the marginal external costs of a flight, so as to fully internalise these, is supposed to increase a flight's price, which in turn should reduce demand. However, attempts to introduce aviation taxes can be expected to encounter a collective action problem. The assignment of aviation taxes to the level of nation states will lead to under-taxation for two reasons (Jones et al., 2012). First, due to the existence of cross-border externalities (as the bulk of emissions from aviation are caused by international activities, i.e. international flights) tax rates will be set inefficiently low if they are determined unilaterally without international coordination. Moreover, unilateral action would reduce pressure on other countries to implement their own policy measures, as they can act as free riders (Auerswald and Thum, 2011). These aspects speak in favour of introducing aviation taxes as an internationally coordinated move. Due to the cross-border nature of the negative externalities caused by air traffic, revenues from their taxation are not easily attributable to a specific country, so they should be assigned to the EU.

There are various possible designs for aviation taxes. They may be levied on seats, flights, aviation fuel, or flight tickets. While the latter ones are to be paid by passengers, airlines are the designated taxpayers for taxes on seats, flights, and kerosene. It is plausible to assume that – depending on market conditions – these taxes may be at least partially passed on to passengers, so that their actual incidence will fall both on carriers and passengers. In a broader sense, value added tax on flight tickets and fuel may also be regarded as aviation taxes (Keen et al., 2012). To be environmentally effective, taxes on air traffic should provide incentives to reduce fuel use and thus emissions, by using more efficient aircraft; to change the fuel mix towards less emission-intensive sources; to maximise aircraft load and thus to minimise fuel use and emissions per passenger, as well as to reduce the number of flights; to avoid very short and very long distances, as these are particularly fuel- and emission-intensive (Tol, 2007; Keen et al., 2012); and to reduce the number of flights demanded by individuals. Environmental effectiveness also depends on the susceptibility of the tax with regard to tax competition, and the possibilities of passengers and carriers avoiding it by flying from, or by tanking in, respectively, third low- or no-tax countries. The various options for aviation taxes differ in their ability to set these incentives. A tax on aviation fuel presents itself as the environmentally most effective option (European Commission, 2005b). It will incentivise airlines to reduce fuel use by installing cleaner technology, or optimising flight routes, to maximise aircraft load and minimise costs per passenger, and to decrease the supply of flights, as well as the demand of passengers for aviation, under the plausible assumption that fuel taxes are partially passed on to passengers via ticket prices (Keen et al., 2012). In contrast to taxes on flight tickets and seats, a fuel tax in addition to passenger flights may also impact freight flights (OECD, 2005). However, the tax does not encourage airlines to change the fuel mix, or to avoid very short or very long distances. Moreover, it may induce a considerable extent of tax competition, even if, as Keen et al. (2012) point out, susceptibility to tax competition may well differ across countries and destinations, respectively; while air ticket and seat taxes do not contain any incentives to tank abroad (OECD, 2005). Of course, the extent of tax avoidance through fuel bunkering will crucially depend on the level of tax rates, as well as geographical factors (Keen and Strand, 2006).

The aviation sector in the EU is "structurally" undertaxed,[94] as is global aviation in general. According to the 6th EU VAT Directive a zero VAT rate must be applied to international flights; this applies to airlines' inputs (acquisition of aircrafts, fuel) as well as to their outputs (air tickets sold) (Korteland and Faber, 2013). In contrast to just exempting international flights from VAT, zero rating implies that airlines can deduct VAT paid for inputs, which could not be reclaimed under a tax exemption regime.

[94] See European Commission (2019) for a detailed overview of aviation taxes in the EU.

VAT may be applied to fuel used for domestic air traffic as well as air tickets, whereby Member States can choose whether to apply the regular or a reduced VAT rate. The overwhelming majority of Member States levy VAT on aviation fuel and air tickets sold for domestic flights, often at reduced rates. A second tax privilege anchored in the so-called Chicago Convention is the worldwide exemption of the fuel used for international flights from the mineral oil tax (Keen et al., 2012). In the EU, the 2003 EU Energy Tax Directive obliges Member States to exempt kerosene used for international flights from energy taxation. In accordance with the Chicago Convention, a kerosene tax may be levied on international flights based on bilateral treaties, which, however, is not made use of by any EU country. At the same time the Directive revoked the former ban of mineral oil taxes levied on domestic flights (Article 14(2)); however, only very few Member States levy a mineral oil tax on fuel used for domestic flights. During the last few decades, several EU Member States have attempted to adopt some form of ticket tax on international flights. Hereby, environmental motives have been playing an explicit role only rather recently. A number of countries have abolished their flight ticket taxes due to competitiveness concerns. Currently, only six Member States[95] apply flight ticket taxes, at rather moderate rates with moderate revenues. Introducing an EU-wide flight ticket tax with revenues going to the EU budget would therefore only marginally interfere with national tax systems.

Aviation taxes could significantly contribute to the EU budget. An independent study conducted for the Commission and cited in the Commission's proposal for the revision of the Energy Tax Directive put forward within the 'Fit for 55' package (European Commission, 2021p) estimates that taxing aviation fuel at EUR0.33 per litre could yield potential revenues of EUR6.7 billion annually by 2050. According to the study, a tax on fuel for intra-EEA flights would decrease carbon emissions in a range between 6% and 15% in the long run compared to 2016. The EUR0.33 per litre aviation fuel tax would reduce the number of flights by 10% by 2025. Incentives for airlines to switch to more efficient aircraft to reduce the fuel consumed would remain limited, however.

Krenek and Schratzenstaller (2017) estimate potential revenues of a carbon-based flight ticket tax for the EU27 at about EUR4 billion (base year 2014) for a moderate carbon price of EUR35 per tonne carbon emissions. According to the above-mentioned study commissioned by the European Commission (2021p), potential revenues from an EU-wide flight ticket tax could reach between EUR6 billion and EUR9.9 billion, depending on the tax rate applied. Demand for intra-EEA flights could be decreased by up to 9%, for extra-EEA flights by up to 4.5%.

Aviation taxes can be expected to have a progressive impact regarding personal and regional distribution, considering the unequal distribution of flights across the population and across countries: Gössling and Humpe (2020) show that even in high income countries, a substantial part of the population does not fly. Moreover, there is a positive relationship between GDP and air transport demand. It should also be mentioned that the administrative burden caused by a flight ticket tax is assessed to be lower, both for public administrations and airlines, compared to a tax on aviation fuel (European Commission, 2021p). In addition, the legal barriers for its implementation are considerably lower, as tedious renegotiations of international air transport agreements would not be required. Transparency and visibility of own resources based on aviation taxes depend on their concrete design: a flight ticket tax, which would have to be paid directly by individual air passengers, would be transparent and visible; while a fuel tax, which would have to be paid by carriers and would be shifted fully or partially to air travellers, would not be visible for citizens.

[95] Austria, France, Germany, Italy, the Netherlands, Portugal, and Sweden; also, the United Kingdom and Norway have a flight ticket tax.

The Commission's 'Fit for 55' package contains several policies relevant for the aviation sector: a SAF blending mandate under the ReFuel EU Aviation initiative; the review of the Energy Taxation Directive (ETD); the proposals on the EU ETS and CORSIA (see section 4.2 for details); the review of the Renewable Energy Directive (RED); and the alternative fuels infrastructure Directive. One important challenge will be to combine the various measures into a comprehensive package able to effectively and efficiently reduce the climate impact of aviation.

6.1.3 Taxation of cryptocurrencies

Cryptocurrencies have recently become of increasing interest for the EU due to the lack of regulation and oversight. The trading of cryptocurrencies is increasingly mainstreamed and underpinned by financial volatility and security risks (Cengiz, 2021; Hansen, 2021). In addition, the environmental toll of cryptocurrency mining has been widely reported on (Krause and Tolaymat, 2018). Even before the record-setting asset price levels seen in the first half of 2020, the value of the European cryptocurrency market had already reached EUR4.336 billion in 2019. It is expected to grow to EUR12.9 billion by 2026 (QYResearch Group, 2020).

In September 2020, the European Commission published a proposal for the regulation of crypto assets: the "Markets in Crypto-Assets Regulation" (MiCA) with the purpose of setting standards for oversight and regulation of blockchain-based financial assets, thereby creating a fully harmonised European crypto-asset market (European Commission, 2020h).

