



BANCA D'ITALIA
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Questioni di Economia e Finanza

(Occasional Papers)

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CLEVER PLANNING OR UNFAIR PLAY? EXPLORING THE ECONOMIC AND STATISTICAL IMPACTS OF TAX AVOIDANCE BY MULTINATIONALS

by Alessio Anzuini^{*+}, Elena Pisano[°], Luca Rossi^{*■}, Alessandra Sanelli[°],
Enrico Tosti^{*♦} and Ernesto Zangari[°]

Abstract

Following the 2007-8 financial crisis, increasing concern surrounding tax avoidance by multinational enterprises (MNEs) drew attention from academia and policy circles alike. Profit shifting practices not only impact revenue and fairness, but also exacerbate global tax competition and generate economic distortions. Tax avoidance by MNEs is achieved through several complex strategies, in which tax havens and offshore financial centres typically play a prominent role. Policy initiatives adopted under the aegis of the G20 and the OECD, including the BEPS plan and the Two-Pillar agreement, attempt to address this issue, but their final impact remains uncertain. The interplay between the tax strategies of MNEs and governments' efforts to attract investments also distorts external economic statistics. Indeed, residency-based reporting blurs the distinction between profit-driven and genuine investments. Recent economic literature has developed methods to better allocate foreign direct investments (FDIs) and portfolio investments, revealing a different picture of international capital flows, both internationally and in Italy, where external statistics show a high incidence of tax havens.

JEL Classification: F53, H2, K20, K34, M48.

Keywords: profit shifting, tax avoidance, BEPS, Two Pillars, global minimum tax, official statistics, cross-border investments.

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1. Introduction

The topic of tax avoidance has gathered growing attention in the last decades, and has become increasingly relevant both in the academic and policy debate. In addition to concerns over revenue losses and fairness, tax avoidance can indeed generate significant economic distortions, as well as exacerbate tax competition among countries, triggering a “race to the bottom” that can substantially limit governments’ degrees of freedom in setting tax policy.

Multinational enterprises (MNEs) adopt several complex schemes to minimize their tax burden, and tax havens play a prominent role in these strategies. However, avoidance does not necessarily imply the “engagement” of typical tax havens, since preferential regimes are provided even by some large – and, in some cases, apparently high-taxation - countries. There are several channels through which profit shifting can materialize: the distortion of intra-group transaction prices, the strategic location of intangible assets, and the manipulation of the group’s financial structure. More generally, MNEs can combine different avoidance strategies generating a wide array of extremely complex schemes that typically imply an erosion of corporate tax bases in MNEs’ countries of origin and a concomitant shifting of profits to low-tax jurisdictions (the so-called Base Erosion and Profit Shifting - BEPS).

A recent strand of literature has attempted to estimate the size of the phenomenon and its distribution across countries, as well as to disentangle the relevance of the specific avoidance channels. Due to methodological and data issues, as well as different sample periods and countries, the range of estimations is quite broad. However, overall the empirical evidence confirms that the phenomenon is non-negligible and suggests it is particularly concentrated among the largest multinationals.

Significant coordinated policy efforts have been undertaken, especially after the great financial crisis, under the aegis of international institutions. In particular, the launch in 2013 and the following implementation of the OECD BEPS package marked a fundamental step forward in international tax coordination; however, the BEPS plan still left room for some tax avoidance schemes and, most importantly, did not tackle the tax challenges arising from the digitalization of the economy. Starting from these shortcomings, in 2021 the OECD-G20 “Two-Pillar” agreement, signed by a large majority of countries, provided for a partial reallocation of taxing rights for a share of profits made by the largest multinationals, and for a minimum level of effective taxation at 15%. Europe is a front-runner in this reform process and in December 2022 the EU Council approved the directive implementing the minimum tax. The reform of the international tax rules is still ongoing. Its economic outcome, as well as its likely impact on revenue distribution, tax avoidance and tax competition, are surrounded by considerable uncertainty.

In addition to tax revenue shortfalls, compliance and administrative costs, and distortions to economic and financial choices, another relevant issue related to tax avoidance is the – sometimes extreme - impact on official statistics regarding both foreign direct investments (FDIs) and portfolio investments. Indeed, the complex system of intra-group operations that allows multinationals to shield their profits from domestic and foreign taxation entails very large cross-border flows, both in the financial and current accounts, all of which as of today are reported in the Balance of Payments statistics (BoP). The residency base recording principle does not allow distinguishing flows driven by the existence of profit shifting opportunities from those triggered by countries truly investing in each other’s economic and financial environments. In particular, different avoidance behaviors may affect specific components of the BoP and international investment position (IIP) statistics, undermining their reliability in representing genuine

underlying economic activity and relations. Recent economic literature has attempted to provide methods to reallocate both foreign direct investments (FDIs) and portfolio investment to the final recipient, shedding some light on the true map of financial flows and stocks.

The present work offers a broad overview of the tax avoidance phenomenon, describing fiscal, economic, and statistical challenges that those practices create. More specifically, Section 2 introduces some basic notions of the subject, by distinguishing between tax avoidance and tax competition and reviewing the main concerns and distortions that can stem from these phenomena; then, it illustrates the main tax avoidance channels, qualifying the role of tax havens; finally, it offers a review of the empirical literature on the topic. Section 3 focuses on the policy initiatives undertaken by the international institutions (BEPS and Two-Pillar reform), and discusses their possible impact on tax avoidance, tax revenues and other economic implications, pointing out the main controversial issues. Section 4 sheds some light on the biases that such phenomena generate on the different items of the balance of payment and investment position statistics, focusing on the role of tax havens and providing some specific evidence for Italy. Section 5 reviews the economic literature that attempts to reconstruct nationality-based statistics and to redraw the map of IIP stocks. Section 6 concludes. Additional details on the empirical literature on tax avoidance, on specific tax planning schemes and policy initiatives are reported in the Annexes.

2. Profit shifting, tax competition and revenue implications

2.1 Profit shifting, tax competition, and tax avoidance channels

2.1.1 Firms' tax avoidance and tax competition among countries

Multinational enterprises (MNEs) can substantially reduce their tax burden using several aggressive tax avoidance strategies^{1,2} that typically allow them to shift profits (especially the more mobile ones) from high to low-tax countries, usually through structures (subsidiaries, shell companies or other vehicles) located in the latter.³ A prominent role in these strategies is played by “tax havens”, i.e. jurisdictions that try to attract foreign capital through a combination of zero or very low levels of corporate taxes or particularly favorable legal or administrative schemes allowing substantial reductions of corporate taxes and other tax or regulatory benefits. Other recurrent features of tax havens are the possibility to reduce substantially withholding taxes at source, also through a wide network of tax treaties, and the possibility to establish legal entities with little or no economic activity.⁴ However, avoidance structures do not

¹ For a comprehensive discussion of the problems of the international tax system and the alternative policy options to address them, see De Mooij et al. (2021) and Devereux et al. (2021).

² Tax avoidance refers to formally legal activities carried on with the purpose of aggressively minimizing the tax burden, while tax evasion refers to the illegal non-payment of taxes due. Even though MNEs may resort both to tax avoidance and evasion, the first behaviour is more frequent for them. At the same time, tax evasion through cross-border investment and arrangements is more common among individuals, especially those with high net wealth. Over the last decade, several initiatives - particularly the OECD standard on Automatic Exchange of Information (AEOI) - have contributed to enhancing the transparency of international financial transactions. The present work only focusses on MNEs' tax avoidance. For a literature review on international tax evasion, see Pellegrini *et al.* (2016) and Zucman (2015). For analyses of the related policy initiatives and their effects see Heckemeyer and Hemmerich (2020), Casi et al. (2019 and 2020), and OECD (2019a).

³ Incentives to profit shifting towards low-tax jurisdictions exist regardless of the type of tax system adopted (worldwide vs territorial system). In worldwide systems, they stem from the residence principle; in most cases these systems provide for domestic profits being taxed on residence and foreign profits only upon repatriation. Profit shifting incentives are even stronger in territorial systems, where profits earned abroad are usually tax-free (or almost tax-free) also when repatriated as dividends. Most developed countries currently adopt this latter type of corporate tax system.

⁴ Tax havens are often characterized by advanced communication facilities, stable political environment, reliable legal systems and a high degree of confidentiality for financial data, namely those on beneficial ownership of bank accounts, company

necessarily require the “engagement” of tax havens. Indeed, some arrangements can exploit loopholes and inconsistencies in national tax systems or in tax systems between different countries and/or between the latter and the international tax rules (for instance on the definition of tax residence); preferential regimes even provided by some large – and, in some cases, apparently high-taxation – countries may also be exploited. More generally, MNEs can combine different avoidance strategies generating a wide array of extremely complex schemes, often difficult to detect for tax administrations.⁵ Given the strict link between tax avoidance and profit shifting, and the fact that it usually gives rise to an erosion of corporate tax bases in MNEs’ countries of origin, the phenomenon has been named “*Base Erosion and Profit Shifting*” – BEPS by the OECD.

In addition to the obvious revenue implications (see Section 2.2), tax avoidance can give rise to several undesirable outcomes and distortions, both on equity and efficiency grounds. A first recurring argument in the public debate emphasizes the effects on the “fairness” of the tax system: despite being subject to the same tax rules, thanks to tax planning MNEs can substantially reduce their taxable income and/or their tax burden compared to domestic firms. Indeed, empirical evidence seems to confirm that multinationals pay fewer taxes than “similar” domestic firms.⁶

Distortions on the competition mechanisms among companies and consequent efficiency losses could also be relevant. Due to tax planning, multinationals could charge lower prices at the beginning to gain greater market shares to the detriment of domestic firms and raise prices above the competitive level afterwards.

Tax avoidance can also lead to distortions on investment decisions. The ability to shift profits to low-tax countries reduces the impact of taxation on the cost of capital for investments made by companies that implement tax planning strategies; this could result in a greater concentration of investments in companies and sectors with higher tax avoidance possibilities.⁷

Finally, a non-negligible issue concerns the impact on tax rule complexity: tax avoidance leads states to react by introducing unilateral anti-avoidance measures that increase complexity, uncertainty and compliance costs for businesses and tax administrations, as well as double taxation cases.

In turn, the possibility for multinationals to shift profits may lead to corporate tax competition among countries. This can take two forms, although it is often difficult to clearly distinguish between them. A first type of tax competition is mainly aimed at attracting profits (the so-called “paper profits”, which can be easily moved from one country to another) and, more generally, highly mobile tax bases, such as those arising from intangibles. This form of competition is directly exacerbated by profit shifting and it mainly occurs through a reduction in nominal tax rates, both as a cut in the basic corporate tax rate and/or in certain rates that apply to specific income components (usually, the more mobile ones). A second form of tax competition aims at attracting real investments (the so-called “productive capital”) and may bring

shares, trusts and other interposed entities. For tax haven clusters see Hines and Rice (1994), Hines (2007), Dharmapala and Hines (2009), Hines (2010), Gravelle (2015), Schjelderup (2016), Garcia-Bernardo et al. (2017), Beer et al. (2019).

⁵ For a comprehensive analysis of the aggressive tax planning schemes used by MNEs for tax avoidance purposes, see European Commission (2015a, 2016a) and Nusser (2017).

⁶ For instance, OECD (2015a) estimates that the effective tax rate of multinationals with more than 250 employees would be about 4-8.5 percentage points lower, on average, than that of domestic firms with similar characteristics.

⁷ In this regard, the OECD has estimated that a 5 percentage point increase in taxation on “marginal” investment would reduce investments by about 5% on average in the long term, but this effect would be about half in industrial sectors with a higher concentration of multinationals (OECD, 2015a, p. 177). Evidence of the possible role of profit shifting in reducing the tax sensitivity of investments in MNEs has been recently provided by Sorbe and Johansson (2017), Hanappi et al. (2023) and Hanappi and Whyman (2023).

about both a reduction in nominal rates and/or the provision of favorable rules on the tax base calculation. Indeed, investment location choices are affected by the average effective tax rates, which depend on the combination of statutory rates and tax base rules.

Although the economic literature is not unambiguous, tax competition is regarded as a concern, since it can trigger a generalized reduction in the taxation of capital (so called “race to the bottom”), reducing governments’ degrees of freedom in setting tax levels and pushing them downward to sub-optimal levels. This could result in pressures on the public budget, which can lead, alternatively or even simultaneously, to a down-sizing of public expenditure (especially for investments) - and, as a consequence, to a lower supply of public goods - or to a shift in the tax mix towards relatively less mobile production factors (such as labor), with significant implications on the efficiency and fairness of the tax system.⁸

Tax avoidance by firms and tax competition by countries are very inter-related phenomena. In particular, profit shifting can have opposite effects on tax competition. On the one hand, it can foster tax competition to the extent that countries compete to attract both the profits and the tax residence of multinationals. On the other hand, profit shifting alters the costs and benefits of tax changes by countries. In the presence of profit shifting, an increase in taxation in a high-tax country would result in smaller revenue gains (because a share of the profits would leave the country). At the same time, profit shifting would reduce the costs in terms of investment losses, since in principle it allows multinationals to decrease their tax burden without the need to relocate production activities. It can thus mitigate tax competition for real investments by decreasing the sensitivity of foreign direct investment to tax differentials among countries.⁹

2.1.2 Tax avoidance channels

MNEs can combine different avoidance strategies and a multiplicity of channels to shift profits from high to low-tax jurisdictions to minimize their overall tax burden. The most popular are described below.

A first traditional channel of profit shifting is based on a distorted use of transfer pricing, i.e. prices applied to intra-group transactions. Although existing anti-avoidance rules require transfer prices to be determined according to the *arm's length principle*, i.e. to value intra-group transactions at the same prices that would apply to similar transactions between independent parties, applying this principle can be very difficult, especially due to the scarcity, or even the lack, of comparable third-party transactions.¹⁰

A second channel concerns the location of intangible assets (patents, copyrights, trademarks, etc. - Intellectual Properties - IPs) in countries where taxation is more favorable due to lower rates or preferential tax regimes for income related to these assets. Indeed, in order to benefit from the related cost deductions, several MNEs use to carry out R&D activities in high-tax countries and - since intangibles can be easily moved – subsequently transfer the resulting IPs to jurisdictions where taxation on the related income flows is milder. Possibly as a reaction to IP-related profit shifting, starting from the early 2000, even some high-tax countries introduced tax incentives specifically targeted at IPs, often

⁸ According to alternative views, lower taxes on capital could also be regarded as beneficial, if they are very detrimental to growth, or to the extent that they lead to an efficient downsizing of the state in the economy (as in the Leviathan State theory), or to a change in the tax mix with an increase in the weight of taxes relatively less harmful to growth, e.g. consumption or real wealth taxes.

⁹ Profit shifting allows companies to reduce taxation without moving real capital and therefore to keep a higher level of investment in high-tax countries than it would otherwise be in a world with no profit shifting.

¹⁰ Mispricing can be particularly relevant for intangibles and services that are, by their very nature, harder to evaluate.

in the form of enhanced tax deductions, tax credits, or reduced tax rates for intangible income (the so called “patent box” regimes).

A third channel to reduce MNEs’ tax burden operates through the manipulation of the group financial structure via the so-called debt shifting - i.e. the propensity to allocate equity in low-tax countries and to finance affiliates in high-tax countries through intra-group loans in order to benefit from the deductibility of interest expenses. MNEs may also exploit the so-called “*hybrid mismatch arrangements*”, i.e. use entities and/or financial instruments classified differently in different countries.¹¹

In addition to the three main avoidance channels recalled above, aggressive tax planning can also rely on tax provisions affecting cross-border income flows, particularly passive income (dividends, interest, royalties, etc.). These strategies usually combine a distorted use of the network of bilateral tax treaties against double taxation (so-called “*treaty-shopping*”¹²) with favorable domestic rules (such as generous participation exemption regimes for dividends and capital gains¹³ or withholding tax exemptions on outbound flows¹⁴). For groups operating in the EU these avoidance strategies also often exploit the European directives on intra-group transfers (Parent-Subsidiaries, Interest and Royalties¹⁵). They may also involve the use of special purpose entities (SPEs, also called “conduits” or “shell” companies” or “mailboxes”, i.e. entities with no or limited substance used as “tax bridges” with the sole purpose of diverting income flows to minimize taxation). One example of this type of aggressive tax planning scheme was the “*double Irish with Dutch sandwich*” (used, among others, by Google; see A.2.1 in Annex 2). Countries facilitating schemes that allow substantial reductions of withholding taxes on cross-border flows, including the main tax havens, may become particularly attractive locations for MNEs’ external debt issuance.

Other ways of avoiding the payment of taxes exploit inconsistencies in the definition of company tax residence among countries, through the creation of “stateless entities”, i.e. companies not resident in any country for tax purposes and hence not subject to taxes anywhere. Moreover, companies established in high-tax countries adopting worldwide tax systems – i.e. the majority of countries until a few years ago¹⁶ – had incentives to keep profits abroad in order to escape repatriation taxes (tax deferral). Another common avoidance strategy, particularly popular among US MNEs, and known as “*corporate tax inversion*”, involves reversing the company roles within the group, by establishing the parent company tax residence in a low-tax country, and putting in place specific techniques to shift profits to such countries.

¹¹ Under a hybrid loan arrangement, the interest is deductible in the residence country of the payer and tax-exempt at the level of the recipient, since the residence country of the recipient considers it to be dividend income.

¹² Treaty-shopping allows MNEs to improperly use the treaty network to divert cross-border payments across countries with lower withholding taxes (Beer et al., 2020). In the EU, treaty shopping is mostly used for transactions with third country entities.

¹³ Usually, domestic laws do not allow dividend and capital gain exemption (so-called participation exemption - PEX) when the foreign subsidiary is not subject to a minimum level of taxation. However, some countries provide a very low investee company minimum rate for the exemption to apply (e.g. Malta, Luxemburg, Cyprus).

¹⁴ Among European jurisdictions, examples of countries that provided and, to some extent, still provide withholding tax exemption for passive income paid to non-resident companies are the UK and the Netherlands.

¹⁵ The “parent-subsidiary” and “interest and royalties” directives provide withholding tax exemption for intra-group dividends, interest and royalties conditional on minimum percentages of participation. For dividends, tax exemption in the country of the beneficiary company is also allowed.

¹⁶ In the United Kingdom the worldwide system was in force until 2008; in the US until 2017. As of June 2019, 31 out of 35 OECD countries operated a territorial system (Nersesyan, 2021).

In some cases, the practices used by MNEs to reduce their tax burden were endorsed by the tax authorities of countries competing to attract mobile tax bases (including European countries such as Ireland, Luxembourg and the Netherlands) through the release of *ad hoc* tax rulings (see A.2.2 in Annex 2).

Other tax avoidance strategies may include arrangements aimed at avoiding the emergence of permanent establishments, which would trigger taxation in source countries.¹⁷ This issue has become even more relevant with the exponential growth of the digital economy. Digital firms are often able to provide their services or sell their intangible goods to customers located in a foreign country with no or very limited physical structures. This implies that the latter country can be completely (or almost completely) deprived of the right to tax, while the selling company can well be established in a low-tax jurisdiction, or the most important part of the value chain (i.e. the “algorithm”) can be located in a low-tax country, resulting in a substantial reduction in the group tax liabilities.

2.2 The revenue effects of tax avoidance

The growing concerns about MNEs’ tax avoidance, and the relevance of policy initiatives aimed at curbing it (see section 3.1), have resulted in a strong research interest on its quantification and its distribution across countries, as well as on the relevance of the different avoidance channels. To put these estimates in context, it is useful to provide some figures on the current role of corporate taxation in national tax systems, as well as on the evolution of corporate tax revenues and corporate tax rates over time.

2.2.1 The role of corporate taxation

The size of corporate income tax (CIT) revenues relative to GDP differs across jurisdictions¹⁸ and tends to be larger for developing countries.¹⁹ A broad spectrum of variability is also present at the EU-27 level (see Figure 1), with Luxembourg, Malta and Cyprus being clear outliers, compared to the average and the largest EU countries (Germany, France, Italy and Spain).

Over time, CIT revenues have been fairly stable. Figure 2 focuses on G7 countries and the OECD average over the period 1980-2021: overall, it shows no clear trend for CIT revenues relative to GDP.

At first sight, the stability of CIT revenues may appear surprising, since one of the most noticeable tax trends over the past decades was the sharp reduction of the CIT statutory rates, a phenomenon known as “race to the bottom”. Indeed, over the period 1980-2022, the average CIT rate has decreased from 40.1% to 23.4% at a global level.²⁰ This change has regarded essentially all countries. In particular, figure 3 shows the dynamic of CIT rates in the G7 countries over the period 1980-2022.²¹

¹⁷ Indeed, according to the traditional international tax framework, permanent establishments require some elements of physical presence. These requirements can be easily sidestepped, for instance selling products by means of an independent agent or featuring only auxiliary activities, thereby avoiding source country taxation.

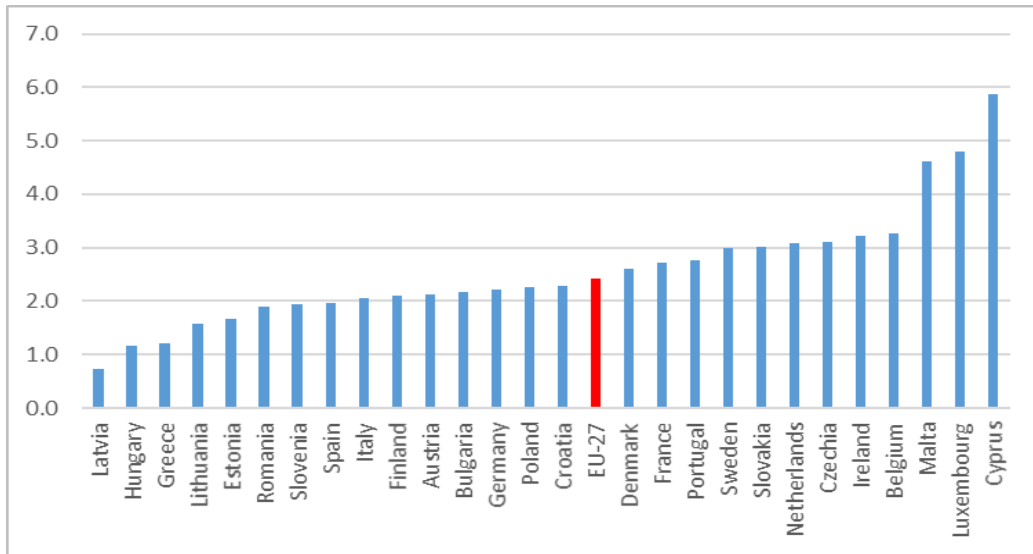
¹⁸ The same holds when looking at corporate taxes to total taxation.

¹⁹ On average, corporate tax revenues are a larger share of total tax revenues in Africa (19.2%) and Latin American and Caribbean (LAC) countries (15.6%) than in the OECD (10.0%).

²⁰ Source: <https://taxfoundation.org/publications/corporate-tax-rates-around-the-world/>.

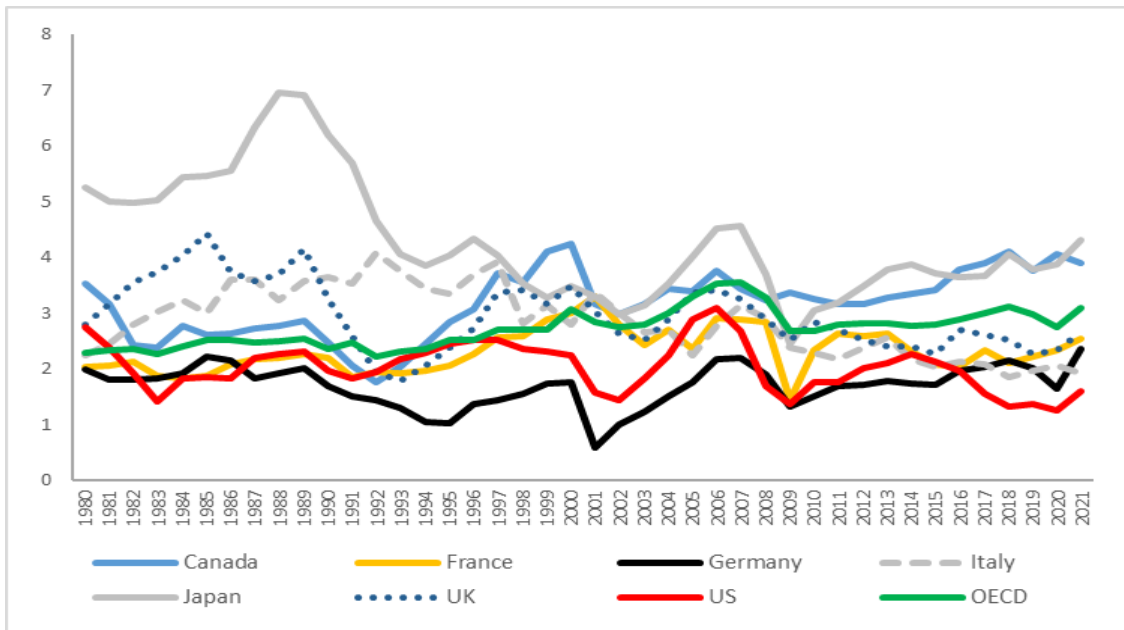
²¹ The strong reduction of the CIT rates has not led to their convergence. In particular, at the OECD level, both the difference between top and bottom rates and the dispersion of CIT rates have been relatively stable over time (see Ricotti, 2018).

Figure 1. CIT revenues relative to GDP in the EU-27 (2020)



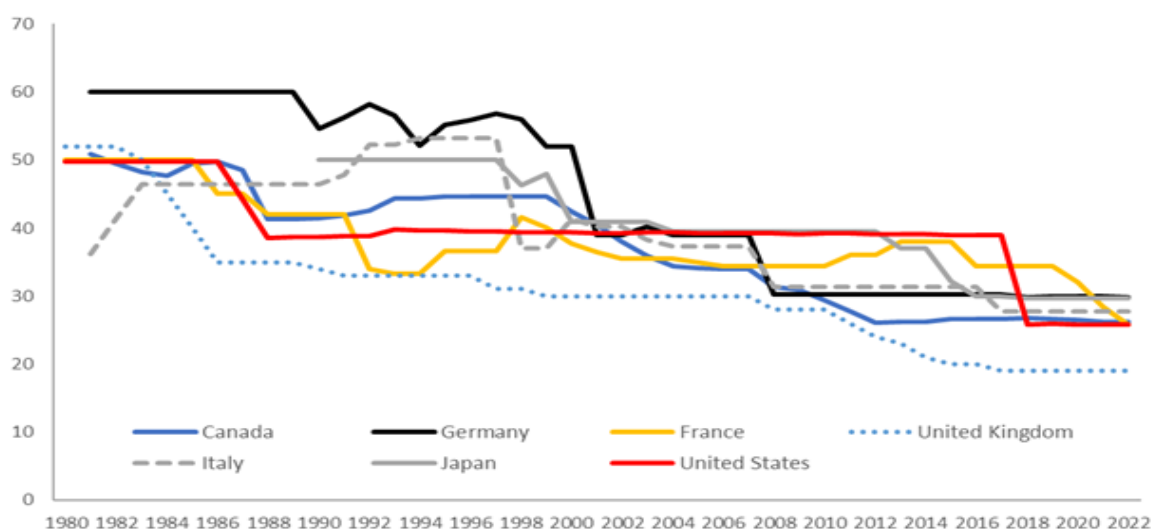
Source: European Commission, Data on Taxation (last update June 2022).

Figure 2. The dynamic of CIT revenues relative to GDP in the G7 countries and in OECD (1980-2021)



Source: OECD, *Revenues statistics 2022*.

Figure 3. Statutory corporate income tax rates in the G7 countries, 1980-2022



Source: Tax Foundation, *Corporate tax rates around the world*.

The stability of CIT revenues despite the reduction in statutory rates can be explained by a simultaneous broadening of the tax base. This may have been the result of two factors.²² First, policy measures were implemented to counter the effect of reduced tax rates on tax revenues, typically by restricting or limiting the deductibility of asset depreciation, interest costs and tax losses ("tax-cut-cum-base-broadening" reforms).²³ More recently, another "tax base broadening effect" may have been induced by the implementation of the OECD's Base Erosion and Profit Shifting (BEPS) measures (see section 3.1); in the EU, BEPS measures have been enacted through the Anti-Tax Avoidance Directives (ATADs), that also introduced other anti-abuse measures. Second, a larger tax base may have also stemmed from endogenous dynamics related to the size and the profitability of the corporate sector.²⁴ A relevant role might have been played by a number of factors, including shifts towards economic sectors where the incidence of corporations is higher and a possible shift of firms' profit from the personal to the corporate tax base,²⁵ technological developments,²⁶ structural reductions of some categories of business expenses (such as interest payments and labor costs),²⁷ and an increased market power in the corporate sector.²⁸

The resilience of CIT revenues despite the significant reduction in statutory rates is compatible with a scenario of tax competition among countries, especially for paper profits (see section 2.1.1).²⁹ Notice that even if at the aggregate level the weight of corporate taxation has been stable over time, by construction lower statutory tax rates imply a decrease in effective taxation for firms and investments with higher

²² For a discussion of the breakdown of the CIT revenues to GDP ratio, see Sørensen (2007). For recent analysis, see Nicodème et al. (2019) for Europe and Fuest et al. (2020) for the OECD countries.

²³ See Auerbach et al. (2010) for OECD countries and Brautigam et al. (2017) for EU countries.

²⁴ For a discussion, see Griffith and Miller (2014).

²⁵ See Sørensen (2007), Piotrowska and Vanborren (2008), and De Mooij and Nicodème (2007).

²⁶ At the firm level, over the period 1996-2016, profitability was particularly high in the IT and financial sectors (Fuest et al., 2020).

²⁷ For the decline of labour costs, see Dao et al. (2017) and Autor et al. (2020).

²⁸ See, for instance, Grullon et al. (2019) and De Loecker et al. (2020).

²⁹ The hypothesis of an increased role of tax competition on profits is also confirmed by statistical analyses on the relative importance of the two forms of tax competition. Tørsløv et al. (2022) analyze the consequences on corporate tax revenues of the tax competition process, separating the component that operates to attract accounting profits from the one that operates to attract real investment. Based on their estimates, the latter has been less significant in recent decades.

profitability rates and therefore a shift of the corporate tax burden on less profitable firms and investments.³⁰ Empirical evidence for the period 2005-2015 (Garcia Bernardo et al., 2019) suggests that, even if the reduction of effective tax rates can be in part explained by companies' profit shifting to low-tax countries, which moderately intensified over time, home countries' tax base policies and reduced tax rates (i.e. tax competition) have played a much larger role.

2.2.2 Empirical evidence on tax avoidance

Quite a few studies trying to estimate the scale of base erosion and profit shifting have been published in recent years.³¹ They cover a period (2012-2018) when the actions of the 2015 OECD's BEPS Plan and – as regards Europe – of the Anti-Tax Avoidance Directives (ATAD 1 and 2) were not yet fully in force. We do not review this literature, but rather provide some figures on upper and lower bound estimates and their variability over time, as well as some statistics for the United States and Italy (for details on the source papers, see Table A.1 in Annex 1).

Available studies differ along several dimensions, primarily in methodologies and data. Some works follow a traditional micro approach, estimating the degree of profit shifting from the responsiveness of companies' reported profits to tax variables based on firms' datasets.³² Recent developments of this micro literature include the use of the new Country-by-Country Reports (CbCR) data available since 2016³³ and estimating non-linear profit functions featuring different elasticities at different starting tax rates. Another stream of literature follows instead a macro approach, using national accounts data, balance of payments statistics and - more recently - foreign affiliate statistics, that record wages and profits of foreign firms. Each approach has its own strengths and weaknesses, and generally macro estimates tend to be larger than micro ones (see Annex 1).

With regard to the total amount of the phenomenon at the global level, the range of estimates for the yearly revenue losses is wide: it goes from USD 49 bn. (0.07% of GDP) estimated by Beer et al. (2020) for 2015 with a micro-approach to USD 500 and USD 640 bn. (0.6%-0.8% of GDP) estimated by Cobham and Jansky (2018) and Crivelli et al. (2016) for 2013, respectively, using a macro-approach. The OECD estimate - referred to 2014 and based on a micro approach - falls somewhere in between, with a revenue loss of about USD 100-240 billion (0.1-0.3% of the GDP, see Johansson et al., 2017).³⁴ A pattern emerging from recent estimates is that tax avoidance is highly concentrated among the largest multinationals. Fuest et al. (2022) find that 60% of profit shifting can be attributed to the 10% largest multinationals.

³⁰ See Devereux and Griffith (1999).

³¹ For two surveys of the literature on measuring tax avoidance, see Dharmapala (2014) and Riedel (2018). More recent papers with a discussion of the literature and a meta-analysis of the elasticities of reported profit with respect to a tax measure are Heckemeyer and Overesch (2017), Beer et al. (2020) and Asen (2021).

³² The micro-approach is based on the initial contribution by Hines and Rice (1994).

³³ CbC reporting was introduced in 2016 as part of the BEPS Action Plan (see Section 3.1). All MNEs with consolidated global revenues above EUR 750 million are required to file a CbC report that contains structural and tax data on their activities in all the jurisdictions where they operate.

³⁴ The same variability also characterizes the estimates of the share of profits shifted to low-tax countries. Riedel (2015) reports a wide range of estimates from 5% to 30% of taxable profit. The average estimates using micro-approaches are around 20% (Dharmapala, 2019), while recent computations based on a macro approach estimate shifted profits close to 40% (Tørsløv et al., 2022). A recent study, covering the period 2016-2019, using CbCR data and estimating non-linear profit functions, finds that on average multinationals shift to low-tax jurisdictions 16% of their profits (Fuest et al., 2022).

For the United States, the range of estimates is also quite large. Focusing on the most recent studies, covering 2017, the estimated revenue loss ranges from about USD 45 bn. in Garcia-Bernardo and Jansky (2021) to USD 93 bn. in Clausing (2020) (between 0.2% and 0.5% of GDP, compared to a ratio of corporate tax revenue to GDP of 1.8%).³⁵ Wier and Zucman (2022) provide estimates updated to 2018-2019.³⁶ According to these estimates, in the US the shifted profits would have increased to 186 and 165 USD bn., respectively in 2018 and 2019 (from 162 bn. in 2017), while revenues losses would have been reduced from 65 USD bn. in 2017 to about 46-50 USD bn. in 2018-2019 (about 0.2% of GDP). As pointed out by the authors, the increase in shifted profits is somehow unexpected, considering that the 2017 tax reform featured a reduced corporate tax rate and new anti-avoidance provisions that should have reduced profit shifting incentives.