Currently, cryptocurrencies in principle are indeed subject to tax treatment, depending on the taxable event in play: the creation of e-tokens, profits from trading (transactions), or exchanges of virtual currencies for fiat currency (OECD, 2020d). As a rule, cryptocurrencies are classified as intangible assets and thereby subject to income taxes. In most OECD countries, cryptocurrencies fall out of the scope of value added tax (VAT), whereas in the EU, the VAT treatment of cryptocurrency transactions ranges from being considered out of scope, over being VAT exempt, to being taxable (OECD, 2020d). Hence, there are large differences among Member States in the tax treatment, regulation, and level of oversight, all of which could result in a race to the bottom to attract cryptocurrency exchanges and start-up companies seeking lighter regulation.

In light of the high volatility of speculative trading, negative environmental impacts, and lack of transparency and oversight of the cryptocurrency market, the EU could levy a tax on cryptocurrency transactions (i.e., a Cryptocurrency Transaction Tax CTT), similar to, or as part of, the proposed FTT (European Commission, 2013c). The CTT could cover trading between different cryptocurrencies and/or exchanges of cryptocurrencies for fiat currencies. Even with a very small amount collected on each transaction (for example, 0.1%), and only a share of all global transactions covered, potential revenues could be significant, considering that the global volume of spot market trading in 2019 reached EUR11.6 trillion (Song and Wu, 2020).

Due to the potential for downward tax competition among Member States and avoidance reactions, the negative environmental cross-border externalities of cryptocurrency mining, the presumed widespread use of cryptocurrencies for illegal and tax-avoiding activities, as well as potentially destabilising effects of speculative transactions on integrated financial markets, there would be a justification to levy and collect the tax revenues within an EU-wide harmonised framework and to attribute revenues to the EU.

Two significant drawbacks of an EU CTT can be identified. First, due to the high speed of trading and fast-changing prices, determining the fair value of the asset at the point of purchase and sale is difficult, and the technical implementation of such a tax would be highly demanding. Second, a CTT could lead

to a dampening effect on the cryptocurrency sector, and potentially, the larger blockchain sector, leading to relocation of companies outside of the EU.

6.1.4 Agro-ecological taxes

The strategic orientation of EU policymaking towards a green transition that fosters sustainable growth and resilience in Europe naturally calls for a cross-cutting approach that encompasses all carbon-emitting sectors. In that regard, the introduction of new 'greening' taxes in the farming sector aligns with the environmental goals of the recently introduced plastic-based own resource, as well as the proposed ETS-based and CBAM-based own resources. Agro-ecological taxes would help make European agriculture more environmentally friendly and thereby support the protection of biodiversity and ecosystems, the mitigation of climate change effects, as well as food safety and security, in line with the European Commission's 'EU Biodiversity Strategy for 2030 and Farm to Fork Strategy'. Furthermore, agro-ecological taxes could go beyond environmental goals and foster animal welfare protection, another important matter for European consumers (European Commission, 2016c).

However, any new EU-wide tax in the farming sector would need to be consistent with the Common Agricultural Policy (CAP) that has shaped European farming practices for almost six decades now. In particular, it is noteworthy that the CAP has been and still is first and foremost about income support for farmers, as they persistently earn significantly less than non-agricultural workers[96]. Notwithstanding this financial support, as well as other CAP-funded market and rural development measures, the EU agricultural workforce has been steadily declining for the past few decades, raising concerns over generational renewal in the farming sector (Schuh et al., 2019). Therefore, any new EU own resource stemming from the farming sector cannot be indiscriminately levied on high-income, high-profit farmers and low-income, subsidy-dependent farmers[97] at the same time. Particular attention in that regard should be paid to farmers working on small farms and in so-called Less-Favoured Areas, who have typically lower incomes (Hill and Bradley, 2015).

Proposals for new agriculture-based EU own resources could use the momentum created by the new CAP and its ambition to be 'fairer, greener, more animal friendly and flexible' (European Commission, 2021q). The new CAP, starting in 2023, notably includes environmental conditionality, social conditionality, eco-schemes and redistribution of income support to the benefit of smaller farms. Besides being used to pay back NGEU debt, well-designed agro-ecological taxes could feed into the new CAP budget to help finance both (additional) direct payments to farmers in need and environmentally-friendly rural development measures. This would in turn help accelerate the green transition of European agriculture, as the level of direct payments has experimentally been found to influence the adoption of voluntary environmentally-friendly farming practices (Dessart et al., 2021). Importantly, agro-ecological taxes in agriculture should not undermine social fairness and a level playing field between farmers, a major concern for farmers across Europe (Dessart, 2019).

Drawing on national experiences of agro-ecological taxes, several options for EU-wide agricultural agro-ecological taxes have been mentioned in the literature. This includes in particular progressive taxes on the purchase of pesticides, antibiotics and imported animal feed (Berendse, 2017) and excise taxes or levies on (synthetic) fertilisers (Sachse and Bandel, 2018; Rougoor and van der Weijden, 2001), with the primary aim of promoting organic farming and the sustainability of agricultural land more

[96] Accurate comparisons of income between agriculture and other economic sectors are constrained by the lack of available data. However, the European Commission's Directorate-General for Agriculture and Rural Development estimates that in 2017, the average farm income (as measured by entrepreneurial income per family work unit) was around half the average wage in the rest of the economy (European Commission, no year).

[97] The European Commission (2021r) estimates that CAP support accounts for around 36% of farm income.

generally (Watkins et al., 2017). In the EU more specifically, taxes on pesticides were implemented in e.g. Belgium, Finland, Denmark, Sweden and France, and taxes on fertilisers in Austria, Denmark, Finland, the Netherlands and Sweden. In some cases, taxes were effective in reducing the sales and (excessive) use of certain phytosanitary products (Italy) and fertilisers (Sweden) (Watkins et al., 2017). In other cases, the tax brought about limited environmental gains due to the low level of taxes (Watkins et al., 2017) or was ultimately waived due to competitiveness concerns (ECOTEC et al., 2001).

These competitiveness concerns should be properly addressed in the design of EU-wide agro-ecological taxes to ensure that small family farms in conventional farming are not put at a disadvantage vis-à-vis large corporate farms, that farmers in Eastern Europe who tend to have lower agricultural income than their Western European counterparts are not unduly burdened, and that European farmers in general do not feel unfairly treated in comparison to third country farmers. Hence, compensatory mechanisms should accompany any new EU agro-ecological tax, for instance by redistributing tax revenues to low-income farmers in the form of additional greening payments and/or investment aids for emission-reducing infrastructure and equipment, such as precision farming technology. Furthermore, using agro-ecological tax revenues for environmental purposes could generate a leverage effect on the effectiveness of the tax itself (Böcker and Finger, 2016). Finally, the introduction of an agro-ecological tax at the EU level would – at least partly - rely on the long-established administrative and management capacity of CAP implementation, and thereby keep administrative costs limited.

6.2 New own resources based on the taxation of wealth and high incomes

6.2.1 New own resource based on a tax for top earned incomes

The proposed directive on adequate minimum wages in the European Union aims at setting a minimum standard for wages. It is derived from the European Pillar of Social Rights, which calls for fair wages to provide for a decent standard of living, for adequate minimum wages and transparent wage-setting (European Commission, 2017c). Hence, it sets out to define a lower boundary for wage setting.

The Shareholder's rights directive (SRDii), proposed and adopted in 2017, set out to overcome "many shortcomings in corporate governance of listed companies", such as "excessive directors' pay not justified by performance". The strengthened rights of shareholders should enable tighter control of management and its remuneration (European Commission, 2017d). The definition as to what pay is "excessive" remains in the hands of the shareholders. The SRDii only applies to listed corporations, and it does leave member states room for exemptions for certain entities (Kass and Poli, 2021). Therefore, compared to the proposed directive on adequate minimum wages, the issue of excessive wages is approached by the Commission with much more caution.

The following numbers put the pay of CEOs into context: in 2017, the year when the SRDii was adopted, the median CEO pay of Dax-listed companies was 85 times higher than the average labour cost (overall labour cost stipulated in the respective financial statement reduced by the remunerations of the CEO and board members) of the respective company. The pay of board-members was 43 times higher than average (Weckes, 2018).

Historically, top executive incomes have been lower and income taxes higher. In the 1980s, France saw top marginal income tax rates at 70% and Germany above 50%. The U.K. and the U.S. had even higher top marginal income tax rates, reaching up to 90% in the 1960s (Piketty, 2014). From 1995 to 2008 average top statutory personal income tax rates saw a decline from 48% to less than 40% (Flamant et

al., 2021). The "explosion" of executive income may be attributed to reduced top income tax rates and the rising bargaining power of top executives (Piketty, 2014).