It is also surprising that the estimates do not show any clear pattern of profit shifting reduction after the launch of the OECD's BEPS action plan in 2015. Indeed, considering as a starting point the estimates for 2012 by Bolwijn et al. (2018) and Clausing (2016), shifted profits at global level lied around USD 700 and 1076 bn. Taking the estimates by Garcia-Bernardo and Jansky (2021) (min-max range) for 2016 as well as Bratta et al. (2021) for 2017 and Wier and Zucman (2022) for 2019 as reference for the post-BEPS period, shifted profits would lie around USD 965-994, 1064 and 969 bn. respectively, the order of magnitude being quite similar to that of the pre-BEPS period. Some estimates are also available for Italy. Focusing on the most recent ones, the dichotomy between the results obtained with macro and micro approaches clearly emerges. According to the macro estimates of Wier and Zucman (2022), in 2017 about € 24 bn. of profits would have been shifted out of Italy to low-tax countries with a revenue loss of about 5 € bn. (corresponding to about 0.3% of GDP).³⁷ In contrast, according to the micro estimates of Bratta et al. (2021) obtained using CbCR data, in 2017 shifted profits would amount to about € 5 bn. with a revenue loss of about 1 bn., corresponding to about 0.05% of GDP.^{38, 39}

³⁵ Blouin and Robinson (2020) criticize the tax avoidance estimates for the United States made by Clausing in a number of studies with a macro approach, based on a detailed analysis of the accounting aspects of the data used, and provide much lower alternative estimates.

³⁶ See <http://missingprofits.world/>.

³⁷ According to the estimates for 2019, about € 26.4 bn. would have been shifted out of Italy to low-tax countries with a revenue loss of € 6.4 bn. (corresponding to about 0.3% of the GDP) (exchange rate: 1 Euro = 1.1 US \$) (Wier and Zucman, 2022). Nerudova et al. (2023) provide estimates of profit shifting and revenue losses for EU countries averaged over the period 2009-2016. For Italy, yearly profit shifted are estimated at € 9.4 bn. (5.3 bn to tax havens and 4.1 bn to other EU countries), with an overall revenue loss equal to about € 3 bn.

³⁸ The discrepancy between the estimates of Wier and Zucman (2022) and individual country estimates obtained using the CbCR data also emerges for Germany. For 2017, Wier and Zucman (2022) estimate that profit shifting by German multinationals to low-tax countries amounted to about € 59.9 bn. with a revenue loss of about 17.7 bn. (exchange rate: 1 Euro = 1.1 US \$). Fuest et al. (2021) estimate that on average in the period 2016-2017 annual profits shifted out of Germany amounted to about € 19 bn. with a revenue loss of € 5.7 bn.

³⁹ Other estimates for Italy are provided by Accoto et al. (2023) and Sallusti (2019), for 2015 and 2016, respectively. Accoto et al. (2023), considering as profit shifters only foreign firms, estimate an amount of shifted profits in the range of € 0.6-4.5 bn, depending on the methodology, with the lowest figure obtained with a micro-approach; these amounts correspond to 5% and 30% of adjusted profits (recorded profits + shifted profits), respectively; for comparison, for Italy in 2015 Tørsløv et al. (2022) estimate an amount of shifted profits equal to about 10%. Sallusti (2019), using a micro-approach and considering as profits shifters foreign and domestic firms, estimates an amount of shifted profits corresponding to 13% of adjusted profits.

Several empirical analyses provide estimates of the impact of the different avoidance strategies, allowing to quantitatively assess their relative importance for tax years preceding the implementation of the policy initiatives described in Section 3.1.⁴⁰

A significant strand of literature documents the relevance of transfer mispricing, confirming that multinationals tend to manipulate intra-group prices of imports and exports strategically in order to inflate revenues in low-tax countries and costs in high-tax countries. Comparing intragroup and third party transactions, studies find that tax rate differentials affect the wedge between arm's length and intra-group transfer prices.⁴¹ Evidence also confirms a significant impact of the tax variable on the localization of valuable intangibles, which prove to be systematically biased towards low-tax countries. In particular, studies suggest a negative relation between the tax rate and patents or intangible asset holdings⁴² and a greater reactivity of profits to tax rates in presence of high endowments of intangibles.⁴³ Estimates of the sensitivity of IPs localization with respect to tax rates vary across countries and sectors⁴⁴ and substantial differences in responses are also recorded between different types of IPs.⁴⁵ Overall, transfer mis-pricing and IP location are quantitatively relevant and explain more than 2/3 of the entire profit shifting.⁴⁶

Concerning the debt-shifting channel, although estimates vary, a considerable deal of empirical works support the idea that multinationals tend to move equity to low-tax countries and provide loans to subsidiaries or place external loans in high-tax countries. There is indeed an extensive literature on the impact of taxation on the financial structure of multinationals, which provides evidence of a positive relation between tax rate differentials and firm debt/assets ratio.⁴⁷ Evidence on more complex schemes involving the strategic use of tax treaties and other domestic or international provisions aimed at reducing the burden on cross-border income flows is more limited, but a few contributions confirm a relationship between withholding taxes and FDI diversion.⁴⁸ Finally, as to the dividend tax deferral and tax inversions connected to worldwide tax systems, a few papers provide evidence of dividend lock-in effect in

⁴⁰ This review draws from Beer et al. (2020). Other works reviewing the literature on profit shifting channels are European Commission (2015b), Riedel (2018), and Asen (2021). The results of the empirical works are quite heterogeneous and can be affected by different hypotheses, samples and methodological issues.

⁴¹ Clausing (2003), Bernard et al. (2006), and Flaaen (2017) for United States; Cristea and Nguyen (2016) for Denmark; Davies et al. (2018) and Vicard (2014) for France; Lohse and Riedel (2013), for Europe; Liu et al. (2017) for the United Kingdom. While the literature is quite extensive for goods trade (manufacturing), there is also evidence that this phenomenon also occurs within service trade (intellectual, financial, administrative, insurance services, etc.), where tax havens are found to play a prominent role (Hebous and Johannesen, 2015).

⁴² Ernst and Spengel (2011), Dischinger and Riedel (2011), Karkinsky and Riedel (2012), Böhm et al. (2014), Baumann et al. (2020), Bilicka et al. (2022).

⁴³ Beer and Loeprick (2015).

⁴⁴ Griffith et al. (2014); Alstadsæter et al (2018). For Italy, a recent study finds evidence of a positive correlation between profit shifting and imports of IP and headquarters services from tax havens only for a subset of firms, suggesting the relevance of other profit shifting channels for the majority of firms (Accoto et al., 2023).

⁴⁵ For instance, tax elasticity of the brands is significantly higher than that of patents; see Dudar and Voget (2016).

⁴⁶ Heckemeyer and Overesch (2017).

⁴⁷ See, among others: Mintz and Weichenrieder (2010), Buettner and Wamser (2013), Møen et al. (2011), Schindler et al. (2013) for Germany; Desai et al. (2004, 2007) for United States; Huizinga et al. (2008) and Egger et al. (2010) for Europe. For a review on the impact of taxation on the choices of companies relating to debt and internal financial structure, see De Mooij (2011).

⁴⁸ See, among others, Collins and Shackelford (1997), Desai and Hines (2002), Mintz and Weichenrieder (2010) and Weyzig (2013).

subsidiaries to avoid repatriation taxes⁴⁹ and of substantial tax savings due to the transfer of the tax residence.⁵⁰

3. The international policy response to MNEs' tax avoidance

3.1 BEPS and the Two-Pillar package

3.1.1 *The BEPS Actions*

The issue of MNE tax avoidance and profit shifting practices through tax havens and other forms of harmful tax regimes has long been in the spotlight, as testified by a number of policy initiatives adopted since the second half of the 1990s at both the OECD and EU level. Yet, after the 2007-2008 financial and economic crises, several factors - including increased revenue needs, and a deep change in public opinion, mainly due to anecdotal evidence made available by public investigations and media leaks – heightened policy makers' attention on this issue. As a result, a strong political impetus for meaningful reforms emerged, both at national and international level, ranking the topic high in the tax policy agendas.

Between 2013 and 2015, under the auspices of the G20, the OECD developed an Action Plan ("The BEPS Action Plan") aimed at curbing the main forms of base erosion and profit shifting and at limiting their adverse economic effects and their impact on countries' tax revenues, essentially by aligning taxation with "value creation".⁵¹ The 15 BEPS Actions (see Table A.3.1 in Annex 3) introduced principles of coherence among the domestic rules that affect cross-border activities, substance requirements – i.e. "nexus" between taxation and the underlying economic activity - in the existing national and international standards, and transparency and certainty enhancements. Among them, four Actions were identified as "minimum standards", i.e. rules to which all participating countries had to commit.⁵² To achieve an effective and widespread implementation of the BEPS minimum standards, the OECD created the "Inclusive Framework on BEPS" (IF). The IF includes not only the G20 countries that are not part of the OECD, but also many developing countries. Over time, the IF has evolved as the main forum for the definition of international tax rules.

After its adoption in 2015, the implementation of the BEPS Action Plan proceeded at a rapid pace, both for the minimum standards and other Actions (see Annex 3 for details).⁵³

However, when looking more specifically at which countries implemented which actions, and how, the framework looks much more fragmented. First and foremost, despite their constant and active participation to the process, the US has always maintained the position that most of their domestic and treaty provisions were already compliant with BEPS standards, or should be considered substantially equivalent to them. Some of the BEPS standards were nonetheless implemented through the Tax Cuts and Jobs Act (TCJA) of December 2017 (the Trump Corporate Tax Reform, see A.3.3 in Annex 3).

⁴⁹ Several empirical works support the existence of dividends tax deferral. See, among others, Altshuler and Newlon (1993); Grubert (1998); Altshuler and Grubert (2003). Additional evidence is provided by Egger et al. (2015) for UK and Hasegawa and Kiyota (2017) for Japan.

⁵⁰ For estimates of tax savings due to tax inversion see Desai and Hines (2002) and CBO (2017) for the US. See also Voget (2011).

⁵¹ OECD (2015b), p. 5.

⁵² The other Actions of the BEPS Plan were mere recommendations, to which the single States could decide to abide or not.

⁵³ A synthesis of the results of BEPS implementation is reported in OECD (2021a).

A more uniform implementation took place in the EU, where most BEPS Actions – both minimum standards and others - were transposed into directives that defined a coordinated framework and timing (see A.3.2 in Annex 3), and provided for further anti-tax avoidance and anti-abuse measures. Bolstered by its well-established tradition of fighting unfair tax competition,⁵⁴ the EU went even further. Namely, it advanced proposals to fully replace the ambiguous transfer pricing system with a method of formula apportionment for the allocation of taxing rights among EU countries.⁵⁵ The latest proposal of this kind, BEFIT (*Business in Europe: Framework for Income Taxation*), was announced in May 2021 and open for public consultation between October 2022 and January 2023. It should provide for a harmonized tax base and formula apportionment of the tax base among Member States, leaving the choice of corporate tax rates to the latter to preserve their tax sovereignty.⁵⁶ In December 2021 the Commission also presented a directive proposal to address aggressive tax-planning strategies linked to the use of “shell companies” (ATAD 3).⁵⁷

Empirical evidence on the effectiveness of anti-avoidance measures is still limited. Early contributions analyze some specific national measures (transfer pricing or CFC regulations, thin cap rules, etc.), suggesting they were effective in curbing tax avoidance.⁵⁸ However, these estimates refer to unilateral measures and to years prior to the implementation of BEPS and ATAD.

To date, evaluations of the BEPS Action Plan mainly focus on the effects of Country-by-Country Reporting (CbCR). In addition to works using these new data sources to quantify the extent of profit shifting and validate estimations based on alternative datasets (see Section 2.2), a few contributions attempted to analyse the effects of the introduction of the disclosure rules on firms’ avoidance behaviour.⁵⁹ Although the literature is still at an early stage and far from conclusive - also due to the recent implementation of BEPS and the lack of sufficient post-introduction data⁶⁰ - available evidence seems to suggest that the transparency measures may have induced firms to modify their tax planning

⁵⁴ In December 1997, the ECOFIN set out the “Code of Conduct for business taxation” as a political, non-binding, agreement which engaged Member States to roll back existing harmful tax regimes and abstain from introducing new ones. Also the action of the Commission based on State Aid EU law has led to the removal or prevention of harmful tax measures. State aid regulations aim at eradicating the distortion in “competition between companies” due to national tax policies favouring certain economic operators over others in a comparable legal and factual situation. For an analysis of the EU Code of Conduct and State Aid see Lampreave (2019).

⁵⁵ In 2016 the Commission relaunched and reviewed the previous project of Common Consolidated Corporate Tax Base (CCCTB) presented in 2011 in order to enhance its anti-avoidance potential; however, the unanimity voting requirement and diverging country interests prevented the project from being approved. See European Commission (2016b).

⁵⁶ European Commission (2021a).

⁵⁷ European Commission (2021b). The proposal requires companies to report to tax administrations the information necessary to assess whether they have substantial presence and real economic activity, provides for denying tax benefits linked to the existence or the use of abusive shell companies, and establishes the exchange of information on shell companies among Member States. In the Communication, the Commission also announced initiatives aimed at requiring all EU entities to publish their effective tax rate on an annual basis.

⁵⁸ Available evidence suggests that introducing or tightening rules and regulations on transfer pricing can reduce the tax responsiveness of corporate profits by up to 50% (Lohse and Riedel, 2013), but the effects are lower for companies with many intangible assets or characterized by complex group structures (Beer and Loeprick, 2015). Empirical evidence also suggests that, on average, provisions aimed at restricting an “excessive” deduction of interest expense were effective; see Overesch and Wamser (2010) for Germany; Buettner et al. (2012); Blouin et al. (2014) for the United States. Finally, several works confirm the effectiveness of more stringent CFC regulations. See, for instance, Ruf and Weichenrieder (2012); Clifford (2017), Böhm et al. (2014). Recent evidence for Europe shows that the changes to CFC regulations induced by the Cadbury-Schweppes ruling, which made them less stringent, increased the gross profits of subsidiaries located in low-tax European countries by about 10% (Schenkelberg, 2019).

⁵⁹ For a very exhaustive review of the empirical evidence on corporate tax transparency, see Muller et al. (2020).

⁶⁰ Since the BEPS Action Plan was only endorsed in 2015, the first years of implementation is 2016, but many countries introduced it only a few years later, i.e. in 2018/19.

behaviours.⁶¹ More specifically, studies on the impact of the CbCR on large MNEs find effects in terms of reduced profit shifting/increase in effective tax rates,⁶² as well as in terms of reduced presence in tax havens and changes in the allocation of real economic activities.⁶³

Although the empirical evidence on the effects on tax avoidance and tax revenues is still at an early stage, the BEPS plan has certainly contributed to a greater diffusion and uniformity of anti-avoidance disciplines (CFCs, hybrids, interest deduction limits, etc.) and improved transparency through the adoption of the CbCR. Moreover, BEPS Actions may have contributed to improving the fairness of tax systems and possibly reducing loopholes arising from inconsistencies among national tax systems and/or international instruments (such as tax treaties, etc.).

However, the plan had several limits – such as the strong ambiguity of the “value creation” concept, a cornerstone of BEPS - which compromised its success to some extent, especially regarding the actions on transfer pricing. More specifically, the reform was considered incomplete, not ambitious enough, and inconclusive with respect to some urgent problems. First of all, the agreement only tackled tax avoidance, leaving the issue of tax competition on real investments essentially unaddressed. In fact, it did not consider “no or low taxation *per se* a cause of concern, but only when associated with practices that artificially segregate taxable income from the activities that generate it”.⁶⁴ Secondly, the reform was quite conservative, as it moved “within the rules”, not affecting the main architecture of international taxation. Finally, it was inconclusive on the digital economy, leaving the need for a more radical reform soon after its implementation. As underlined above (Section 2.1.2), digital firms may indeed substantially reduce their tax bill through group structures that carefully allocate the most relevant part of their value chain in low-tax jurisdictions, while operating in large market jurisdictions with no or very little physical presence.

3.1.2 *The Two-Pillar package*

Although the implementation of the BEPS package had gradually changed the international tax landscape, it still left many ways for MNEs to reduce their tax burden through profit shifting and base erosion. Moreover, BEPS Actions did not identify any solution for a key aspect, i.e. the tax challenges arising from the digitalisation of the economy. Both issues have been tackled by subsequent work, undertaken since 2018.⁶⁵ After several difficult steps and harsh negotiation, between July and October 2021, almost all Inclusive Framework members agreed on a “Two-Pillar Package”, which was also endorsed by the G20⁶⁶ (see Annex 4).

⁶¹ See Jansky (2020). Some works provide preliminary insights on the effects of the public CbCR imposed since 2014 on European banks by the Capital Requirements Directive (CRD IV), suggesting that the disclosure rules might have decreased avoidance (Overesch and Wolff, 2021) and tax heaven presence (Eberhartinger et al., 2020); other works argue that a reduction in profit shifting does not necessarily imply a reduction in overall avoidance but rather a reshuffle in tax planning strategies (Joshi, 2020).

⁶² See Joshi et al. (2020), and Hugger (2020).

⁶³ De Simone and Olbert (2021) find that MNEs tend to close subsidiaries/operations in tax havens and also suggests that they relocate real investments in low-tax European countries.

⁶⁴ OECD (2013), p.10.

⁶⁵ In March 2018 the OECD Task Force on Digital Economy (TFDE) released an Interim Report providing an in-depth analysis of new and changing business models in the context of digitalization and of how they challenged existing rules for the allocation of taxing rights. IF Members agreed to undertake a review of the two key aspects of the existing corporate tax framework, namely the profit allocation and nexus rules, in order to align profit allocation with underlying economic activities and value creation.