A Tax for Top Earned Incomes (TfTEI) could quantify "excessive pay" and become an own resource for the EU. By reducing national exemptions, it could also contribute to fostering a European "level playing field" in income taxation, similar to efforts for consolidated accounts of taxable corporate profits, and help tackle preferential regimes for new tax residents. These have increased in recent years, become more aggressive and advantageous (Flamant et al., 2021). Already Atkinson (2015) had suggested a top rate of 65% and a broadening of the tax base for the UK.

The TfTEI could apply to all yearly salaries exceeding, e.g., the fourfold national net median household income, thereby also taking account of national differences in income levels and purchasing power. Additionally, by using the net median household income as a threshold, the TfTEI can be anchored in an already established point of reference. In EU social statistics, the standard definition of monetary poverty for individuals is living "in a household with an income below 60% of net median household income" (European Commission, 2020i).

The net median household income is to be determined by the most recent median household income series published in the Eurostat database. Hence, for the current tax year 2021, the tax is to be calculated based on the net median household income of the year 2019. The fourfold income as the basis for our proposal has been chosen as it is an income level lying beneath the annual remuneration received by a Member State's Head of State or Government (HoSG) representing the respective state at the European Council, while being high enough to cover top incomes. For instance, in 2019 in Austria 88% of the employed had an income below 180% of the net median household income (Statistik Austria, 2020).

Two options for implementation are conceivable. Option 1 is to introduce an additional tax, e.g., a surcharge for top incomes. Option 2 is to establish a minimum level of taxation for high incomes and an additional tax bracket for "excessive" incomes.

Option 1: For all the income above the fourfold net median household income an additional tax of 25% would apply. Such a surcharge of 25% would allow the reaching of a maximum overall tax level of approximately 80% in the member states with the highest marginal top income tax rates. In the EU, the current top personal income tax rate ranges from 15% in Czechia and Hungary to 55.9% in Denmark (OECD 2021). Hence, a surcharge would lead in those member states with currently low marginal income tax rates to a marginal income tax rate near the current EU 28 average. In Denmark the TfTEI would increase the top marginal income tax rate to almost 80%, which would still be in line with historically high income taxation in developed economies such as the US or the UK (Piketty, 2014). Since the 1980s in developed countries a close relationship between the reduction in top marginal income tax rate and an increase in the top percentile's share of national income could be observed, being particularly pronounced in the U.S. and U.K. (Piketty, 2014). Based on this evidence he expects a marginal income tax near 80% to lead to a drastic reduction in remuneration. As a side-effect, marginal price and cost competitiveness of EU firms could be increased in certain high-skill industries.

Option 2: Two additional tax brackets would be introduced. For all the income above the fourfold net median household income a tax of 50% would apply. Consequently 50% would be on the upper end of marginal top tax rates, but still lie below the tax rates of some member states such as Denmark. If the national top income tax rate exceeds 50%, it continues to be applied. In order to avoid a crowding-out of the EU's share, member states who already have a marginal top income tax rate above 50% may not increase it further. Member states whose current top marginal top income tax rate lies beneath

50% may only increase it to 50%. The definition of "excessive" would then apply to all incomes exceeding the annual remuneration of the HoSG. To all salaries exceeding the HoSG remuneration an income tax rate of 80% would apply. By way of example, the remuneration of the French president was EUR181.680 in 2018 and 2019 (LCI, 2018). Hence, every Euro of remuneration earned in France in 2019 exceeding that amount would be subject to an 80% income tax. The wedge between the national tax and TfTEI would then feed into EU funds.

In both options tax collection would be administered through the Member States. In line with the other traditional own resources, the member states are to retain 25% of the share as reimbursement for incurred collection costs.

Overall, the debate on a TfTEI would be an opportunity to politically define "excessive" pay and to underpin the Commission's priority of "an economy that works for people". The TfTEI could foster the EU-wide debate on setting minimum levels for taxing high incomes, while taking account of national differences and/or preferences.

Option 1 would leave the marginal top income tax rates that differ across member states in place. Hence, it would continue to take account of different national tax levels and would not lead to their harmonisation. However, being an additional tax, it would also be more prone to the argument of double taxation.

Option 2 would set a minimum level for taxing top incomes. The 50% tax bracket would incentivise member states to harmonise tax levels for high incomes. Assuming states give preference to their own revenues over feeding funds into the EU budget, this could then lead to a crowding-out of the EU-share in the medium term.

An overall tax rate closer to 50% would generate lower but more stable revenues in the future. However, this would also incentivise to a lesser degree more moderate top wages. An overall top income tax rate close to 80% or above will possibly cause high income levels to drop (Piketty, 2014). Initial revenues are expected to be comparatively high, but also expected to fall over time when wage levels adapt.

Empirical evidence suggests that increasing taxes for the rich do not significantly impair economic growth (Hope and Limberg 2020; Piketty et al. 2014). Consequently, such taxes are a good source of revenue with regard to the goal of increasing revenue, while minimising the economic impact.

Not least, the EU could set a precedent in the realm of income taxation after the OECD agreement on a global minimum corporate tax.

6.2.2 New own resource based on a wealth tax for individuals[98]

Given substantial and increasing global wealth inequality (Zucman, 2019), which is exceeding income inequality in most industrialised countries (Brys et al., 2016), the taxation of top incomes and wealth has been attracting increased interest recently (Bastani and Waldenström, 2018; OECD, 2018a, 2018b, 2021). In particular, there is an international debate on the (re-) introduction of a net wealth tax for individuals or private households, which currently can be found in only very few countries.

An often-heard counterargument against a net wealth tax is that the cross-border mobility of capital and the existence of tax havens make an effective enforcement of net wealth taxes impossible (Boadway et al., 2010; Kleven et al., 2020). Empirical evidence on the extent and the consequences of

[98] This section draws heavily on Krenek and Schratzenstaller (2018).

international net wealth tax competition and tax avoidance is scarce. However, two kinds of evidence for some impact of wealth taxation on the relocation of assets exist. First, recent estimates suggest that considerable amounts of private wealth are hidden in tax havens; whereby one central motivation quite obviously is to escape taxation (see, e.g., Alstadsæter, Johannesen and Zucman, 2018). Second, several case studies corroborate the theoretical expectation that wealth taxes cause (illicit) offshore transfers of assets.[99] Particularly the very wealthy tend to hide their wealth offshore, as shown by Alstadsæter, Johannesen and Zucman (2019). In addition, there is some evidence (in a within-country context) that differences of net wealth tax rates impact locational decisions.[100]

Altogether, the existing empirical evidence suggests increasing difficulties in enforcing a tax on net wealth in a purely national context. Although there is no systematic and elaborated empirical evidence on international net wealth tax competition, the development of wealth taxation in Europe during the last few decades lends some support to the hypothesis that a race-to-the-bottom-type of tax competition based on the international mobility especially of financial assets has contributed to the almost complete disappearance of net wealth taxes, and the observable shift within wealth taxation towards property taxes on immobile real property. Meanwhile, only Switzerland, Norway, Spain, France (for real estate) and Luxembourg (for corporations) levy a net wealth tax in Europe.[101]

Against this background, several proposals for a coordinated approach to implement an EU-wide net wealth tax have been put forward in the last few years (Piketty, 2014; Landais, Saez and Zucman, 2020; Kapeller, Leitch and Wildauer, 2021). By dealing with non- and under-reporting in the Household and Consumption Survey (HFCS) data set (second wave) provided by the European Central Bank, Krenek and Schratzenstaller (2018) estimate the wealth distribution within 20 EU Member States including also very wealthy individuals who are under-represented in the HFCS data. Applying a progressive household-based tax schedule with a tax rate of 1% for net wealth above EUR1 million and 1.5% for net wealth above EUR5 million yields potential tax revenues of EUR156 billion, taking into account the behavioural responses of individuals triggered by net wealth taxation.[102]

These estimates demonstrate that potential revenues of a net wealth tax are rather substantial in the 20 EU Member States for which net wealth data from the second wave of the HFCS are available, even if the tax specifically targets the upper tail of the wealth distribution by granting rather generous basic allowances. Our estimates show that an EU-wide progressive net wealth tax with a basic allowance of EUR1 million per household would yield revenues in the order of magnitude of about 1.5% of GDP on average for the 20 EU Member States included, while affecting only 4.8% of households and resulting in an effective tax rate of about 0.3% of net wealth.

The country-specific burden of the tax, measured as a share of wealth tax revenues in GDP, varies considerably between the 20 Member States included in the estimate: while the EU-average reaches 1.47% of GDP, the burden is highest in Cyprus (3.94% of GDP) and lowest in Slovakia (0.08% of GDP). Most of the countries with a wealth tax burden below average are new or poorer old Member States.

Assigning revenues from a net wealth tax to the EU budget may be motivated by two reasons, in particular. First, at least part of these revenues is additional, in the sense that they would not have been realised within an uncoordinated setting in which EU Member States unilaterally try to implement net

[99] See, e.g., Henrekson and Du Rietz (2014) for Sweden or Pichet (2007) for France.

[100] See Brülhart et al. (2021) for Switzerland or Agrawal et al. (2020) for Spain.

[101] See Krenek and Schratzenstaller (2018) for details.

[102] To account for the potentially large behavioural responses to a European net wealth tax we use the elasticities estimated by Brülhart et al. (2017) in the Swiss context. The authors' finding that an increase of the tax rate on net wealth of 1 percentage point decreases the tax base by 35% appears as an enormous but plausible effect and makes the revenue estimates rather conservative.

wealth taxes. Second, the wealthy should have benefited over-proportionately from the economic benefits provided by the creation of the EU, its single market in general, and the free movement of capital in particular. Therefore, a wealth tax can be justified not only based on the ability-to-pay principle, but also considering the benefit principle (Grüner, 2013). Reversing the long-term trend of eroding taxes for the very wealthy may strengthen the perceived fairness of taxation and thus general tax morale. From this perspective, there is a strong link to European policies – particularly regarding the current efforts towards fair and equitable taxation in the EU. Overall, an EU budget partially financed from an EU-wide net wealth tax could serve as an illustrative example for the potential benefits of stronger cooperation within the EU, and would thus bear potential to strengthen EU integration.

6.2.3 New own resource based on a wealth tax on large corporations

Saez and Zucman (2021) propose a tax on stock shares of corporations for all publicly listed companies (Tax for Stock Shares of Corporations TSSC). Their proposal is for the G20, but such a tax could also be envisaged for the EU. The TSSC is akin to a wealth tax on the market value of corporations, so that the owners of the most successful companies pay the most. It is an alternative form of wealth taxation: a wealth tax at source on publicly traded corporate shares, as opposed to a wealth tax on wealthy individuals. Each year, the European Securities and Markets Authority (ESMA) could levy a tax of 0.2% on the end-of-the-year market value of each company publicly listed on a stock exchange in the EU. The size of the levy could also be adapted. Corporations would pay the tax either in cash or in kind, where the latter means that corporations have the option of paying the tax by issuing new stock.

An important advantage is that the TSSC would be easy to enforce: publicly listed companies are highly regulated in the EU, and they already pay various (modest) fees when it comes to issuing stock and transactions. Relative to taxes on corporate profits, the TSSC would be easier to administer and harder for companies to avoid. The TSSC would also imply an adaption to the development in modern economies that corporate equity wealth has grown in importance relative to real estate wealth (e.g. Piketty, 2014).

Each company would be able to pay the TSSC by issuing new stock, so that its cash flow would not be directly affected. Hence, even liquidity-constrained corporations could pay the TSSC without running into additional constraints on their finances or business operations. The notion of corporate shares implies diversified ownership, which contrasts with real estate property, which typically cannot be divided as easily. While wealth taxes on real estate property taxes would raise important liquidity issues, a tax on stock shares could be paid in kind, helping avoid liquidity problems.

Stock ownership is highly concentrated among richer households and more concentrated than other forms of wealth such as real estate (see, e.g., de Bondt et al., 2020). Therefore, a tax on the market capitalisation of companies listed on stock exchanges in the EU would be highly progressive, supporting a more equal distribution of wealth. As the stock market capitalisation in the EU is around USD8 trillion, or more than 50% of the EU countries' GDP of around USD15 trillion,[103] the TSSC of 0.2% on the end-of-the-year market value of corporations would raise approximately USD16 billion each year, approximately 0.1% of EU GDP. However, the annual revenue generated from implementing the TSCC would fluctuate with the market value of publicly listed companies, which would also introduce an element of pro-cyclicality and instability in the revenue stream.

[103] Source: World Bank (2021); own calculations.

The relatively simple design of the TSSC means that its introduction could generate substantial revenue in a progressive manner while also gathering public support. An own resource based on the TSSC would be transparent and tangible for EU citizens. It is the current owners of large corporations listed on EU stock exchanges that would bear the burden of the TSCC, so that the tax should not be associated with undesirable distributional effects. Since the owners of listed companies have tended to fare well during the COVID-19 pandemic (e.g. Forbes, 2021), introducing a tax that is borne by the main benefactors of an increase in equity stock could prove popular with the wider public. Some companies have become very valuable by establishing market power even before they started to make large profits. The TSSC would make these companies pay higher taxes sooner.

As noted by Saez and Zucman (2021), the TSCC proposal would work best if all the largest global economies were to coordinate by jointly adopting the tax. One approach could be to look at the coverage as in the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting agreed on in July 2021, where in-scope companies are the multinational enterprises with global turnover above EUR20 billion and profitability above 10% (OECD, 2021b). The TSCC could be based on thresholds in global turnover or market capitalisation for publicly listed multinational companies, which would then be obliged to pay a wealth tax on stock shares as explained above.

The G20 could arguably be the right level to negotiate the creation of a global TSSC. The recent OECD/G20 compromise on a global minimum corporate income tax rate has shown that international tax coordination can be fruitful (OECD, 2021b). This global minimum corporate income tax rate, however, would not interfere with the introduction of the TSCC, which is not a tax on income/profit but an alternative form of wealth taxation at source on publicly traded corporate shares. Given that the EU accounts for 15% of the world's GDP (Statista, 2021), the EU countries would certainly be an important player in pushing for the introduction of a global TSCC, but there are other major G20 players that could disagree. However, if global coordination were to fail so that other (advanced) countries outside of the EU would not introduce the TSCC, there would be incentives for companies to list themselves on stock exchanges outside of the EU in order to escape the tax.

The question about how to distribute the funds raised by the TSCC could be an important point of conflict between EU Member States. TSCC funds could be allocated in proportion to population, to the amount of sales made by a company in each EU country, or based on other factors. Transferring TSCC revenues to the EU as new own resource would avoid such conflicts.

In any case, a tax on the market value of companies listed on the stock exchange would make corporate stocks less attractive for investors in relation to fixed-income assets (e.g. bonds), real estate or private businesses. The TSCC would eventually be priced into stocks, thus reducing the valuation of publicly traded corporate stock in comparison to other asset classes. In this sense, the introduction of a TSCC could come with (unintended) side effects in terms of influencing asset prices, although the size of these effects would also depend on how large the levy on the market capitalisation of the company at the end of each year actually is.

Furthermore, introducing the TSCC would create an extra cost in establishing publicly listed companies. Therefore, it could be necessary to counterbalance this distortion by imposing an equivalent tax on the largest private businesses, which could lead to higher administrative costs – especially since these private businesses are not listed on the stock exchange, which makes them typically less-regulated so that a wealth tax would also be more difficult to enforce. Finally, there is the question about what to do with companies listed on several stock exchanges, which is not uncommon among large multinationals. In any case, policymakers would need to ensure that double taxation is avoided where it is possible.

6.3 New own resources based on other revenue

The EU does not have an own tax competence. The guiding principle regarding the financing of EU expenditures is laid down in Article 311 TFEU: "Without prejudice to other revenue, the EU budget shall be financed wholly by own resources." The formulation of Article 311 TFEU implies that own resources shall represent the lion's share of the financial means the EU has at its disposal, whereas "other revenue" can play a minor role only (Mathis, 2015). Own resources are revenue sources which are assigned to the EU irrevocably and which it receives automatically, i.e., without further decisions by Member States. The attribution of own resources to the EU is based on an Own Resource Decision (ORD), which is subject to the strictest possible EU decision-making process, demanding a unanimous Council decision and requiring subsequent ratification by all Member States according to their individual constitutional requirements. After completion of this process the ORD takes effect and the stipulated revenue sources are "owned" by the EU in the sense mentioned above (i.e., irrevocable assignment and automatic accrual) (HLGOR, 2016).