⁶⁶ See OECD (2021c, d). 137 out of 141 IF members have adhered to the agreement.

Pillar One does not directly tackle tax avoidance, but rather consists in the revision of taxing rights allocation. Indeed, it will introduce a new taxing right for “market jurisdictions”, i.e. countries where customers or “users” are located, regardless of the existence of physical structures (group subsidiaries or permanent establishments). More specifically, it will allocate 25% of residual profit (“Amount A”) - defined as profit in excess of 10% of revenue - to market jurisdictions, using a revenue-based allocation key.⁶⁷ The rules will only apply to MNEs with global turnover above € 20 bn and profitability above 10%. Extractive industries and regulated financial services are excluded.

On the other hand, Pillar Two deals specifically with the remaining BEPS possibilities. Starting from the difficulties encountered in the implementation of the principles of “value creation” and “nexus” on which the BEPS Action Plan was based, particularly in the context of transfer pricing, Pillar Two will introduce a common level of minimum effective taxation. The latter, set at 15%, has been thought as a “threshold” to the “race to the bottom” of corporate tax rates.⁶⁸ It will be implemented through a combination of a “top-up” tax on low-taxed foreign profits and a denial of deductions for expenses paid to subsidiaries in low-tax jurisdictions; the two provisions are known together as the Global anti-Base Erosion rules (“GloBE”). They will apply only to MNEs with global revenues of at least € 750 million, using an effective tax rate test applied on a country-by-country basis. In order to limit the impact on MNEs carrying out real economic activities with substance in low tax countries, a specific carve-out will exclude from the minimum tax an amount of income equal to 5% of the carrying value of tangible assets and payroll.⁶⁹ The new international tax rules should be applied starting in 2024.

It is worth noting that the GloBE rules under Pillar Two are not mandatory, having only the status of a common approach.⁷⁰ This means that their effectiveness crucially depends on the number of countries that decide to adopt them. As of July 2023, the implementation of the Two-Pillar Plan is ongoing. To some extent at the surprise of stakeholders, the Model Rules released in December 2021 for the implementation of GloBE under Pillar Two⁷¹ contemplate the possibility to adopt a “Qualified Domestic Minimum Top-Up Tax” (QDMTT). This option allows the top-up tax to be collected in the jurisdiction where the low taxation occurred (i.e. the country of the controlled entity), rather than in the country of the parent. Several countries, including the UK, Switzerland, Canada, South Korea, New Zealand and a number of low-tax jurisdictions, have already announced their intention to implement GloBE through the QDMTT option.⁷²

Regarding the US, the Biden administration supported the two Pillars, but will not implement Pillar Two as such. After failing to amend the GILTI and BEAT provisions to make them equivalent to the GloBE

⁶⁷ The taxing right of a market jurisdiction arises when the in-scope MNE derives at least € 1 million in revenue from that jurisdiction (€ 250.000 for smaller jurisdictions with GDP lower than € 40 bn.).

⁶⁸ Such issue was explicitly mentioned by the US Secretary of the Treasury, J.L. Yellen. In her remarks on International Priorities to The Chicago Council on Global Affairs on April 5, 2021, she stated: “*we are working with G20 nations to agree to a global minimum corporate tax rate that can stop the race to the bottom*”.

⁶⁹ The carve-out will be higher over the first ten years of implementation.

⁷⁰ This means that if a country chooses to adopt Pillar Two, it will implement and administer it consistently with the standard. Moreover, all countries participating to the agreement have to accept the application of the GloBE rules by other IF members.

⁷¹ OECD (2021b).

⁷² For the UK and Switzerland, the proposal to introduce a QDMTT is considered in the consultation document on the implementation of Pillar Two released, respectively, in January and March 2022. Regarding low-tax jurisdiction, see, among others, Government of Jersey (2022).

rules,⁷³ in August 2022 the US administration introduced a different provision, the “Corporate Alternative Minimum Tax - CAMT”, a 15% book income tax on US multinationals with average profits higher than 1 bn. over the last three years.⁷⁴ In February 2023, the Inclusive Framework released administrative guidance providing for the US GILTI to be temporarily regarded as a “blended CFC” regime, and hence relevant for the purposes of the effective tax rate calculation under the GloBE rules of Pillar Two.⁷⁵ Absent similar guidance for the CAMT, it seems likely that it will be considered in the calculation of the effective tax rate under Pillar Two as a “regular” corporate income tax.

In the EU, the directive for the implementation of Pillar Two was adopted on 12 December 2022 (European Commission, 2021c).⁷⁶ To comply with EU law, the proposal extends the scope of the minimum tax also to purely domestic groups; moreover, as in the Model Rules, the directive provides for the possibility to apply a “Qualified Domestic Minimum Top-Up Tax” in the country of the subsidiary. Differently from the OECD-G20 agreement – which only sees Pillar Two as a “common approach” – the directive requires all EU Member States to transpose the directive into national law within 2023 for it to be applied as from 2024.⁷⁷

The implementation of Pillar One requires a Multilateral Convention (MLC) to introduce the new taxing right into double tax treaties, which should be released and opened for signature in the second half of 2023, and enter in force in 2025. In parallel, signing jurisdictions should abolish or refrain from introducing national digital services taxes or similar measures. At the political level, several difficulties regarding the implementation of Pillar 1 have emerged, particularly in the US,⁷⁸ and in many developing countries.

Predicting the likely effects of the Two-Pillar reform is challenging, since they depend on a number of factors, such as the extent of the implementation of Pillar One and Pillar Two and the nature and scale of reactions by multinational enterprises and governments. The OECD released several estimates of the

⁷³ The main proposed changes to GILTI and BEAT related to the switch from jurisdictional blending to a country-by-country approach in the calculation of the effective tax rate of foreign income, and to the GILTI tax rate. The amendments were included in the *Build Back Better Act*, which stalled in the Senate due to a lack of political support, and were reiterated in the FY24 Budget submitted by President Biden to the US Congress on 9 March 2023. For an analysis of the US corporate tax changes see Avi-Yonah and Wells (2022).

⁷⁴ The *Inflation Reduction Act* of August 2022, which introduced the CAMT, did not relaunch the amendments to GILTI and BEAT. The CAMT is based on the financial statement income. Differently from the Pillar Two minimum tax, which only applies to foreign low-taxed group entities, the CAMT includes both the income of the U.S. parent and that of its controlled foreign companies. The 15% tax applied on book income is offset by a credit for regular corporate tax, credits for foreign taxes, and various domestic credits. The resulting tax is then compared with the regular corporate tax, and the higher tax is payable. Differently from the GloBE rules, the CAMT allows worldwide blending of profits and taxes; moreover, it diverges from the OECD’s proposed framework in several other respects.

⁷⁵ More specifically, the administrative guidance provides for allocating the CFC tax incurred under GILTI with priority to the controlled companies with lower taxation and larger amounts of income. This allocation methodology will apply for Fiscal Years ending no later than 30 June 2027, after which the Inclusive Framework will review the issue.

⁷⁶ Directive EU 2022/2523. The directive proposal had been presented in December 2021. In parallel, the Commission presented a proposal to include a “digital” component among new EU own resources; the component - estimated to generate between €2.5 and €4 bn. per year - would be made up of 15% of the share of the residual profits of in-scope companies that will be reallocated to EU Member States under Pillar One.

⁷⁷ Outside the EU, South Korea and Japan already enacted the Pillar 2 rules, which will entry in force as from 2024. In Switzerland the constitutional amendment allowing for the introduction of the GloBE Rules was approved by referendum on 18 June 2023; the legislation is expected to enter into force on 1 January 2024. Draft laws are under approval in several other countries such as United Kingdom, Canada, Hong Kong, Singapore, Liechtenstein, New Zealand and Thailand; Australia announced the implementation of a 15% global minimum tax and a domestic minimum tax in the 2023-24 Budget.

⁷⁸ In the US the approval of the necessary treaty changes requires a qualified majority of 2/3 in the Senate.

impact of the reform on corporate tax revenues, as the work on the technical aspects of the new rules progressed. With regard to the more general economic effects on profit shifting, tax competition and investment, until now the bulk of the discussion has focused on Pillar Two.

Based on the most recent estimates released in the January 2023 OECD Impact Assessment (IA), which took into account 2021 data, Pillar 1 would create global revenue gains of \$ 13-36 bn. (0.5-1.5% of global tax revenues), corresponding to USD 200 bn. of profits reallocated to market jurisdictions globally. Average figures over the period 2017-2021 appear lower (USD 12-25 bn. of revenue gains and USD 132 bn. of real-located profits, respectively).⁷⁹ Pillar Two, instead, would generate between \$175 and \$261 bn. in additional global tax revenues (based on 2018 data), with a central value of \$ 220, i.e. around 9% of the global CIT revenue.⁸⁰ Revenue figures for groups of countries were also provided by the OECD 2020 and, for Pillar One, by the 2023 IAs.⁸¹ As regards Pillar One, the updated estimations of the 2023 IA confirm and strengthen the 2020 IA results, according to which poor or middle-income countries would benefit more from profit reallocation, while gains would be more limited for high-income countries and investment hubs would lose a greater share of their tax base. With regard to Pillar Two, however, the only available results date back to the 2020 IA. Therefore, they have to be interpreted with caution, since they are based on the 2020 Blueprint version of the proposal and do not consider significant subsequent developments arising from both the OECD-G20 2021 agreement and the Model Rules (such as the adoption of the Qualified Domestic Minimum Top-Up, QDMTT). Under the scenario closest to the present agreed framework both in terms of policy parameters and governments' behavioural reactions⁸² investment hubs could get positive and significant revenue gains from Pillar Two, while the benefits for high-tax countries would be negligible.

Concerning the impact of Pillar Two on profit shifting, while a reduction is expected, its size and timing are highly uncertain. On the one hand, the non-linearity of profit elasticity with respect to tax rates – i.e. higher tax elasticity for low rates - would suggest a substantial reduction in profit shifting, since the minimum rate binds especially low-tax countries. On the other hand, tax avoidance tends to be concentrated in a few large multinationals that probably have borne high fixed costs to set up tax planning

⁷⁹ See OECD (2023). These results are higher than the previous estimates and are mainly driven by the increase in profit of in-scope MNEs. If the increase in profitability, particularly high in 2021, were not to continue in the next years, Pillar One revenue gains would be lower. The 2023 IA figures also benefit of better data quality and coverage, specific policy design features modelled and methodological improvements. According to the previous estimates released in the October 2021 statement, Pillar One should apply to approximately 100 very large MNEs around the World, and more than \$ 125 bn. of profit would be reallocated globally to market jurisdictions each year. The overall revenue effect estimated in the 2020 IA on the previous version of the Pillar One (that had a limited sectoral scope and different policy parameters) was in the range of \$ 5-12 bn. (i.e. 0.2%-0.5% of global CIT revenues). In addition to the OECD estimates, also Devereux and Simmler (2021) attempted to quantify the consequences of the new Pillar One as outlined in the July 2021 agreement. They find that: only 78 out of the 500 World largest multinationals would be included in the scope of the new Pillar One, mainly due to the exclusion of the financial and extractive sectors and to the 10% profitability threshold, for an amount of profits of 87 bn. Around 64% of Pillar One profits would be generated by US MNEs (mainly IT companies), followed by China (10%) and the United Kingdom (4%), while France, Germany and Japan feature less than 2.5%. Finally, the profitability index adopted (i.e. the ratio of pre-tax profits and revenues) excludes many MNEs that would instead be comprised under a different index, e.g. the ratio of pre-tax earnings to equity. Similar results are provided in Sullivan (2020).

⁸⁰ Previous estimates released in the October 2021 statement were around \$ 150 bn., i.e. around 6% of the global CIT revenue.

⁸¹ See OECD (2020). This was based on a previous version of the proposal where Pillar One had a different scope and several parameters of Pillar Two were not established yet. The IA does not provide estimates for single countries and/or geographical areas, but only for groups of countries based on their income level (high, middle and low income, plus investment hubs).

⁸² i.e. assuming an increase in the CIT rate up to the minimum tax, that resembles the QDMTT option outlined in the Model Rules.

infrastructures, and could therefore be less reactive to the reform, remaining in a “wait-and-see” mode, and continuing to shift profits in the meantime.⁸³

The possible effects of a minimum taxation regime on tax competition are also far from obvious. In general, regardless of the specifics of Pillar Two, the common view is that a global minimum tax could mitigate tax competition for profit⁸⁴ and for productive activities, since it introduces a “floor” to effective taxation, curbing the “race to the bottom”.⁸⁵ Thanks to the floor and the lower incentive for profit shifting, high-tax countries could even increase their effective tax rate, with possible positive spill-overs on low-tax countries.⁸⁶ According to an alternative view, given the lower chances of shifting profits to tax havens, production location choices might become more sensitive to taxation, intensifying the process of tax competition to attract real investments.⁸⁷ Evidence on the corporate minimum tax is not available yet; however, studies on minimum taxes in other fields found a mitigating effect on tax competition.⁸⁸

Specific design issues of the agreement and of the subsequent Model Rules - namely the € 750 million revenue threshold, the carve-outs and the Qualified Domestic Minimum Top-Up (QDMTT) - add further layers of complexity in assessing the effects of the minimum tax and cast more doubts on the extent of the final benefits that high-tax countries may derive from it. The revenue threshold implies that tax competition for real investments and profit shifting will continue for out-of-scope companies. Concerning the carve-outs, Pillar Two puts a halt to profit shifting, but is less “effective” in curbing tax competition for real assets, as taxation will continue to be less than 15% when labor and/or plants are located in the low-tax country. Tax competition may therefore move from granting low statutory rates to providing incentives for such productive factors (e.g. reductions in labor or real estate taxes, incentives to invest in machinery and equipment). It could also shift to new and less transparent forms, such as benefits not affecting (or affecting less) the ETR (e.g. social security or payroll reductions or direct subsidies).⁸⁹ The different treatment of tax credits for the ETR calculation may offer countries additional room to manipulate the rules.⁹⁰ Finally, the option to apply a QDMTT by low-tax countries would significantly change the incentives for tax competition. Indeed, the QDMTT allows low-tax countries to receive the revenue that would otherwise go to the parent residence countries without increasing the general corporate tax, subjecting only in-scope groups to the supplementary levy. According to Devereux et al. (2022a), under the new system, low-tax countries will have a strong incentive to substitute the corporate tax with the QDMTT and to compete on corporate taxation.⁹¹ The key role that this option

⁸³ See Devereux et al. (2022b), forthcoming. The results of the paper were presented at a conference “*Pillar 2: what will be the impact?*” organized by the Oxford University Centre for Business Taxation on 4 April 2022. They estimate that, on average, minimum taxation could halve profit shifting in the OECD countries.

⁸⁴ Indeed, by reducing tax differentials, a minimum tax should reduce the gains from reallocating profits.

⁸⁵ The reason is that “a tax rate increase has a lower efficiency cost in terms of tax base loss” (Englisch and Becker, 2019).

⁸⁶ See Hebous and Keen (2021); Johannesen (2022).

⁸⁷ For additional views see the discussions in Englisch and Becker (2019) and Klemm (2021).

⁸⁸ See, for instance, Buettner and Schwerin (2016) on the local German business tax and Evers et al. (2004) for excises.

⁸⁹ The original purpose of Pillar Two was to curb both tax competition for profits and real activities; in this respect, the possible introduction of substance-based carve-outs was viewed as undermining the policy intent and effectiveness of the GloBE (OECD 2019b, p. 23). The carve-outs actually introduced takes back the policy goal to the previous position agreed in the BEPS Action Plan, recalled above, according to which low taxation only becomes a source of concern when taxable income is “segregated” from the activities that generate it.

⁹⁰ Tax credits reduce the ETR to a different extent depending on their features. Tax credits that are not recoverable with certainty within the 4-year time frame by the recipient company (these would seem to include tax credits that can only be used to offset other taxes, and are not refundable), produce a greater reduction of the effective tax rate than those that are recoverable within 4 years.

⁹¹ Devereux et al. (2022a).

may play in the new system also implies that countries might have less freedom in defining their tax bases.⁹²

According to most literature, by further narrowing the incentives and the possibilities for profit shifting, the minimum tax may increase the cost of capital for investments, with possible adverse effects on growth.⁹³ A recent study finds that the impact on the cost of capital and on the stock of accumulated capital (assuming a unity elasticity) for a minimum rate of 15% would be around 5.5%.⁹⁴ Yet, the OECD suggests that the tax sensitivity of investments by highly-profitable companies could be lower, probably due to their lower liquidity constraints and/or higher rents, implying a more limited impact of the increase in effective tax rates on overall investments and economic outcomes.⁹⁵ Furthermore, these effects could be even lower, due both to the carve-outs on employment and tangible assets, and to the invariance of taxation for out-of-scope companies.

Some argue that a global minimum tax can be efficiency-enhancing to some extent, since it would lead to a smaller dispersion of effective tax rates among different countries, thereby reducing distortions to the location decisions of multinationals.⁹⁶ However, the abovementioned study finds that for minimum rate levels close to 15%, the dispersion of effective tax rates would not change substantially, with negligible benefits in terms of reduced distortions to the international allocation of capital. The impact on the overall efficiency of the economic system appears even more difficult to predict. On the one hand, positive effects could stem from levelling the playing field between large multinationals and domestic companies. On the other hand, the reform potentially introduces new distortions, due to the different tax treatment of investments made by companies that are subject or not subject to Pillar Two, with impacts on the organizational and dimensional choices of groups (e.g. incentive to splitting).⁹⁷ Moreover, it is difficult to predict the effect on the overall productivity of the carve-out-induced change in relative prices of investments in tangible and labor-intensive assets compared to those in intangible assets.