While the ORD does not differentiate between the various own resources accruing to the EU (see Article 2 ORD 2020), these of course differ regarding their legal nature and decision-making modus on the one hand and their link to EU policies and EU competencies on the other hand, as the HLGOR (2016) elaborates in detail.

In contrast to own resources which are attributed to the EU based on an ORD, other revenue is not included in the ORD. In fact, other revenue is rather based on secondary legislation, so that ratification by Member States is not required, which implies a less stringent decision-making process (HLGOR, 2016). Other revenue accounts for EUR10.997 billion or 6.3% of overall EU revenue in 2020. In the period from 2011 to 2020, the share of other revenue in total revenue reached 7.6% per year on average, showing rather pronounced yearly fluctuations.

Currently there are several kinds of other revenue flowing into the EU budget:

- Administrative revenue, consisting of revenue accruing from persons working with the institutions and other EU bodies, i.e., taxes on salaries and pensions, and staff contributions to the pension scheme and revenue accruing from the administrative operation of the institutions, e.g., proceeds from the sale of property;
- Budget surpluses, balances and adjustments;
- Revenue, contributions and refunds related to Union policies;
- Financial revenue, default interest and fines, e.g., fines by companies related to competition and cartel cases;
- Revenue from EU borrowing or lending operations;
- Miscellaneous revenue.

Besides surpluses, balances and adjustments, two items are most important in quantitative terms: contributions and refunds in connection with Union policies; and (at least in most years) interest on late payments and fines.

Other revenue is closely linked to EU policies and competences, without which it would not exist, and reflects the EU's scope for independent action (Mathis, 2017). Hence, it can be regarded as more "genuine" than national contributions in the form of GNI- and VAT-based own resources, which constitute the bulk of current EU revenue (HLGOR, 2016). This is the most important rationale to assign such other revenue to the EU budget instead of dividing it among Member States. It is therefore worthwhile exploring further options for other revenue. In addition to the existing other revenue items, further options are conceivable, some of which may even contribute to EU policies and strategies.

One option for other revenue are "measures of a fiscal nature" in the areas of energy and environment based on Articles 192 and 194 TFEU (HLGOR, 2016), e.g. the aviation taxes mentioned above. Raising revenue through such measures needs to be secondary; they need to be motivated primarily by environmental and energy-related objectives. However, EU law should permit the channelling of any resulting revenue, provided it is marginal compared to overall revenue, into the EU budget (Waldhoff, 2016). As these measures would not only raise revenue, but also contribute to EU policies and strategies, they present themselves as suitable future- and sustainability-oriented revenue sources for the EU budget.

Another option to generate other revenue is to channel a part of the revenues from seigniorage (i.e., the revenue accruing to central banks and governments from issuing money) into the EU budget. This option was put forward in the European Commission's Reflection Paper on the Future of EU Finances (2017), arguing that revenues from seigniorage in Member States using the EURO are related to the common currency and the economic and monetary union. The European Commission (2018h) estimates potential revenues between EUR10.5 billion (for a percentage of 10%) and EUR56 billion (for a percentage of 50%) over the period 2021 to 2027.

Also, revenue stemming from future EU policy initiatives may be suitable other revenue: e.g., revenues related to the EU system of border controls to enter the Schengen zone (ETIAS) which will be introduced by the end of 2022; to the European space strategy; or to the conservation of marine biological resources (HLGOR, 2016). These policy areas include considerable cross-border elements, which require European action and make it difficult to attribute revenues to individual Member States.

A closer look at the specific sources of other revenue makes obvious that they will not guarantee a steady and reliable flow of financial resources. Other revenue, quite on the contrary, is unpredictable and subject to considerable short-term fluctuations. As other revenue will always remain a rather small item within overall EU revenues, however, such fluctuations can easily be compensated by the GNI-based own resource. At the same time, strengthening other revenue (as far as it is not earmarked to reinforce specific programme lines in the EU budget) creates space to reduce national contributions, and particularly GNI-based own resources (Mathis, 2017).

Table 22: Other revenue 2011-2020

Revenue (million EUR)	2011	2012	2013	2014	2015	2016	2017	2018	Modified composition	2019	2020
Title 1 Own resources	118,164	128,886	140,100	128,867	130,738	132,166	115,416	142,330	Title 1 Own resources	144,766	160,141
Title 3 Surpluses, balances and adjustments	6,370	2,041	698	5,100	8,031	1,358	6,416	581	Title 2 surpluses, balances and adjustment	1,805	3,167
Title 4 Revenue accruing from persons working with the institutions and other union bodies	1,207	1,236	1,199	1,251	1,329	1,452	1,484	1,542	Title 3 Administrative revenue	2,132	2,210
Title 5 Revenue accruing from the administrative operation of the institutions	587	612	611	578	563	579	587	563			
Title 6 Contributions and refunds in connection with union agreements and programmes	2,454	2,928	3,898	3,225	4,198	5,928	12,179	12,777	Title 6 Revenue, contributions and refunds related to union policies	12,577	8,156
Title 7 Interest on late payments and fines	1,183	3,807	2,973	4,607	1,703	3,175	3,573	1,473	Title 4 Financial revenue, default interest and fines	2,638	631
Title 8 Borrowing and lending operations	1	0	2	297	42	41	28	39	Title 5 Budgetary guarantees, borrowing and lending operations	0	0
Title 9 Miscellaneous revenue	34	31	24	15	19	17	8	13			
Total revenue	**130,000**	**139,541**	**149,504**	**143,940**	**146,624**	**144,717**	**139,691**	**159,318**	**Total revenue**	**163,918**	**174,306**
Of which other revenue[1])	5,466	8,614	8,706	9,973	7,854	11,193	17,859	16,407	Of which other revenue	17,347	10,997
Percent of Total revenue	4.2	6.2	5.8	6.9	5.4	7.7	12.8	10.3	Percent of Total revenue	10.6	6.3

Source: European Commission, https://eur-lex.europa.eu/budget/www/index-en.htm. – 1) Title 4 to Title 9.

7 BENEFITS FROM INTRODUCING A BASKET OF NEW EU OWN RESOURCES

KEY FINDINGS

- By complementing national contributions to the EU budget or replacing part of them with new own resources the EU's financing system can contribute to sustainable growth and development as well as resilience in the EU.
- The EU-wide introduction as new own resources of taxes and levies that cannot be implemented effectively at Member State level allows the reaping of potential co-benefits and steering effects that would otherwise remain unused.
- Substituting a share of national contributions by new own resources can improve the EU revenue system, e.g. by increasing its transparency or the EU's financial autonomy.
- The introduction of new own resources based on fresh streams of public revenue is associated with benefits for Member States, as it allows national tax cuts or avoids the increase of national contributions, and thus the increase of national taxes or expenditure cuts in case of increasing financial needs.
- Assigning revenues from new own resources to the EU creates a variety of additional benefits, e.g. by mitigating Member States' net position thinking or by improving coherence within the EU budget.
- Various co-benefits and steering effects are associated with particular own resources, e.g. positive effects with regard to the environment or public health.
- Generally, introducing a basket of new own resources instead of a single new own resource option has several advantages, as undesirable effects and uneven financial burdens across Member States, and differing long-term revenue potentials can cancel out, and because a variety of sustainability- and resilience-related co-benefits and steering effects can be generated.
- From a macroeconomic point of view, a basket of new own resources could also help to smooth the EU-wide economic cycle by acting countercyclically via different channels as automatic stabilisers. This is also true for asymmetric shocks among Member States.
- A basket of new own resources comprising the IIA options would contribute to the attainment of EU climate objectives and to digital change, and it would strengthen various areas of the single market.
- Existing revenue estimates suggest that annual revenues from an ETS-based own resource, a CBAM and reallocate profits of MNEs, even under conservative assumptions, should suffice to service debt incurred for NGEU.

7.1 Benefits from introducing new own resources

New own resources for the EU budget are associated with general benefits through replacing or complementing current own resources on the one hand, and with specific benefits generated by particular new own resources on the other hand.