Finally, another non-negligible role on investments is played by tax certainty.⁹⁸ On the one hand, the latter could be improved thanks to the standstill and withdrawal of unilateral measures provided by Pillar One;⁹⁹ on the other hand, some critical aspects of the current system will largely remain in place under the new framework (e.g. transfer pricing and CFC rules). Moreover, Pillar Two adds another layer of

⁹² If the QDMTT were to be widely adopted, the tax base for large companies would converge to accounting profits (net of the carve-outs). In general, the effectiveness of allowances and tax incentives, particularly for intangibles, could be jeopardized if they led to effective tax rates below the 15% threshold (Devereux et al., 2020).

⁹³ This derives from the argument that profit shifting unambiguously reduces the cost of capital and boosts investments both in low and high tax countries (see, for instance, Klemm and Liu, 2021). Thus, there is trade-off between combating profit shifting and supporting investment (Devereux et al. 2021). For specific evidence on real effects of anti-avoidance rules targeting transfer pricing and debt (see De Mooij and Liu, 2020 and 2021).

⁹⁴ See Devereux et al. (2022b), cit.

⁹⁵ See Millot et al. (2020). According to the IA, the effects of the increase in effective tax rates (EATR (0.3 pp) and EMTR (1.4 pp), starting at 24 and 25% respectively - global averages weighted for GDP) on investments would be limited: the estimated negative impact on economic activity of the increase in investment costs is less than 0.1% of GDP over the medium to long term.

⁹⁶ See Englisch and Becker (2019).

⁹⁷ The threshold could also generate several distortions, including discontinuities in firms' cost of capital, and incentives for firms to reduce their size through group "splitting" or activity outsourcing.

⁹⁸ According to the survey among tax professionals by Devereux (2016), this factor is even more important for deciding investment locations than the effective tax rate.

⁹⁹ For instance, the IA argues that negative effects on economic activity could be partly or fully offset by the positive effect of reduced tax uncertainty. On the opposite, uncoordinated and unilateral measures in a no-consensus scenario could lead in the worst-case to a GDP reduction up to 1.2% depending on the extent of unilateral DST adoption and assumptions about commercial retaliation on tariffs.

complexity, as the MNE must compute not only the tax base provided by its country tax code, but also the minimum tax base. Furthermore, the Model Rules themselves appear at present rather complex and articulated and this can increase room for avoidance and the number and complexity of disputes.

4. Multinationals, tax havens and external statistics

MNEs' tax planning strategies described in section 2.1.2 affect national account statistics and, in particular, external statistics (balance of payments – BoP - and the international investment position - IIP), thus creating considerable difficulties in statistical compilation and economic analysis.¹⁰⁰

From a general point of view, measurement problems derive from the contrast between residence-based national statistics – according to which each institutional unit is resident of one economic territory, the place where it has its center of predominant economic interest – and the global activities and ownership structures of large MNEs, whose transactions may have nothing to do with enhanced financial integration that occurs with genuine cross-border investments. Available BoP and IIP statistics do not disentangle or reallocate flows that are solely driven by the existence of profit shifting opportunities from those that are triggered by countries truly investing in each other's economic and financial sectors. These measurement difficulties are exacerbated by digitalization, as well as by the increasing importance of intellectual properties (IPs) which can be moved across borders with greater ease than physical assets.¹⁰¹

Since tax havens play a prominent role in profit shifting (see section 2.1.1), they are responsible for a large share of the distortions that can be observed in external statistics. Although there is no unique list of tax havens, there are some recurrent features that identify these countries in addition to low or zero tax rates. Indeed, even countries with non-negligible levels of taxation display characteristics of tax attractiveness that make them resemble, to some extent, traditional and proper tax havens. In addition, some of the statistical distortions not only stem from profit shifting *tout court*, but also from OFCs financial intermediation, which many times is however located in jurisdictions that can either be considered tax havens or that facilitate tax and regulation avoidance in direct or indirect ways.¹⁰²

In the next section, the various components of BoP and IIP will be investigated separately in order to analyze the impact that MNE operations have on external statistics. Moreover, the incidence of tax havens on BoP and IIP will be also examined, both for Italian and international statistics. The list of tax havens used in the following sections is the same used in Pellegrini et al. (2016) and similar to that defined by Gravelle (2015) on the basis of various lists (from OECD, Tax Justice Network and U.S. Government

¹⁰⁰ Di Nino et al. (2020).

¹⁰¹ These phenomena can have large effects in terms of magnitude and volatility of statistical indicators, which become especially visible in those economies where MNE transactions and balance sheets are large relative to the size of the domestic economy (as in the well-known case of Ireland).

¹⁰² OFCs are commonly defined as jurisdictions attracting a high level of financial activity from non-residents, often in currencies different from that having legal tender in the jurisdiction. See Zoromé (2007) for a data-driven attempt to classify OFCs.

Accountability Office¹⁰³). It refers to a broad definition and include, among others, some EU countries such as Ireland, the Netherlands and Luxembourg.¹⁰⁴

4.1 The impact on the goods and services items of the current account

Merchandise trade may involve foreign subsidiaries of MNEs (offshoring) or an unrelated foreign company (outsourcing). BoP statistics are based on the concept of change in economic ownership; in contrast to international trade statistics that measure all goods crossing a country's border, trade in goods recorded in BoP statistics also includes *contract manufacturing* (or processing) and *merchandising*.

In *contract manufacturing*, an MNE hires a foreign company to produce a good. During the production process, the ownership of the inputs remains with the MNE and hence no trade flows are recorded in the BoP (with the exception of an import of processing services by the MNE). Only the sale of the final products to third countries, which is consistent with the change in ownership principle, is recorded in the goods item of the BoP. As an example, the euro area balance of payments statistics shows that in the three largest countries (France, Germany and Italy) the incidence of the processing services on goods transactions is quite low (close to 1 per cent), while in two financial centers (Ireland and Luxembourg) such incidence is much higher (respectively, 18.5 and 7.3 per cent), confirming the practice of using tax havens to reduce tax burden (together with the possibility of reducing costs by outsourcing production).

Merchandising is the process whereby a company purchases goods from a foreign entity, and subsequently sells them to a buyer in a third country without the goods crossing the border of the country where the merchant is based. If the merchant is located in a tax haven and belongs to an MNE, the pricing of such transactions may be determined in order to shift profits towards the tax haven. Again, the European balance of payments statistics show high values of the incidence of *merchandising* on total export of goods for Ireland and Luxembourg.

As IPs can often be easily moved across borders within an MNE group, they affect exports and imports of services. IPs are hard to value at market prices and, therefore, MNEs may use them to avoid taxation. The main conclusions of a recent work,¹⁰⁵ based on firm-level data for Italy, report that about 43% of IP services are imported from tax havens, compared to less than 23% for other services, and trade in IP services is highly concentrated among firms, with foreign companies accounting for 60% of IP imports. Moreover, the latter refers not only to firms specialized in ICT sectors, but is relatively widespread across sectors (including manufacturing); this might indicate either that IP services are a production input for several sectors, or that they are used in many different sectors as a profit-shifting tool (and both motivations may exist at the same time).

¹⁰³ OECD (www.oecd.org/dataoecd/38/14/42497950.pdf); Tax Justice Network, "Identifying Tax Havens and Offshore Finance Centers" (www.taxjustice.net/cms/upload/pdf/Identifying_Tax_Havens_Jul_07.pdf); Government Accountability Office Report, "International Taxation: Large U.S. Corporations and Federal Contractors with Subsidiaries in Jurisdictions Listed as Tax Havens or Financial Privacy Jurisdictions", GAO-09-157, December 2008. See also Dharmapala and Hines (2009).

¹⁰⁴ The list contains 47 countries, including those belonging to EU (in bold): Aruba, Anguilla, Andorra, Antigua and Barbuda, Bonaire, Sint Eustatius and Saba, Bahrain, Belize, Bermuda, Barbados, Switzerland, Costa Rica, Curacao, Cayman Islands, **Cyprus**, Dominica, Guernsey, Gibraltar, Grenada, Hong Kong, Isle of Man, **Ireland**, Jersey, Saint Kitts and Nevis, Lebanon, Liechtenstein, **Luxembourg**, Macao, Saint Martin, Marshall Islands, **Malta**, Montserrat, Mauritius, Malaysia, Niue, **Netherlands**, Nauru, Panama, Puerto Rico, San Marino, Seychelles, Turks and Caicos, Tonga, Holy See, Virgin Islands (British), Vanuatu, Samoa.

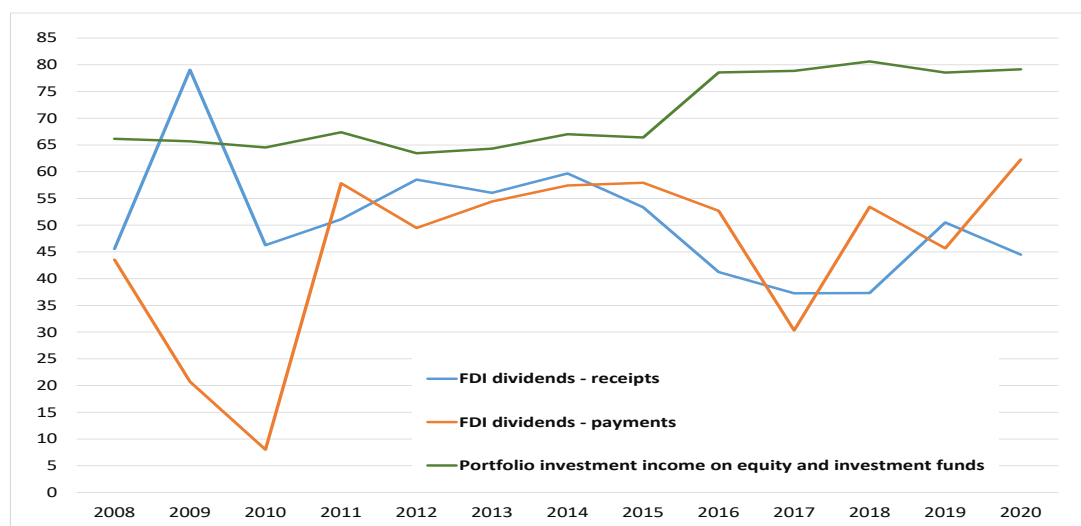
¹⁰⁵ Accoto et al. (2023); results are averages of the 2013-2017 period.

4.2 The impact on the primary income balance component of the current account

MNE operations made through OFCs are particularly visible in FDI income, both in the equity component - which may be further decomposed into dividends and reinvested earnings - and in the debt component. MNEs can use complex corporate structures to optimize their tax burden, for example, by re-organizing intragroup debt obligations and by concentrating reinvested earnings in certain jurisdictions (see above, Section 2.1.2). Moreover, the income of holding companies also includes the profits earned from other entities in MNE ownership chains. Apart from FDI, the cross-border ownership of MNEs may also affect portfolio investment both for equity and debt securities.

As a statistical evidence of the impact of such operations in the Italian BoP, Figure 4 shows for the period 2008-2020 the high incidence of tax havens in FDI dividends, for both receipts and payments; in the former case, the average is about 50%, with oscillations linked to the economic cycle; the lion's share belongs to some EU countries, particularly the Netherlands. This could be due to tax planning strategies commonly used by MNEs, such as, for instance, the “*Double Irish with Dutch Sandwich*” (see section 2.1.2 and Annex A.2.1). Similar considerations can be made for the FDI dividend payments (during the same period); apart from low incidences in 2009-10, a crisis period, the share is on average slightly above 50%, again with a strong prevalence of the Netherlands and, to a lesser extent, Luxembourg. Figure 4 also shows the incidence of tax havens on the portfolio investment income receipts from equity securities and fund shares, on average about 70 per cent, reaching nearly 80 per cent in the last five years; in this case the lion's share is to be attributed to Luxembourg, a well-known location for the establishment of investment funds (together with Ireland).

Figure 4. Incidence of tax havens in Italy: investment income flows (*percentages*)



Source: Eurostat, BoP statistics.

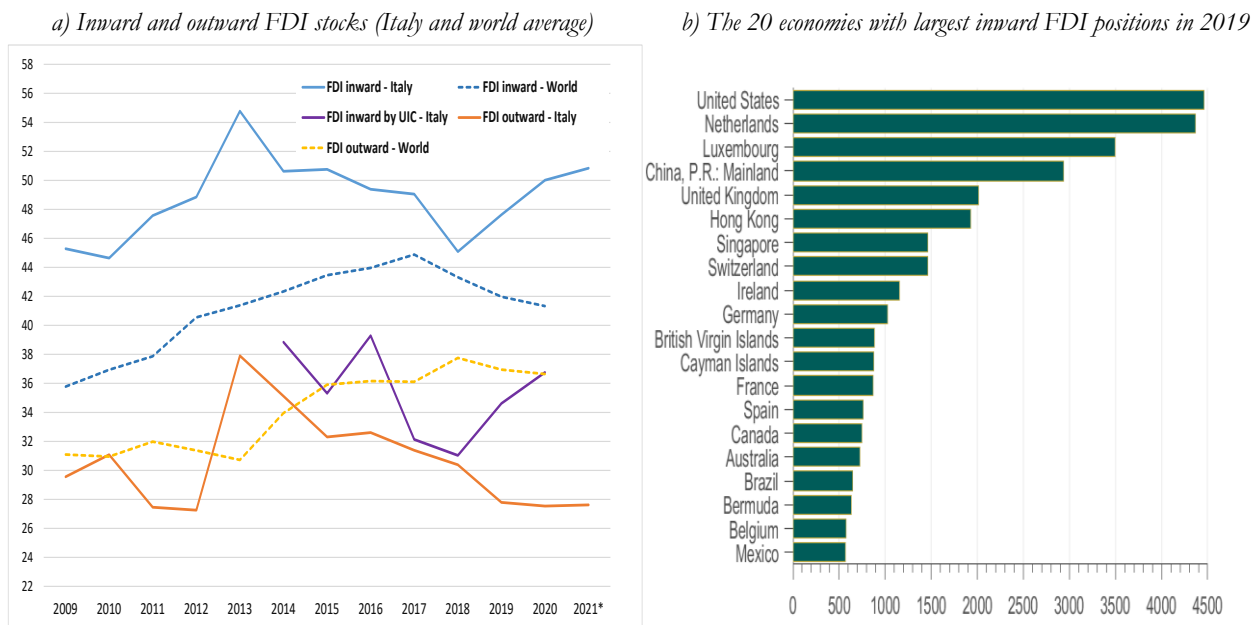
4.3 The impact on the financial account of the BoP (flows) and of the IIP (stocks)

As already mentioned, MNE operations may have a particularly large impact on FDI, both flows and stocks, and can also be a source of asymmetries in the measurement of bilateral external positions. To provide an illustrative example of what this implies, consider a Luxembourg subsidiary of a US tech company that expands its logistics network with a new fulfillment center located in Italy; official FDI statistics report the operation based on the economy of the immediate counterpart country (IMC), i.e. they record a new Luxembourg investment into the Italian economy. However, from an economic

perspective we can safely assume it really was the US (the economy of the ultimate investor) to be investing in Italy. In this case the challenge for the statistician is to reallocate bilateral positions; inward FDI statistics compiled by ultimate investor control (UIC) provide a more realistic, yet still incomplete, picture. Moreover, such statistics are available only for a limited number of countries (see Section 5).

There are also flows that are *exclusively* driven by profit shifting motivations or the desire to avoid regulation and capital controls. For instance, consider an Italian company that creates a subsidiary in the Cayman Islands for the sole purpose of receiving worldwide profits there rather than in Italy. This is not an investment that analysts would like to relocate, but one which they likely would not want to show in *any* official statistics, as that the Italian company is no way making a real investment in the Cayman Islands' economy. Indeed, absent those opportunities, the investment simply would not have been undertaken at all and, consequently, one should exclude it from the dataset. Looking at official statistics, Figure 5, panel a), shows the tax haven incidence on Italian and world FDI stocks.

Figure 5. Incidence of tax havens: FDI stocks (*percentages*)



Note: 2021* is referred to 2021-Q2 data.
 Source: IMF, Coordinated Direct Investment Statistics (CDIS) for world average; Bank of Italy for Italian data.

For economies reporting to CDIS, the figure shows the reported numbers. For non-reporting economies, the figure shows estimates recovered following the methodology in DEJ. Numbers are in bn. dollars.

Considering official data compiled by the IMC criterion, for inward FDI the incidence in Italy is even higher than the world average. Interestingly, when considering stocks compiled by UIC criterion, the incidence of tax havens for Italian inward FDI falls to an average of 35%¹⁰⁶ for the period 2014-2020, in comparison to an average of nearly 49% in IMC statistics in the same period. Instead, for outward FDI the incidence is lower, in Italy nearly 31% in the average 2009-2020, but it is nearer to the world average and even lower from 2015.

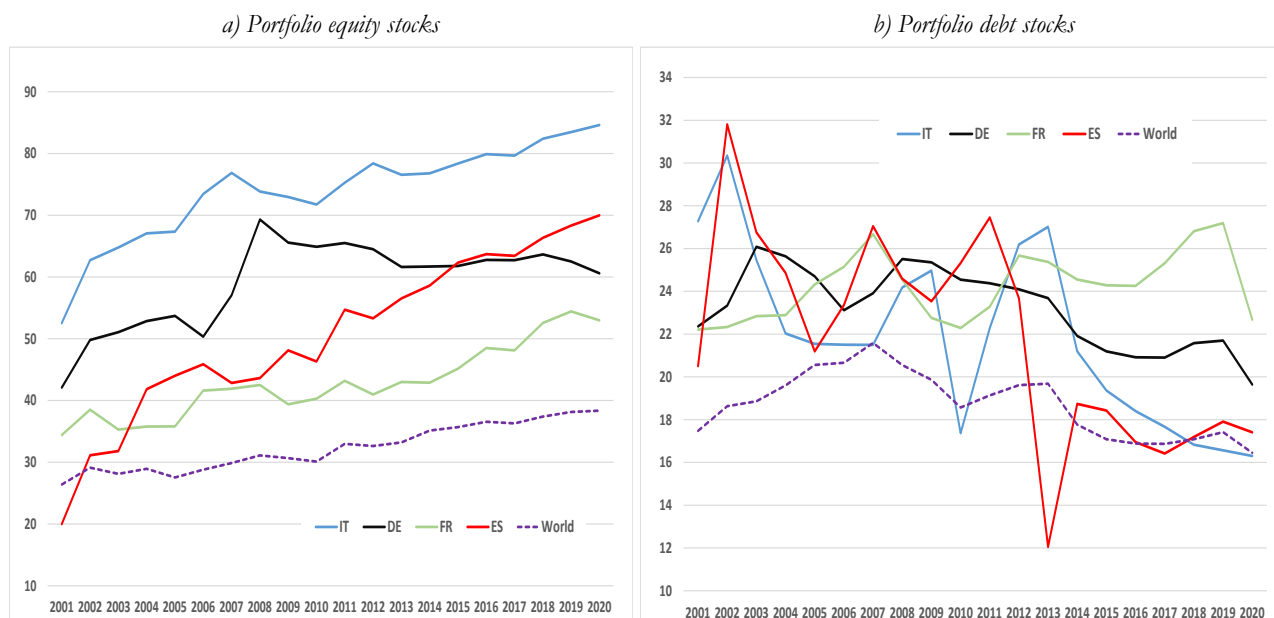
Figure 5, panel b), shows an example of the misleading geographical distribution of official FDI stocks; with its \$3.5 trillion inward positions, Luxembourg locates very close to the US and above China. Indeed,

¹⁰⁶ The incidence of tax havens in FDI inward by UIC is calculated excluding non-allocated countries, whose weight on the total is significant in this type of statistics (about 30% in the average of the 2014-2020 period, against 0.01% in the case of inward FDI by IMC).

Luxemburg also records an FDI outward stock of a similar magnitude, signaling that the bulk of investments just passes through that economy without many real effects in terms of cross-border transfer of skills, technology or business practice (so-called “phantom investment”).

Similar considerations also apply for portfolio securities; consider, for instance, a Canadian household that buys a share of a domestic mutual fund, which in turn uses the money to buy a corporate bond issued by a Cayman Islands-based subsidiary of a Brazilian company. Official statistics will not record a higher exposure of Canada towards the *Brazilian* economy, but rather an increased exposure of Canada towards the *Caymans*. However, from a pure economic perspective the former link is the one of interest. To complicate things further, if the mutual fund itself is domiciled in an Offshore financial center (OFC) such as Luxembourg, official statistics would report increased *equity* exposure of Canada towards *Luxembourg* (because the household buys shares of the mutual fund), as well as higher *bond* exposure of Luxembourg towards the Cayman Islands. If those were isolated cases, existing data would still be a good approximation of the underlying phenomena economists and policymakers are typically interested in. The problem is that profit shifting and other tax avoidance schemes (including those aimed at reducing withholding taxes at source) often lead multinationals to *massively* issue debt and/or equity from OFCs, as in the example above. The phenomenon is indeed so recurrent (in this as well as other variants) that it biases official statistics in ways that cannot be neglected anymore. In this respect, one would like to work with *nationality*-based statistics, which would indeed suggest that only Canada’s exposure to *Brazil* has increased instead.¹⁰⁷ As we will see in the next section, Coppola et al. (2021) adopt a big data approach and develop a methodology that provides such estimates starting from publicly available residency-based statistics of portfolio investments. Figure 6 shows the tax haven incidence on portfolio stocks, for both equity securities (panel a) and debt securities (panel b).¹⁰⁸

Figure 6. Incidence of tax havens: portfolio equity and debt securities stocks (*percentages*)



Source: IMF, Coordinated Portfolio Investment Statistics (CPIS); Bank of Italy for Italian data.

Notes: 2021* is referred to 2021-Q2.

¹⁰⁷ Some of the “excess” issuance from OFCs could be due to companies accommodating high demand for financial investments on the part of tax evaders that want their hidden wealth to grow instead of simply being parked into a tax haven. In other words, tax evasion (not tax avoidance) could in some cases drive companies to issue some of their securities offshore.

¹⁰⁸ For Italy data are referred to non-banking sectors, for world average data are referred to the whole economy.

For debt securities there is a significant similarity between Italy and both the world average and three main European countries (France, Germany and Spain, henceforth FGS); in more recent years, such incidence is even lower in Italy as compared to FGS. For equity securities, the statistical evidence is quite different, as the incidence of tax havens in foreign stocks held by Italian residents is much higher, due to the already mentioned strong prevalence of Luxembourg – and, to a lesser extent, Ireland – as a location for investment funds. It is worth noting that also FGS show an incidence higher than the world average.

4.4 The impact of corporate inversions

A particular kind of MNE operation, a corporate inversion followed by a redomiciliation in an OFC, tends to have an impact on several items of the BoP, both in the current account and in the financial account, and consequently on stocks, giving rise to other changes in volume,¹⁰⁹ this can thereby substantially change a country's IIP.¹¹⁰ Moreover, in the case of acquisition/disposal of IPs (licenses, trademarks and so on), which occur quite often as a one-off transaction in the context of corporate inversions and re-domiciliations, the corresponding transaction is registered in the capital account of the BoP (in the item “nonproduced, nonfinancial assets”).

Even if the re-domiciliation of an MNE is not associated with additional economic activity in the country of residency, the current account balance may be affected in several ways, e.g. due to attribution of net exports resulting from contract manufacturing or IP related services trade, and through the channel of investment income flows. As for the financial account, the effect of corporate inversions on external statistics is difficult to assess *a priori* because it depends on many factors, including the structure of the financial statements of the company making the inversion, its positioning within the corporate chain and the financial links with other companies belonging to the same group. This effect is also influenced by methodological aspects, such as the different valuation criteria applied in cases in which the investee company is listed (and the valuation is at market prices) compared to those in which it is not listed (and the valuation is at equity).

In conclusion, these apparent distortions not only overstate bilateral positions of certain economies vis-à-vis OFCs, but, maybe more importantly, they understate bilateral positions between non-OFCs, fundamentally undermining our understanding of global financial interconnectedness and integration. As described in the next section, a recent strand of literature has tried to reallocate capital stocks and flows based on nationality rather than residency criteria.

5. Redrawing the map of capital allocation: FDI and portfolio investment

The role of tax and regulation avoidance by MNEs and the related role of OFCs in distorting official statistics is known since the seminal works of Lane and Milesi-Ferretti (2001, 2007, 2011, 2018) where they use mirror statistics to estimate the foreign asset and liability positions for some of the most important OFCs.

The OECD recently started to collect statistics whereby some of the respondents now also state how much of the reported FDIs reflect investments in real firms or in Special Purpose Entities (SPEs).

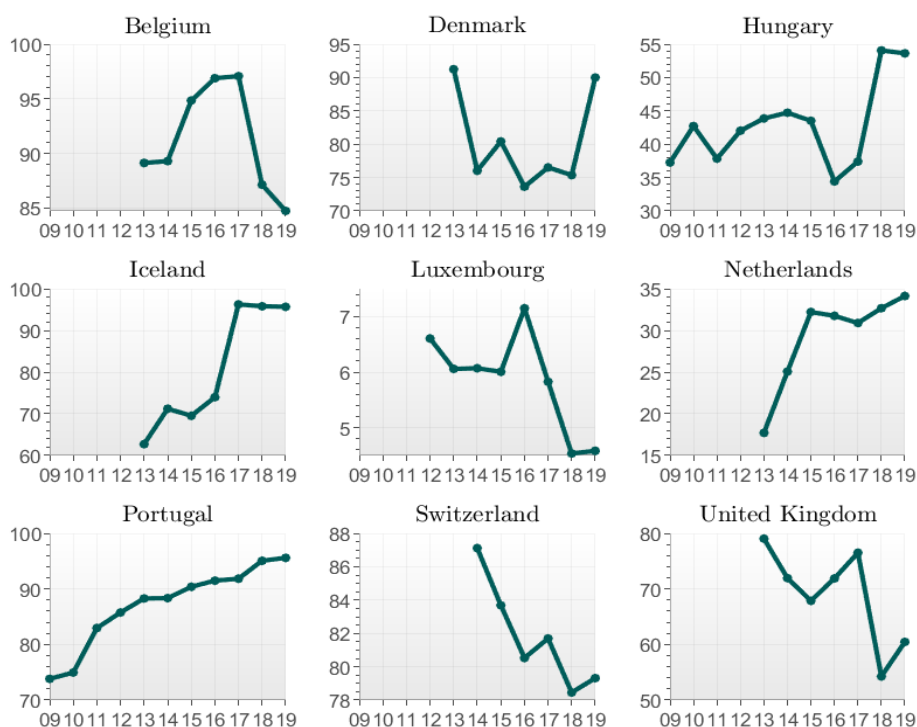
¹⁰⁹ Other volume changes include, for example, reclassifications, write-downs, breaks arising from changes in sources and methods, and changes in the residency of companies.

¹¹⁰ An example is given by the corporate reorganization carried out between 2014 and 2017 by the Agnelli-EXOR group, with significant effects on the overall Italian IIP.

Moreover, as already mentioned, a few countries also report FDIs by UIC criterion to the OECD. Available data are still rather limited, but some patterns already emerge.

For instance, Luxembourg is by far the country with the smallest share of real inward FDIs, standing at 4.6% in 2019, followed (among reporting countries) by the Netherlands (34.1%), Hungary (53.6%), the United Kingdom (60.5%), Switzerland (79.3%) and Belgium (84.7%). Ireland reports that 96.8% of its inward FDIs are genuine ones, with little variation over time. Figure 7 shows the evolution of this statistic for a selected group of (not necessarily OFCs) countries for which we observe at least some variation over time.

Figure 7. Share of real FDIs as a percentage of total FDIs for selected countries



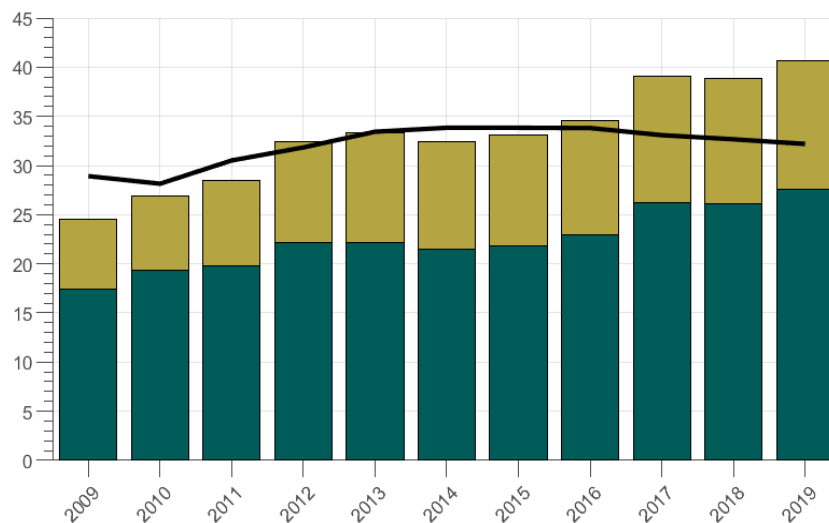
Note: Major EU countries such as France, Germany and Italy generally report no inward FDIs classified as investment into SPEs.
Source: OECD.

Interestingly, just a few years ago Hungary, Iceland, the Netherlands and Portugal had much lower real FDIs, whereas Switzerland and the United Kingdom have seen a marked drop in the share of FDIs that are due to real economic integration. While those data are of extreme usefulness, they are still very incomplete as they are only reported by a subset of OECD countries.

More recently Damgaard et al. (2019, DEJ from now on) and Coppola et al. (2021, CMNS from now on) provided important contributions explaining how, respectively, FDI and portfolio investments official statistics are distorted and how they could be adjusted to correctly account for the role of OFCs; in what follows we will draw heavily from those two papers. In order to shed some light on this phenomenon, DEJ merge different datasets and proceed in three steps. First, starting from the IMF's CDIS dataset they collect the usual global FDI positions. Second, using the OECD FDI Statistics they disentangle

phantom from real FDI for a subset of 16 countries.¹¹¹ For these 16 economies, they estimate the share of Real FDI over Total FDI using a simple regression of Real FDI/Total FDI on Total FDI/GDP (which is available for all countries) and apply the regression coefficient to predict real FDIs for the rest of the economies.¹¹² Third, they relocate real FDIs by the ultimate owner using the Orbis database when this information is absent in the OECD statistics. In particular, they estimate a conversion factor (the ratio between ultimate and intermediate investor Real FDI) that they then apply to the Real FDI for immediate owners' official statistics.¹¹³ Figure 8 shows two important things: 1) between 2009 and 2019 phantom investment almost doubled while Real FDI increased by only 50%; 2) in 2019 more than 30% of total FDI were phantom FDI.¹¹⁴

Figure 8. Evolution of total inward FDI positions decomposed into Real FDIs and Phantom FDIs



Source: own calculations following the methodology in DEJ.

Notes: Real FDIs (dark green bars) and Phantom FDIs (light green bars) are expressed in trillion dollars. The black line shows the share (in percent) of Phantom FDIs.

Furthermore, disentangling Real FDI into intermediate and ultimate owner uncovers an interesting role of some tax havens and China.

Figure 9 shows that, on the one hand, tax havens tend to register ultimately owned Real FDI much smaller than the immediately owned Total FDI, suggesting that those jurisdictions are used by other countries to channel their investments in the global market. On the other hand, Chinese investors are the ultimate owners of almost double what the standard FDI statistics indicate.

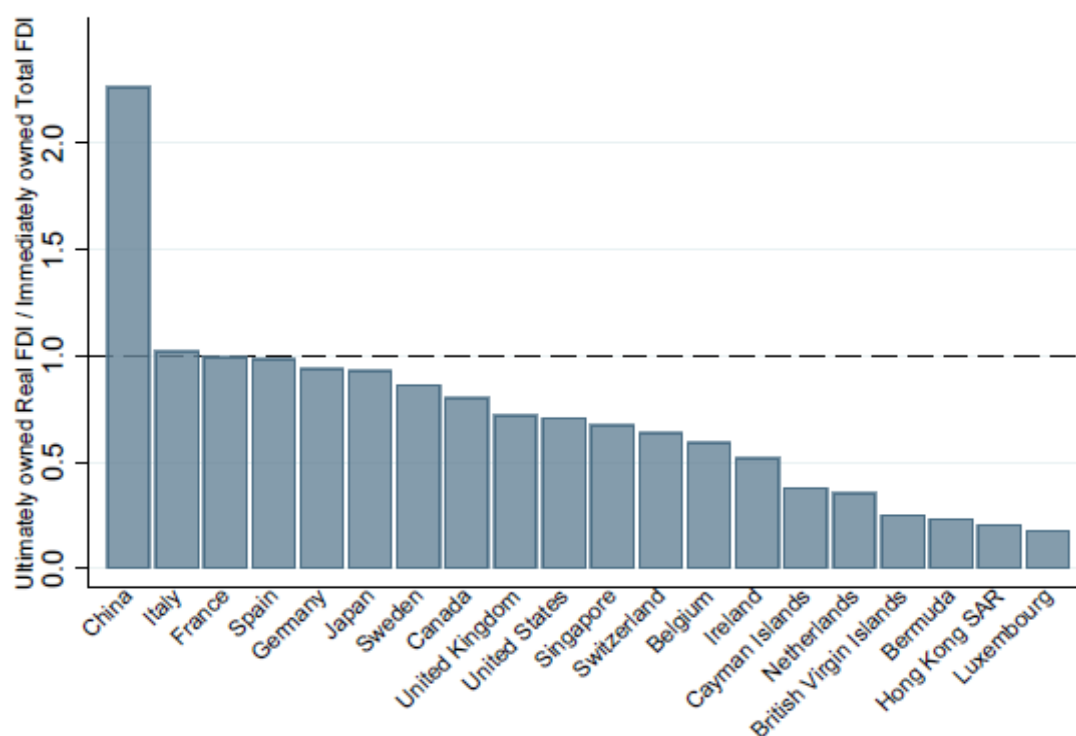
¹¹¹ They divide inward FDI into SPEs and other entities (non-SPEs), with the former representing phantom FDI and the latter real FDI. The SPEs are identified as legal entities with no or few employees, no production in the host economy, little or no physical capital presence, their ultimate owners are foreign resident, their asset and liabilities are mostly vis-à-vis non-residents and their core business consists of group financing or holding activities.

¹¹² The estimated slope is -0.5: an increase of Total FDI/GDP by 1% reduces the predicted value of Real FDI/Total FDI by 0.5%. While sample size is admittedly small, the R² is a remarkable 0.84. As a robustness check they remove one at the time a country from the sample and the result remains stable. In another robustness check exercise, they remove one year at time from the sample (which spans from 2013 to 2017), and again the results are stable.