7.1.1 General benefits from introducing new own resources

Replacing or complementing current EU own resources with new ones can be expected to create a variety of benefits:

- An EU-wide coordinated approach to introducing certain taxes and levies that cannot be, or can only ineffectively be, implemented at Member State level allows the reaping of potential co-benefits and steering effects that these taxes and levies may have, that would remain un- or under-utilised otherwise (Schratzenstaller et al., 2017; Fuest and Pisani-Ferry, 2020).
- In contrast to current EU own resources, new own resources contributing to central EU policies and strategies support sustainable growth and development as well as resilience in the EU.
- Replacing national contributions, which are perceived as transfers by Member States to the EU budget and not as resources owned by the EU, with new own resources, strengthens the fiscal autonomy and independence of the EU (Schratzenstaller, 2019b).
- New own resources can make the overall EU revenue system more transparent if they are themselves transparent.
- Implementing certain sustainability-oriented taxes and levies as own resources based on EU-wide coordination secures their long-term continuity: they are more difficult to change in the short run and even medium run compared to national taxes and levies, which due to tax avoidance and tax competition would be constantly under pressure. This improves planning security for economic agents operating in the single market.
- Assigning revenues from such new own resources to the EU, which can use them to replace or complement current ones, is associated with several benefits:
    - By strengthening the link between EU expenditures and revenues, coherence within the EU budget is improved. Considering the increase of the climate mainstreaming target for the EU budget from 20% to 30%, as well as the requirement to channel 37% of RRF funds into climate protection and 20% into digital change, green new own resources as well as taxes related to the digital economy are particularly apt to increase coherence of EU budget policies.
    - National contributions to the EU budget can be reduced or their increase can be avoided or at least mitigated. This creates space to cut other less sustainability-oriented taxes at Member State level (e.g. the high taxes on labour) within a supranational sustainability-enhancing tax shift (Schratzenstaller et al., 2017), or makes tax increases or expenditure cuts at Member State level to finance higher national contributions unnecessary (e.g. to expand the EU budget to provide more European public goods with European added value).
    - An additional layer of control regarding the proper implementation and collection of the respective taxes and levies through EU institutions (e.g. the European Court of Auditors) is provided.
- Financing NGEU debt through tax-based new own resources (i.e. future increases of taxes and other levies) provides for intergenerational equity, as suggested by Sachs (2014) in the context

of financing climate policies: the current generation implements debt-financed climate policies (or other future-oriented investment, e.g. with regard to digital change) to reduce or eliminate negative climate change-related externalities (or to create positive externalities) for the next generation(s), that in turn pay back debt through increases of taxes or other levies.[104]

- New own resources, particularly if their revenues cannot be attributed to individual Member States, can mitigate Member States' net position thinking, which traditionally acts as a significant barrier to shifting EU spending towards European public goods with European added value, and to adjusting the volume of the EU budget to the mounting long-term challenges Europe is facing (Bachtrögler et al., 2020).

7.1.2 Specific benefits associated with particular own resources

An overview of the benefits from the basket of new own resources included in the IIA is provided in table 23. The focus here is on benefits through assigning certain new own resources to the EU, and on their co-benefits and steering effects. It is important to distinguish between three aspects: the justification for implementing a specific own resource at the EU level based on EU-wide cooperation (as opposed to unilateral introduction at Member State level); the co-benefits and steering effects of the sectoral policy/legislation/instrument underpinning the own resource as such; and the co-benefits generated by using the revenues of a particular own resource for the EU budget. In addition, the specific link to EU policies is relevant.

7.1.2.1 Link to EU policy

All envisaged new own resources included in the first basket are connected to important EU policies and strategies related to the climate and digital change, which are cornerstones of sustainable growth and development as well as resilience in Europe. The closest link exists for an ETS-based own resource and a CBAM: the EU ETS, complemented by a CBAM, is a genuine EU policy and a key element of the EU's climate strategy. Revenues from the EU ETS and a CBAM can therefore be regarded as genuine own resources. Also, the plastic-based own resource and an own resource drawing on the residual profits of the largest and most profitable MNEs that are reallocated to EU Member States, are linked to European policies.

With new own resources based on financial transaction and the taxation of corporations, the second basket is also linked to EU policy. These particularly include the creation of a single market for financial services as well as fair and efficient business taxation.

7.1.2.2 Justification for introduction based on an EU-wide coordinated approach

There is a sound justification for each new own resource option to be introduced based on an EU-wide coordinated approach:

- Uncoordinated introduction of plastic levies at Member State level may lead to inefficiently low rates due to the cross-border nature of environmental damage caused by the production of plastic packaging and the disposal of plastic packaging waste. It may also lead to the fragmentation of tax systems. While this may also be true for the actual design of the plastic-based own resource, which leaves it to Member States' discretion whether to introduce

[104] This proposal is based on the "pay as you use" principle formulated by Musgrave (1939), according to which debt service for debt financed public investment with long-term benefits accruing to the next generation(s) makes the next generation(s) contribute adequately to the provision of such public investment.

national measures to reduce plastic packaging waste, at least it provides some form of top-down impulse for Member States to address the problem of massively increasing plastic packaging waste.

- Uncoordinated introduction of emission trading systems at Member State level can lead to an inefficiently low carbon price due to the cross-border nature of carbon emissions. Analogously, inefficiently low carbon border levies may result from an uncoordinated implementation of CBAM at Member State level. Moreover, given that the EU as a single market has common external trade borders and common external commercial policies, it is difficult to conceive of legally sound "national CBAMs" to begin with. Inefficiently low rates and effective taxation, respectively, may be caused by uncoordinated implementation of the two-pillar solution at Member State level.
- Uncoordinated implementation of national financial transaction taxes at Member State level can lead to a significant relocation of the tax base and a fragmentation of the single market for financial services. Also, inefficiently low tax rates may result due to competitive pressures.
- The EU ETS, a CBAM, Pillar I. of the planned reform of the international tax framework, a European financial transaction tax and a harmonisation of corporate taxation based on BEFIT, contribute to fiscal integration.
- A centralised approach regarding the introduction of a CBAM at the EU level could shield Member States from potential lawsuits when it comes to legal international conflicts, for instance in the framework of the WTO.

7.1.2.3 Co-benefits and steering effects

The options for new own resources create a variety of co-benefits and steering effects supporting important EU strategies and policies:

- By reducing the production of plastic packaging and the amount of non-recycled plastic packaging waste, the plastic-based own resource contributes to the containment of emissions, plastic pollution, detrimental health effects of plastic waste, public expenditures for plastic packaging waste treatment, and further economic costs incurred through the existence of plastic packaging waste and its continuous growth.
- The central steering effect exerted by the EU ETS is emission reduction. Besides, it is associated with significant co-benefits related to public health, air quality, and energy security. Not least, by cutting emissions the EU ETS decreases public expenditure required for climate mitigation and adaptation measures and further economic costs associated with climate change.
- A CBAM prevents carbon leakage, thus enabling the phasing-out of free allowances, and protects the competitiveness of European industry. It is thus beneficial from an environmental as well as an economic point of view. Furthermore, it also provides an incentive to foreign companies to adopt less carbon-intensive technologies.
- Main co-benefits of own resources based on Pillar I. and on BEFIT are their contribution to the long-term sustainability of corporate taxation and to tax equity. They also help to create a level playing field for companies active in the single market.
- A financial transaction tax may contribute to a stabilisation and more efficient functioning of financial markets. Also, tax equity can be improved, as well as tax and legal certainty. It may also reduce income inequality. A European financial transaction tax may help to internalise negative cross-border externalities due to the cross-border nature of financial trading.

7.1.2.4 Benefits from using revenues for the EU budget

Using revenues from the new own resource options to finance the EU budget has additional benefits, which again are particularly sizeable for an ETS-based own resource and a CBAM:

- The plastic-based own resource, which as a statistical own resource has to be paid from Member States' national budgets, may induce Member States to implement levies on plastic packaging (waste) to retrieve the payments to the EU budget, or other measures to reduce plastic waste.
- Using ETS revenues as own resource is justified by the cross-border nature of emissions, rendering it impossible to attribute revenues to individual Member States. Revenues result from a common EU policy and legislation, making them a genuine own resource. While Member States under the present system do not fully spend ETS revenues for climate measures and are likely to prefer climate measures of a more local nature, the EU could use ETS revenues (as part of overall revenues) for cross-border climate projects with a higher European added value. Specifically, if transferred to the EU, a part of EU ETS revenues could be redistributed via the EU budget to Member States with limited capacities to implement effective climate policies at the national level, by introducing specific programmes supporting the implementation of climate measures in these Member States; while individual Member States may use EU ETS revenues for less effective (because local in nature) climate projects or for general spending not related to climate policies at all. Furthermore, financing the Modernisation and Innovation Fund from the general budget (funded *inter alia* by an ETS-based own resource), instead of earmarked ETS revenues, should be more cost-efficient and environmentally effective. Financing these funds from the general budget guarantees a steady and reliable financial base, which allows for funding decisions based on the quality of projects rather than available revenues. The elimination of earmarking a share of ETS revenues abolishes incentives for the legislator to intervene in the working of the ETS to stabilise or increase earmarked revenues. Incentives for Member States to loosen other emission-reducing policies to an inefficiently low level with a view to preserving EU ETS auctioning revenues are avoided. Assigning revenues from an ETS-based own resource to the EU is justified also from a cross-country fairness perspective, as otherwise emission-intensive Member States particularly benefit from high and increasing carbon prices (due to the allocation of emission allowances based on historical emissions). Currently, the burden of EU ETS revenue volatility is carried by Member States, and it is disproportionate for large carbon emitters. Assigning revenues to the EU would smooth this impact: revenue shortfalls would be compensated through higher GNI-based contributions, which, however, would be distributed evenly across Member States. The proposed SCF would be associated with co-benefits insofar as it would strengthen social inclusion in Member States and support a just transition. The envisaged boundaries of the new own resource based on EU ETS revenues would contribute to cohesion among Member States.
- A specific co-benefit of an ETS-based own resource according to the Commission proposal would be a certain cohesion effect of the upper and lower boundaries
- Revenues from a CBAM cannot be attributed to individual Member States because of the cross-border nature of emissions. Assigning revenues to individual Member States is also complicated due to cross-border value chains. Therefore, CBAM revenues present themselves as genuine EU own resources, also considering that they stem from a common EU policy. Furthermore, individual Member States may be more inclined to spend CBAM revenues in ways that could be interpreted by the WTO as subsidies, thus endangering the CBAM. If the EU

introduced a fully-fledged CBAM including rebates for European exporters, channelling CBAM revenues into the EU budget would avoid a situation in which individual Member States would have to pay more in export rebates than they receive in CBAM import levies. The single Member States typically have only limited capacities with regard to their international cooperation aid institutions when it comes to international support for the green transition. If a share of CBAM revenues were spent for international transfers compensating poorer EU trading partners, centralised decision making and implementation of such transfers at the EU level is more cost-efficient, and it avoids free-riding and non-participation by individual Member States.

- Although the concrete design of a digital tax solution via a reallocation of profits is not yet known, revenues from the partial transfer of the reallocated profits to the EU budget can contribute to the attainment of EU digital change, and it would strengthen various areas of the single market. As 20% of the funding through the Recovery and Resilience Facility shall be allocated to digitalisation, the revenues from the digital tax solution via reallocation of profits paid by companies with no physical presence in the EU, but using European digital infrastructure, can finance its development and further improvement based on the 'pay as you use' principle. In addition, in the face of limited capacities in some Member States to develop and implement the digital transition, using revenues from a reallocation of profits as own resource financing *inter alia* projects to support the digital transition in these Member States yields benefits for the whole EU, as it contributes to the development and further improvement of digital transition and a single digital market.
- Although the design of these new own resources is complex in itself, a reformed EU revenue system based on these new own resources, the traditional own resources, the simplified VAT-based own resource and the plastic-based own resource, and a GNI-based own resource serving as residual financial source may be more transparent, comprehensible, and acceptable for the general public, compared to the system in force until the end of 2020, which did not support important EU strategies and policies. A reformed revenue system based on new own resources as a central pillar can increase the visibility of European added value created by the EU budget.
- Several of the proposed new own resources to a large extent create "fresh money", as stipulated in the IIA, and do not (plastic-based own resource, CBAM) or only marginally (financial transaction tax) interfere with national tax/revenue systems. In contrast, an ETS-based own resource interferes with national revenue systems, as EU ETS revenues currently flow into Member States' budgets. However, this is only true for the revenues based on the current design of the EU ETS, not for additional revenues resulting from a higher carbon price, the extension of the scope of the EU ETS, and the reduction of free allowances, which will create the bulk of "fresh" revenue streams. Also, new own resources based on Pillar I. and on BEFIT would interfere with national tax systems.

- The proceeds from all new own resources under discussion are cyclically sensitive, i.e. they are correlated to the business cycle. Replacing a share of GNI-based own resources by these new own resources would act as an in-built automatic stabiliser in the case of asymmetric shocks hitting specific Member States (European Commission, 2018b). Compared to the current revenue system primarily funded by the GNI-based own resource, the contributions from the affected Member States from the new own resources would decrease disproportionately, while the other Member States would carry the burden in the form of increased GNI-based contributions.

Table 23: Benefits from introducing new own resources stipulated in the IIA

	Plastic-based own resource	Own resource based on share of reallocated residual profits of largest and most profitable MNEs	ETS-based own resource	CBAM-based own resource	FTT-based own resource	BEFIT-based own resource
Link to EU policy	• Action Plan for the Circular Economy • Strategy for Plastics in a Circular Economy • European Green Deal	• Digital Single Market Strategy • Action Plan for Fair and Simple Taxation • A Fair and Efficient Tax System in the EU for the Digital Single Market • Digital Service Act Package • Shaping Europe's Digital Future	• EU-wide emission trading system • European Green Deal • Fit for 55 Package • 2030 Climate and Energy Framework • 2030 Climate Target Plan	• EU-wide emission trading system • European Green Deal • Fit for 55 Package • 2030 Climate and Energy Framework • 2030 Climate Target Plan	• Single Market for Financial Services	• Communication on Business Taxation for the 21st Century • Time to establish a modern, fair and efficient taxation standard for the digital economy • Shaping Europe's Digital Future
Justification for introduction of own resource option at EU level	• Uncoordinated introduction of plastic levies at Member State level can lead to inefficiently low rates due to the cross-border nature of environmental damage caused by the production of plastic packaging and the disposal of plastic packaging waste	• Fiscal integration	• Fiscal integration • Uncoordinated introduction of emission trading system at Member State level can lead to inefficiently low carbon prices due to the cross-border nature of emissions	• Fiscal integration • Uncoordinated introduction of CBAM at Member State level can lead to inefficiently low carbon border levies due to the cross-border nature of emissions • EU-wide coordinated approach could shield Member States from potential lawsuits regarding potential conflicts with WTO framework	• Fiscal integration • Uncoordinated introduction of national FTTs at Member State level can lead to significant relocation of tax base and fragmentation of the single market for financial services	• Fiscal integration
Co-benefits and steering effects of own resource option itself	• Reduction of emissions from production of plastic packaging and disposal of plastic packaging waste • Reduction of plastic pollution • Strengthening of circular economy • Decrease of public expenditures for plastic packaging waste treatment	• Long-term sustainability of corporate taxation • Fair corporate taxation • Tax equity • Creation of world-wide level playing field for MNEs	• Reduction of emissions • Co-benefits related to public health, air quality, and energy security • Decrease of public expenditures for emission-reducing policies • Decrease of economic costs caused by climate change	• Prevention of carbon leakage • Protection of competitiveness of European industry • Incentive to foreign companies to adopt less carbon-intensive technologies	• Stabilisation and more efficient functioning of financial markets • Prevention of fragmentation of single market, elimination of distortion of competition • Improvement of the tax and legal certainty within the single market	• Fair corporate taxation • Tax equity • Long-term sustainability of corporate taxation • Creation of level playing field for companies acting in the single market

	• Co-benefits related to public health • Decrease of economic costs caused by plastic packaging waste				• Improvement of tax equity • Reduction of income inequality • Internalisation of negative cross-border externalities due to cross-border nature of financial trading	
Justification for and co-benefits of using revenues as own resource	• Incentive for Member States to implement measures for plastic packaging waste reduction • Strengthening of coherence between EU climate expenditures (considering climate mainstreaming goal of 30% for MFF and NGEU and of 37% for the RRF) and EU revenues	• Digital tax solution via re-allocation of profits based on the global agreement as compensation paid by digital companies for use of public digital infrastructure with European added value provided through EU budget (pay as you use principle) • In face of limited capacities in some Member States to develop and implement the digital transition, using revenues from a digital tax solution via re-allocation of profits as own resource financing inter alia projects to support the digital transition in these Member States yields benefits for the whole EU as it supports a single digital market • Strengthening of coherence between EU expenditures for digital change (considering goal of 20% expenditures for digital change for the RRF) and EU revenues	• Revenues cannot be assigned to Member States due to cross-border nature of emissions • EU could use revenues for cross-border climate projects with European added value • In face of limited capacities in some Member States to implement climate measures, using ETS revenues as own resource financing *inter alia* specific climate programmes in these Member States creates additional environmental benefits for the whole EU • Financing Modernisation and Innovation Fund through general budget is more cost-efficient and environmentally effective • Elimination of incentives for legislator to intervene in working of EU ETS to stabilise earmarked revenues • Decrease of incentives for Member States to reduce other emission reducing policies to inefficiently low levels to preserve ETS revenues • Avoidance of rents accruing to emission-intensive Member States	• Revenues cannot be assigned to Member States due to cross-border nature of emissions and value chains • EU could use revenues for cross-border climate projects with European added value • If a part of CBAM revenues is dedicated for transfers to poor EU trading partners, centralised decision making and implementation of such transfers at EU level is more cost-efficient and avoids free-riding and non-participation by individual Member States • Member States might be more inclined to spend CBAM revenues in ways the WTO might consider subsidies • Within a fully-fledged CBAM including export rebates, using revenues as own resource avoids a situation in which Member States' export rebate payments exceed import levy revenues	• Revenues cannot be easily assigned to Member States due to cross-border nature of financial transactions	-