¹¹³ Orbis-based FDI coverage is about \$8.4 trillion in 2016. The estimate of the Real FDI obtained from the official statistics is around \$22 trillion. Using the conversion factor estimated in Orbis to relocate the entire stock of FDI implicitly assumes that the ratio of real FDI by ultimate and intermediate owner is the same for investment covered and not covered in Orbis.

¹¹⁴ More recently, Albori et al. (2023) estimate a binary choice model within a gravity framework, and find even higher phantom FDI estimates.

Figure 9. Ratio between ultimately owned Real FDI and immediately owned Total FDI



Source: CMNS.

Notes: the figure is shown for the 20 largest economies in the world with the largest outward FDI positions.

Turning to portfolio investment, CMNS build a methodology to associate traded securities not with the direct issuer, but with the issuer’s ultimate parent. Using these data, they restate bilateral investment positions to better reflect the true nature of financial linkages across countries. The rationale of their analysis is that global firms often access capital markets by issuing securities not directly, but through cross-border affiliates. They do so not only to reach different investors but especially to minimize the group tax burden through tax planning schemes that optimize the MNE’s financial structure, or to circumvent source withholding taxes (see above, section 2.1.2) as well as capital controls or other regulations. The phenomenon is economically relevant as the corporate sector globally raises nearly 8 percent of its equity financing and 10 percent of its bond financing via foreign subsidiaries located in tax havens.

Official statistics, at both national and international level, associate offshore securities with the location of the issuer, rather than the country of its ultimate parent, providing a biased view of global portfolios. Indeed, after correctly restating the bilateral investment positions, one would find that portfolio investments from advanced economies to large emerging markets are much greater than previously thought: the US position in Chinese firms is underestimated by roughly \$600 billion, while China’s official net creditor position to the rest of the world is overestimated by 50 percent.

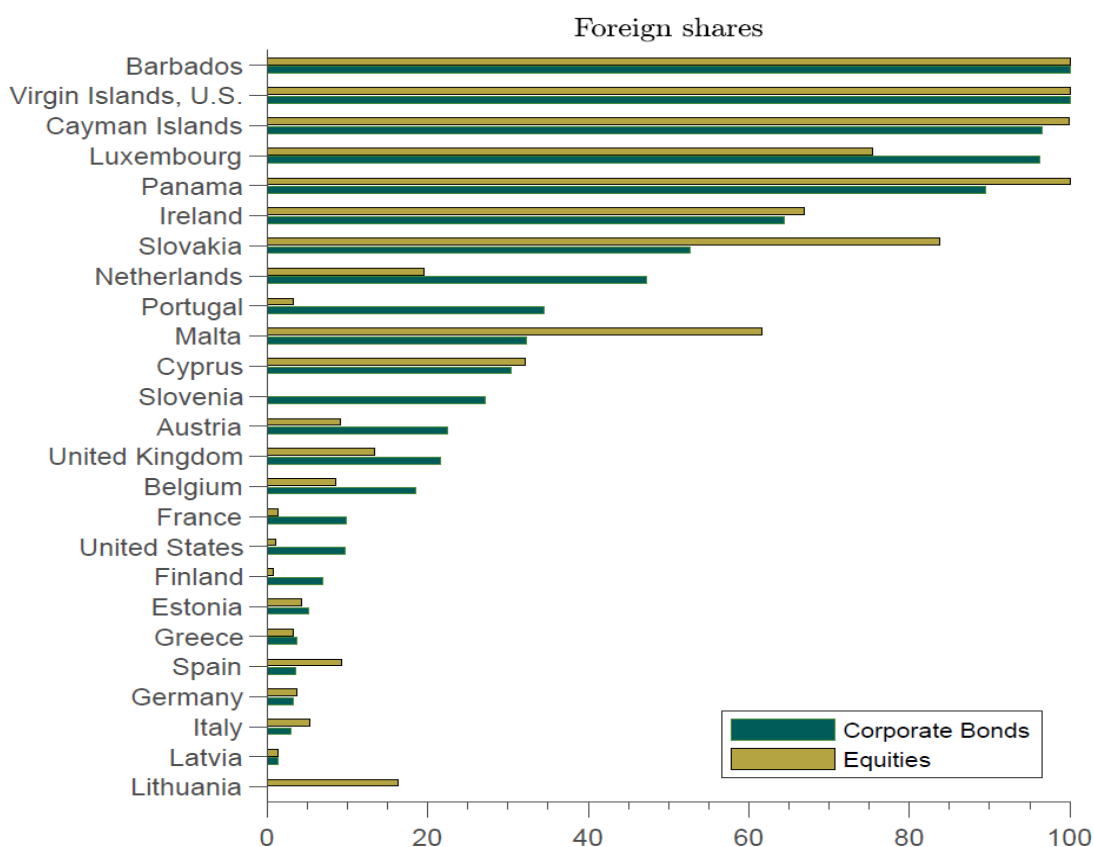
In order to reassign bilateral positions from a residency to a nationality basis, CMNS combine a new algorithm that matches foreign subsidiaries to their parents with a security-level dataset on global fund holdings, and restate bilateral investment positions to reflect the true financial linkages across countries.

Then, they introduce this subsidiary-parent mapping into the dataset of global mutual fund and exchange traded fund (ETF) holdings provided by Morningstar and assembled in Maggiori et al. (2019). They

record the country of the immediate issuer and ultimate parent for all positions in the Morningstar data and, for each asset class, build a set of “reallocation matrices” that are used to convert a dataset of bilateral investment positions from a residency to a nationality basis.¹¹⁵ In this note, we consider the estimated nationality shares from the GCAP website.¹¹⁶

In Figure 10, we report the foreign shares for corporate bonds and equities for some selected countries in the CMNS sample in 2017. Countries traditionally considered tax havens tend to have a very high share of corporate bonds and equities issued in the country that relate to subsidiaries of foreign companies. Interestingly, EU countries are more spread out: issuance by the four biggest economies is almost entirely domestic, while Luxembourg sits very close to tax havens; Ireland and the Netherlands are somehow in between the two extremes.

Figure 10. Share of corporate bond and equities issued in a country traceable to foreign entities resident in that country



Source: CMNS.

Note: domestic share is computed as 1-foreign share.

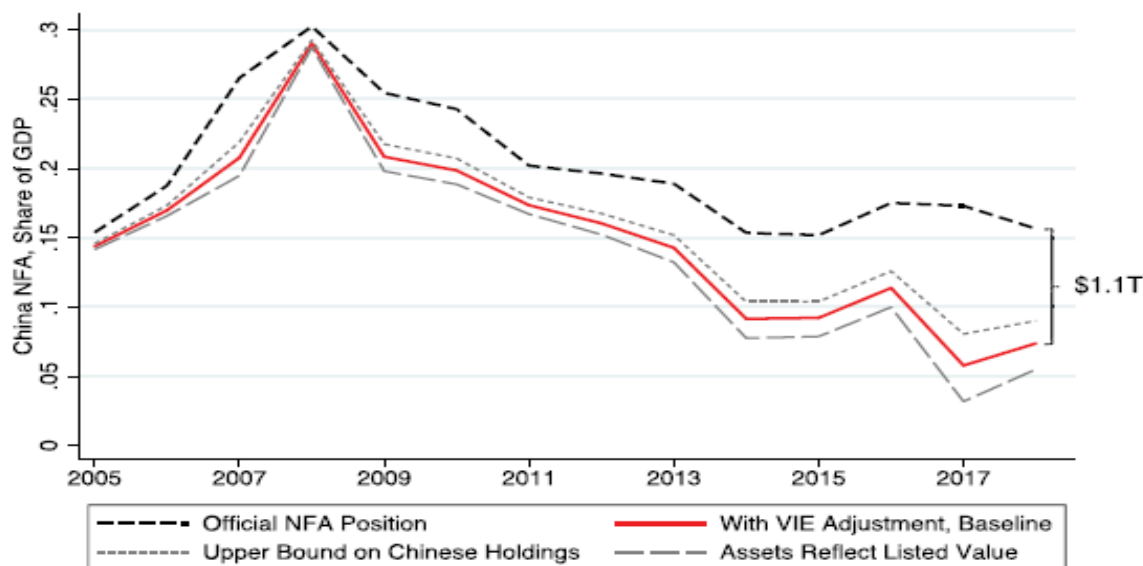
¹¹⁵ The key assumption is that the reallocation matrices, which are constructed entirely from investments made by funds in the Morningstar data, are representative of the overall set of securities investments, including those not made by funds or made by funds excluded from the Morningstar data. As a robustness check the relocation matrix between US and Norway has been reconstructed using the holdings of US insurance companies and those of the Norwegian sovereign wealth fund at the bilateral destination, asset class, year level. This assumption allows substantial heterogeneity between mutual funds and other investors; for example, heterogeneity about destination of investment, and asset class composition. It only requires a similar investment composition within a destination, asset class, and year. The assumption is supported by the alignment of country portfolio shares in these datasets and in the Morningstar data when expressed under residency. Furthermore, in many countries, the mutual fund and ETF sector is the largest cross-border investor in securities.

¹¹⁶ www.globalcapitalallocation.com

In 2017 the share of corporate bonds issued by foreign entities was 47% in the Netherlands and 64% in Ireland; for Luxembourg the share was equal to 96%. While we do not take a stand on whether any threshold makes a country de facto a tax haven, it is nonetheless clear that by the adopted metrics, not only Luxembourg, but also Ireland, and slightly less so the Netherlands, are closer to traditional tax havens than to the other EU countries. While using the share of bonds and equity issued by foreign companies obviously does not fully describe how tax havens operate, it is surprising how this simple metric matches the results obtained with more sophisticated analyses.¹¹⁷

This phenomenon has the potential to seriously blur official statistics. Figure 11 plots CMNS estimate with a solid red line alongside China’s official Net Foreign Asset (NFA) position, shown with the dashed black line. China reports a net credit position equaling \$2.1 trillion in 2018 (15% of China’s GDP), making it one of the World’s largest, alongside Germany’s similarly sized position and Japan’s \$3.1 trillion position. The overstatement of China’s NFA that is due to offshore issuance is close to zero in 2008 and grows rapidly over time, reaching \$1.1 trillion by the end of 2018. Absent other adjustments, accounting for missing offshore issuance leads to the conclusion that China is today only half as large a creditor to the rest of the world as official statistics say it is.¹¹⁸

Figure 11. China’s NFA position as a share of GDP



Source: IMF and CMNS.

Notes: China’s official NFA position as a share of GDP (dashed black line); adjusted NFA position accounts for the valuation effects due to the increases in the market values of the VIEs (solid red line). The estimate labeled “Upper Bound on Chinese Holdings” (short-dashed gray line) assigns to China any unattributed positions in the VIEs and any positions held by funds resident in the Cayman Islands or British Virgin Islands. The estimate labeled “Assets Reflect Listed Value” assumes that all recorded Chinese external assets track listed share prices (long-dashed gray line).

¹¹⁷ The use of shares is subject to “scale effect”: larger countries may have a genuine large amount of domestic investments which pushes down the foreign share, masking potentially high (in dollar terms) capital flows entirely related to tax-haven-like features of that country.

¹¹⁸ China net foreign asset position would halve when adjusted for the capital market value of the Variable Interest Entities (VIE). The VIE are opaque corporate structures designed to circumvent China’s capital controls that restrict foreign ownership in key industries. The Chinese internet giants Alibaba, Baidu, JD.com, and Tencent, for example, are all VIEs that raise capital through shell companies located in the Cayman Islands, the British Virgin Islands, or Hong Kong.

6. Conclusions

Tax avoidance by MNEs not only affects governments' revenues and undermines the fairness of tax systems, but also leads to distortions in economic and financial choices. The empirical literature on the size of the phenomenon finds a somewhat wide range of estimates: on a global level, the scale of yearly revenue losses goes from \$49 bn. (0.07% of GDP) to \$500-640 bn. (0.6%-0.8% of GDP). In the United States, revenue losses range from about \$45 bn. to \$93 bn. (0.2%-0.5% of GDP). For Italy estimates of revenue losses range from €1 bn. to €5 bn. (0.05%-0.3% of GDP). A pattern that emerges from recent estimates is that tax avoidance is highly concentrated among the largest multinationals.

Policy initiatives to curb tax avoidance put forward in recent years by the OECD and the G20 have significantly changed the international landscape, but it is difficult to evaluate and predict their impact. Even if the empirical evidence is still at a preliminary stage, the 2015 Base Erosion and Profit Shifting Action Plan has certainly contributed to a greater diffusion and uniformity of anti-avoidance disciplines. It is even more challenging to provide an evaluation of the Two-Pillar package approved in 2021 - especially given the great uncertainty about the number and dimension of countries that will effectively adopt it - and of its potential revenue and economic effects, which in turn will depend on the behaviors of firms and governments. It nonetheless represents a very significant step from a political point of view.

Pillar One undoubtedly marks a radical change in the international taxation framework, since for the first time it attributes a taxing right to market jurisdictions, regardless of the physical presence of the company. However, its narrow scope of application significantly reduces its reach (as confirmed by the limited expected revenue gains, estimated at 0.5% to 1.5% of global tax revenues). In spite of these limits, it constitutes a first "brick" that could pave the way for wider reforms.

Concerning Pillar Two, different from the mainstream "narrative" predicting an increase in tax revenues and a reduction of profit shifting and tax competition, the introduction of the minimum tax of 15% may have less obvious effects than first-sight may suggest. Composite and even opposite outcomes can arise and partly offset each other, blurring the final impact on overall revenue and its distribution among countries, as well as profit shifting, tax competition, investments, efficiency, and tax certainty. As for the impact on public finances, early estimates suggest Pillar Two would generate additional revenues of around 9% of global CIT. Regarding the impact on profit shifting, while a reduction is expected, its size and timing are highly uncertain, since tax avoidance tends to be concentrated in a few large multinationals which could be less reactive to the reform. While the global minimum tax is expected to mitigate competition for profit, production location choices might become more sensitive to taxation, intensifying competition to attract real investments. Moreover, the revenue threshold which identifies in-scope groups implies that tax competition will continue for out-of-scope companies; it might also move from granting low statutory rates to providing incentives for productive factors underlying the carve-outs, and, in general, could also shift to new and less transparent forms of profit shifting. With regard to the economic impact, the minimum tax may increase the cost of capital; yet, the lower tax sensitivity of investments by highly-profitable companies - as well as the provision of carve-outs and invariance of taxation for out-of-scope companies - could imply a more limited impact on overall investments and economic outcomes. The reform could also potentially introduce new distortions on the organizational and dimensional choices of groups. Finally, it is possible that tax certainty will not improve, since some critical aspects of the current system will remain largely in place under the new framework, and Pillar Two will add another layer of complexity for in-scope companies.

Another significant aspect of MNE tax avoidance is its impact on external statistics (stocks and flows). The residency-based recording principle does not allow to disentangle flows driven by the existence of profit shifting opportunities from those that are genuine investments driven by fundamentals. Several items of the external statistics can be affected by MNEs' tax-driven operations; distortions may also be a source of bias in the measurement of bilateral external positions, significantly undermining our understanding of global financial interconnectedness and integration.

The economic literature has recently provided methods to reallocate both FDI and portfolio investments to the final recipient, shedding some light on the true map of external positions. Findings indicate that between 2009 and 2017 “phantom investments” (those with no economic substance) almost doubled (while real FDIs increased by only 50%) and, in 2017, almost 40% of total FDIs were “phantom investments”. Similarly, the reallocations show that Chinese investors are the ultimate owners of almost twice as much as the amount indicated by the standard FDI statistics. For portfolio investments, the adjustment of bilateral investment positions suggests that the US position in Chinese firms is underestimated by roughly \$600 bn., while China's official net creditor position to the rest of the world is overestimated by 50%. Countries traditionally considered tax havens tend to have a very high share of corporate bonds and equities issued in the country that relate to subsidiaries of foreign companies.

ECB (2020) argued that multilateral initiatives to improve the transparency of MNE operations are necessary to ensure exchanges of information across borders for both tax and statistical purposes. Close international cooperation between statistical compilers – including sharing of potentially confidential information – would help to ensure consistent cross-border recording of MNE activities, thereby improving the quality and consistency of macroeconomic statistics.

Annex 1

The empirical literature on profit shifting

Several recent studies tried to estimate the scale of base erosion and profit shifting for the period 2012-2019. They differ along several dimensions, primarily in methodologies and data.

Micro-based studies generally rely on datasets on firms (such as Orbis and Amadeus and - more recently - on the more complete information contained in the Country-by-Country Reporting - CbCR) . In principle, micro-type analyses allow a more accurate and transparent identification of profits related to the real economic activity (“true profits”). However, by construction these studies only permit the identification of avoidance phenomena affecting observed profits (for instance, they do not catch behaviors aimed at avoiding the presence of a permanent establishment in a given jurisdiction). Macro-type works allow capturing a wider range of profit shifting channels related to the statutory tax rate differences across countries, but cannot control for the “true” economic activity undertaken by a multinational in a given jurisdiction as precisely as the micro studies.¹¹⁹

Several explanations have been advanced to account for the macro-type studies providing higher estimates than micro ones. First, as highlighted by Dharmapala (2019), the difference may be largely due to the location of intangible assets and holding companies in havens: macro-studies implicitly tend to consider these locational choices as a form of tax avoidance. Second, the two approaches may be measuring different variables, with the macro studies capturing long-run responses – since multinationals’ responses to tax changes in terms of transactions or financing arrangements usually require some time – and micro-studies evaluating short-run effects. Third, the difference between macro and micro estimates may be also due to the assumptions on the functional form of the relationship between profits and tax variables in micro-type analyses. While in early studies it was implicitly assumed a linear relationship - i.e., that a change in tax rates would have the same effect, regardless of the starting value - in more recent estimates (starting with the contribution of Dowd et al. 2017), it is assumed to have a nonlinear form. This allowed verifying that the elasticity of profits with respect to tax rates tends to be indeed higher for lower levels of starting rates.¹²⁰ Table 1 presents a list of studies on the size of tax avoidance at global level, for the US and for Italy.