			due to high and rising carbon prices • Currently, the burden of revenue volatility is carried by Member States, and it is disproportionate for large carbon emitters. Assigning revenues to the EU would smoothen this impact: revenue shortfalls would be compensated through higher GNI-based contributions, which, however, would be distributed evenly across Member States. • Strengthening of coherence between EU climate expenditures (considering climate mainstreaming goal of 30% for MFF and NGEU and of 37% for the RRF) and EU revenues	• Strengthening of coherence between EU climate expenditures (considering climate mainstreaming goal of 30% for MFF and NGEU and of 37% for the RRF) and EU revenues		

Source: own representation.

7.2 Introducing new own resources based on a basket approach

7.2.1 General benefits of a basket approach

Introducing a basket of new own resources is preferable to the implementation of a single new own resource option for several reasons:

- Undesirable effects and uneven financial burdens across Member States associated with particular new own resources could cancel out (HLGOR, 2016).
- A basket of new own resources creating different co-benefits and steering effects and addressing different central EU strategies and policies will deliver multi-faceted contributions to sustainable growth and development as well as resilience of the EU.
- From a perspective of securing long-term revenues for the EU, the implementation of a basket of new own resources with differing long-term dynamics regarding the development of the tax base, and thus differing revenue potential, is advantageous, particularly considering the decreasing revenue potential of emission-related green own resources in the longer run.

7.2.2 Benefits of introducing new own resources according to the IIA roadmap

Introducing a basket of new own resources comprising the plastic-based own resource, an EU ETS-based own resource as well as revenues from a CBAM and the reallocation of profits of very large MNEs, is associated with several benefits:

- The combination of new own resources particularly contributes to the attainment of EU climate objectives and to digital change, which constitute key EU policy areas.
- This mix of new own resources strengthens various areas of the single market, particularly contributing to a single carbon market and a single digital market, and thus deepens the single market and European integration overall.
- The Commission's revenue estimates suggest that annual revenues from the first basket of new own resources could suffice to service debt incurred for NGEU only after 2032, considering the extra expenditures for the SCF. Introducing the second basket of own resources as of 2026 would cushion fluctuations of first basket revenues, enable a linear repayment of NGEU debt already in the years before 2033, and allow a decrease of GNI-based own resources through using revenues exceeding repayment needs for NGEU debt.
- While revenues from the plastic-based own resource are expected to decrease in the medium run, a CBAM and particularly auctioning of EU ETS allowances will generate significant revenues by 2050, thus securing sufficiency of overall revenues from new own resources in the longer run. Also, own resources based on financial transactions and corporate taxation (in the form of a share of residual profits of the largest and most profitable MNEs reallocated to Member States and of a harmonised corporate tax base), can be expected to generate considerable revenues in the longer run, particularly if introduced based on a global consensus-based solution, or at least coordinated European-based solution.

7.3 Implementation aspects from the perspective of the overall EU system of own resources

The introduction of new own resources should be embedded in the following reforms and design elements:

- The GNI-based own resource should serve as residual own resource to buffer revenue shortfalls and short-term fluctuations also in the future.
- Potential disproportionate financial burdens imposed by specific new own resources for individual Member States could be mitigated by EU expenditures or by temporary correction mechanisms (as, e.g., for the own resources based on non-recycled plastic waste and EU ETS revenues).
- Rebates for some Member States help to cushion disproportionate burdens particularly for poorer Member States and thus to secure their acceptance; however, they should be temporary in nature, as they add to the complexity and lack of transparency of the overall revenue system. Moreover,
    - rebates granted to some Member States for the GNI-based own resource distort a fair distribution of the financial burden across Member States;
    - rebates regarding the plastic-based own resource should be phased out, and the temporary solidarity adjustment mechanism for the envisaged EU ETS-based own resource should not be prolonged beyond 2030, to avoid environmentally counterproductive effects.

7.4 Revenue aspects

Table 24 provides a rough and simplified calculation of annual revenues from the first basket of own resources and their allocation to the SCF and NGEU debt repayment for the period 2023 to 2032 based on the revenue figures published by the Commission in December 2021 for the period 2023 to 2030. For the sake of simplification, the amounts available for NGEU debt repayment are calculated as the leftover, while of course actual annual repayment needs may differ. Moreover, revenues from the plastic-based own resource are not included, as these are not counted as "new" own resource for the purpose of paying back NGEU debt as defined in the Own Resource Decision and the newly proposed EURI mechanism in the MFF regulation (even though it is listed in the IIA Roadmap as a first step, for the sake of completeness).

This rough calculation suggests that expected revenues from the first basket of new own resources might, if linear amortisation is aimed at (in which case yearly amounts of EUR15 billion in current prices would be required), hardly suffice to repay NGEU debt in the years 2028 (when the start of the repayment of NGEU debt should start) to 2032. The revenues that can be expected from the second batch of new own resources, however, that would kick in in 2026 would be more than sufficient to close any financing gap. After 2032, yearly revenues from the two baskets could significantly exceed NGEU debt repayment needs, as due to steadily growing carbon prices, an increasing scope of the CBAM, dynamic profits of the world-wide largest MNEs and of MNEs in general, as well as an increasing volume of financial transactions, yearly revenues can be expected to considerably exceed the financing requirements to pay back NGEU debt.

The repayment of NGEU debt is planned to start in 2028. There is therefore a realistic chance also for the more contested and complex new own resource options to be implemented and to yield the expected revenues by then.

Table 24: Annual revenues from the first basket of new own resources (EUR billion[1])

Year	ETS-based own resource	CBAM-based own resource	Own resource based on share of reallocated residual profits of largest and most profitable MNEs	total revenues from new own resources	allocation to SCF	NGEU debt repayment
	EUR billions[1])					
2023	4	0	up to 4	up to 8	0	8
2024	4	0	up to 4	up to 8	0	8
2025	4	0	up to 4	up to 8	2.176	5.824
2026	12	1	up to 4	up to 17	9.132	7.868
2027	12	1	up to 4	up to 17	8.786	8.214
2028	12	1	up to 4	up to 17	7.661[3])	9.339
2029	12	1	up to 4	up to 17	7.661[3])	9.339
2030	12	1	up to 4	up to 17	7.661[3])	9.339
2031	12[2])	1[2])	up to 4[2])	up to 17[2])	7.661[3])	9.339
2032	12[2])	1[2])	up to 4[2])	up to 17[2])	7.661[3])	9.339

Source: European Commission (2021a, 2021b, 2021c), Next generation of EU own resources (europa.eu), own calculations. – 1) In 2018 prices. – 2) Simple projection based on Commission estimates of annual revenues for the period 2026 to 2030. – 3) Average yearly expenditure of SCF for 2028 to 2032 required to reach the total SCF volume of EUR58.4 taking into account the proposed increases of MFF expenditure ceilings to accommodate the additional expenditures for SCF for the years 2025, 2026 and 2027.

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This study was prepared at the request of the Budget Committee and assesses the Commission's recent legislative proposals for the new own resources included in the interinstitutional roadmap agreed together with the NextGenerationEU programme. These are a plastic-based contribution as well as own resources based on the EU Emission Trading System and a carbon border adjustment mechanism. Also, own resources based on the reallocation of taxation rights on profits of large MNE according to Pillar I. of the OECD/G20 Inclusive Framework on BEPS as well as the taxation of corporations and financial transactions, as further options stipulated in the IIA roadmap, are analysed. Finally, the study briefly reviews further own resource options which could create co-benefits and steering effects supporting a sustainable, inclusive, green and digital transition.

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