¹¹⁹ For a discussion of these problems with macro estimates, see Dyreng and Hanlon (2020) and Asen (2021). As an example of the differences between the two approaches, one may compare estimates for Germany in 2017 contained in Fuest et al. (2021) - that use a micro approach and CbCR data - and Wier and Zucman (2022) that use instead a macro approach, respectively. Fuest et al. (2021) implicitly assume that in the absence of profit shifting, profits are determined by the control variables that measure the level of real activity in different jurisdictions. Instead, in Wier and Zucman (2022) the counterfactual is a scenario in which the ratio of profits to labor costs for multinationals in low-tax jurisdictions is equal to that of local firms. However, as highlighted in Fuest et al. (2021), since the counterfactual in Wier and Zucman (2022) does not take into account the fact that MNEs tend to be structurally more profitable than domestic firms, they end up imputing an "excessive" amount of profits to profit shifting phenomena in low-tax countries. Another problem with the Wier and Zucman’s approach (the same used in Tørslov et al, 2022) is related to the way depreciation is computed to arrive at the profits of foreign firms, that may lead to an overestimate of profit shifting (see the discussion in Accoto et al., 2023).

¹²⁰ See also Bratta et al. (2021) and Fuest et al. (2021) with studies based on 2017 CbCR data for Italy and Germany, respectively.

Table A.1 - Some estimates on the extent of tax avoidance at global level, for the United States and for Italy

Paper	Methodology	Data	Reference period	Sample	Yearly tax revenue loss (and, where available, shifted profits)			
					Total	USA	Italy	
Alvarez-Martínez et al. (2018)	Macro Model EEG CORTAX	Firm profit elasticity vs tax variables calibrated on the basis of the meta-analysis of the empirical literature	2012	2012	€ 160,8 bn. (9.8% CIT)	€ 96.8 bn. (10.7% CIT)	€ 2.9 bn. (8.4% CIT)	
Blouin and Robinson (2020)	Macro	Bureau of Economic Analysis (BEA) survey on US MNEs	2012	1983-2012	-	\$ 5 bn. - \$ 10 bn. (4-8% CIT)	-	
Bolwijn et al. (2018)	Macro (UNCTAD methodology 2015)	Balance of payment	2012	2009-2012	\$ 200 bn. Of which \$100 bn. for developing countries (8% CIT)	-	-	
					\$ 700 bn. of shifted profits			
Clausing (2016)	Macro	Bureau of Economic Analysis (BEA) survey on US MNEs	2012	1983-2012	\$ 279 bn. (20% CIT)	\$ 77 – \$ 111 bn. (31%-45% CIT)	\$ 9 bn. (16% CIT)	
					\$ 1.076 bn. of shifted profits			
Crivelli et al. (2016) and IMF (2019)	Macro (panel of countries)	Tax data from balance sheets, at country level	2013	1980-2013	Short-run elasticity: \$ 123 bn.		-	-
					OECD, \$ 95 bn. (0.2% GDP)	non-OECD, \$ 28 bn. (0.2% GDP)		
					Long-run elasticity: \$ 640 bn.			
					OECD, \$ 200 bn. (1.3% GDP)	non-OECD, \$ 200 bn. (1.3% GDP)		

					\$ 440 bn. (1% GDP)		
Cobham, and Jansky (2018)	Macro (see Crivelli et al., 2016)	Tax data from balance sheets, at country level	2013	1980-2013	\$ 500 bn. (n.d.)	\$ 189- \$ 278 bn. (1.48% -1.71% GDP)	\$ 5.3 bn. (0.26% GDP)
Johansson et al. (2017) – “OECD estimate”	Micro	Orbis	2014	2000-2010	\$ 100- \$ 240 bn. (4-10% CIT)	-	-
Beer et al. (2020)	Micro	Firm profit elasticity vs tax variables calibrated on the basis of the meta-analysis of the empirical literature	2015	1982-2012	\$ 49 bn. (2.6% CIT, 0.07% GDP)	\$ 62 bn. (17.2% CIT, 0.42% GDP)	\$ 2.2 bn. (0.12% GDP)
Janský and Palanský (2019)	Macro (UNCTAD, 2015)	Balance of payments	2016	2009-2016	\$ 125 bn. (n.d.)	\$ 33.7 bn. (0.18% GDP)	\$ 1.9 bn. (0.1% GDP)
Wier and Zucman (2022)	Macro	National accounts, Balance of payments, Foreign affiliate statistics	2015, 2016, 2017, 2018, 2019	-	2017		
					\$ 212 bn. (9% CIT)	\$ 65 bn. (19% CIT)	\$ 5.9 bn. (15% CIT)
					\$ 741 bn. of shifted profits	\$162 bn. of shifted profits	\$ 26 bn. of shifted profits
					2018		
					\$ 243 bn. (9.9% CIT)	\$ 50 bn. (23% CIT)	\$ 8.2 bn. (20% CIT)
					\$ 946 bn. of shifted profits	\$ 186 bn. of shifted profits	\$ 32 bn. of shifted profits
					2019		
					\$ 247 bn. (10% CIT)	\$ 46 bn. (16% CIT)	\$ 7 bn. (18% CIT)
\$ 969 bn. of shifted profits	\$ 165 bn. of shifted profits	\$ 29 bn. of shifted profits					
	Micro	CbCR	2016 (2017 for the US)	2016 (2017 for the US)	\$ 186-\$ 307 bn. (n.d.)	\$ 44.7 bn. (11.9% CIT)	\$ 8.1 bn. (17.9% CIT)

Garcia-Bernardo and Jansky (2021)					\$ 965- \$ 994 bn. of shifted profits	\$ 238 bn. of shifted profits	\$ 50.2 bn. of shifted profits
Bratta et al. (2021)	Micro	Extrapolation from CbCR data of MNEs present in Italy	2017	2017	€ 245 bn. (\$ 272 bn.)*	€ 124 bn. (\$ 138 bn.) *	€ 1 bn.
					€ 887 bn. (\$ 1,111 bn.) of shifted profits*	€ 320 bn. (\$ 355 bn.) of shifted profits*	€ 5 bn. of shifted profits
Clausing (2020)	Micro	CbCR	2017	2017	-	\$ 75-\$ 93 bn.	-
						\$ 213-\$ 265 bn. of shifted profits	

* The figures in USD are converted in Euro in the main text using an exchange rate EUR-US equal to 1.1 in 2017.

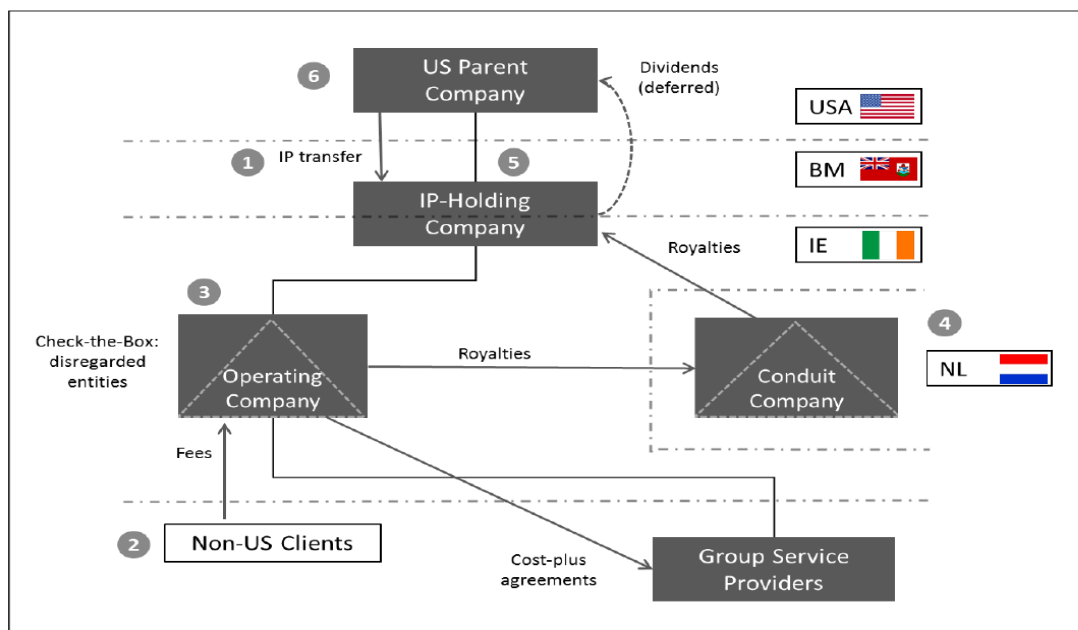
Annex 2

Details on avoidance practices

A.2.1. The “*Double Irish with Dutch sandwich*”

The “*Double Irish with Dutch sandwich*” (Fig. A.2.1) combined the advantages of the Dutch conduit companies and withholding tax exemptions with different rules on tax residence in Ireland and the US. It involved two companies incorporated in Ireland (one intellectual property (IP) holding company and one operating company), and one conduit company incorporated in the Netherlands. The IP holding company was a direct subsidiary of the U.S. parent company and the single owner of the Irish operating company and the Dutch conduit company. The IP holding company was managed and controlled in Bermuda and was therefore considered resident in this country for Irish tax purposes. The US, in contrast, treated this company as an Irish corporation because, according to the US tax law, tax residency is based on the jurisdiction of incorporation. The Irish operating company earned revenues from advertising services provided to non-US customers by exploiting the IP; however, the profits from customer sales earned by the operating company, theoretically subject to tax in Ireland, were close to zero because it paid high tax-deductible royalties for the IP. However, the royalties were not paid directly to the IP holding company, but were passed through a conduit company in the Netherlands, which sublicensed the IP. By channelling the royalties through the Dutch conduit company, withholding taxes (WHT) could be completely circumvented, as royalties paid from Ireland to the Netherlands were tax-free under the EU Interest and Royalties Directive. Moreover, the Netherlands did not impose WHT on any royalty payments, irrespective of the residence state of the receiving company. As a result of the overall scheme, the IP holding company was subject to tax in neither Ireland nor Bermuda, since the latter did not impose any income tax on corporations, and profits earned in the EU left it virtually untaxed. The US also did not tax non-U.S. income as long as it was not redistributed as dividends or qualified under the CFC rules (for an analysis of the *Double Irish with Dutch Sandwich* see Sandell, 2012).

Fig. A.2.1 - The “*Double Irish with Dutch sandwich*”



Source: Fuest et al. (2013)

The Irish tax provisions on tax residence were amended in 2015 and now provide for companies being resident when incorporated there or when managed in Ireland and not resident in any other State. The changes put an end to the use of the described tax avoidance scheme but, thanks to a grandfathering provision, companies already using this structure were allowed to continue employing it until the end of 2020. According to media reports, Google kept using the scheme at least until 2019.

A.2.2 Tax rulings

Favorable tax rulings released to MNEs were used by a number of countries (including European ones such as Ireland, Luxembourg and the Netherlands) as a tax competition tool.

A first channel through which rulings allowed a significant reduction in tax liabilities of some MNEs was a very discretionary transfer pricing, which openly departed from the arm's length principle. For instance, the Irish tax authority released tax rulings to Apple ensuring that the fraction of profits allocated to the Irish branches was vanishingly small, resulting in an overall effective tax rate for Apple's European sales of less than 1%. The remaining profits were allocated to companies which were regarded as tax resident neither in Ireland nor in the US. These tax rulings were considered state aid by the Commission in 2016, but after appeals from both Apple and the Irish Government, on 15 July 2020 the European General Court declared the Commission decision illegal. In September 2020 the Commission filed an appeal to the European Court of Justice against the decision.

In another tax ruling, the Dutch tax authorities approved the high royalty rate and mark-up for coffee beans and IP royalties paid by the Dutch roasting company to Starbucks affiliates in Switzerland and the UK. Also this ruling was classified as state aid by the Commission in 2015, but the decision was equally declared illegal by the European General Court on 24 September 2019. After carefully assessing the General Court judgment, in this case the Commission decided not to appeal the Court's ruling.

An additional mechanism to reduce tax liabilities through tax rulings was the acknowledgement of favorable classifications or tax treatment of group entities. For instance, the Luxembourg tax authority testified in a tax ruling released to McDonald that the royalty income was attributable to two foreign branches of a Luxembourg company and thus was not taxable in Luxembourg. Differently from the other cases, the European Commission regarded the tax ruling as not breaching EU state aid rules, since the reason for double non-taxation in this case was a mismatch between Luxembourg and US tax laws, and not a special treatment allowed by Luxembourg.

In some cases, tax rulings even allowed tax planning strategies using favourable tax regimes originally set up with totally different policy objectives, such as the Belgian notional interest deduction regime aimed at reducing the debt-equity bias. This was the case for a Belgian subsidiary of the German group BASF (see Nusser, 2017).

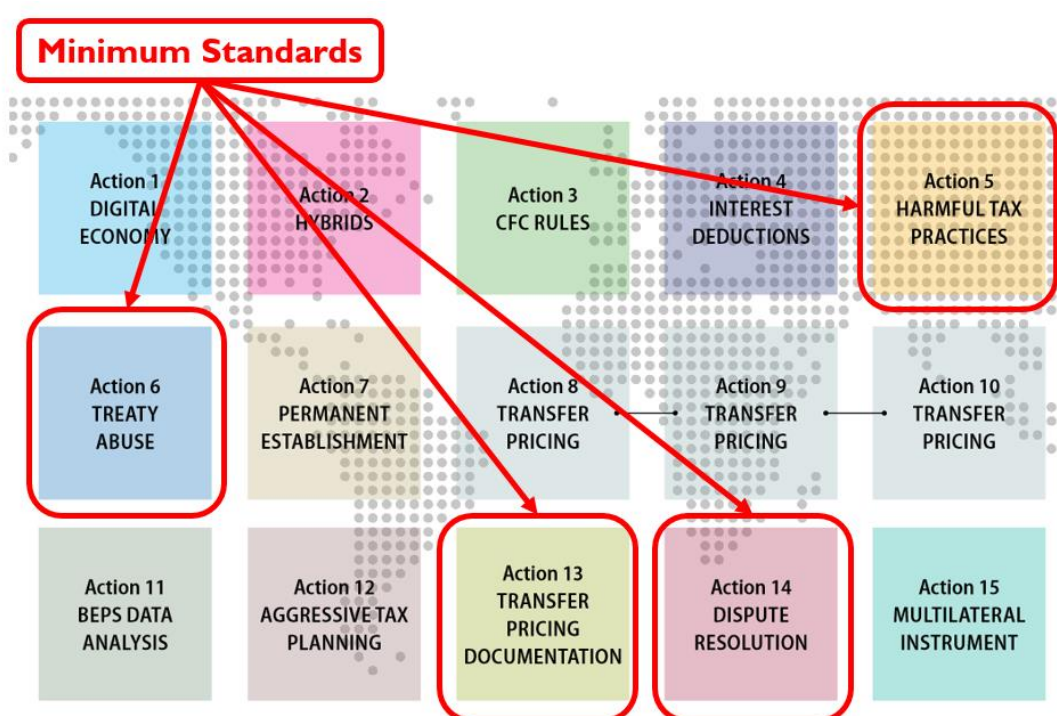
Annex 3

The BEPS Action Plan and its implementation

A.3.1 BEPS Actions

The 15 BEPS Actions (Table A.3.1), endorsed by the G20 Leaders in November 2015, introduced principles of coherence among the domestic rules that affect cross-border activities, substance requirements – i.e. “nexus” between income taxation and the underlying economic activity - in the existing national and international standards, and transparency and certainty enhancements. Among them, four Actions were identified as “minimum standards”, i.e. rules that all participating countries had to commit to introduce.

Table A.3.1 – BEPS Actions



Source: <https://www.oecd.org/tax/beps/flyer-inclusive-framework-on-beps.pdf>

The first minimum standard (Action 5) aims at curbing harmful tax competition by demanding a closer connection between business activities and entitlements to tax benefits; it therefore requires countries to eliminate or modify regimes that offer tax advantages without business substance. This standard prevents profit shifting by limiting divergence between where a business conducts its activities and where it declares its income, for instance by limiting special low-tax patent boxes. Action 5 also provides for the automatic exchange of tax rulings, which requires BEPS States to automatically forward each other copies of certain - previously secret - unilateral administrative tax rulings, including those on how to apply

transfer pricing rules based on a “flexible” interpretation of the arm’s length principle.¹²¹

Under prevention of treaty abuse (Action 6), States agreed to include strong anti-abuse rules (so called “limitation of benefits rules” – LOB).

Country-by-country reporting (Action 13) requires MNEs to provide all tax administrations of countries where they operate with a global and per-country overview of profits, sales, employees, income, and taxes paid.¹²² These reports will help tax administrators in assessing whether companies shift profits. More importantly, the reports should also act as a deterrent, discouraging companies from engaging in profit shifting and stateless-income planning in order to avoid increasing their audit, litigation, and reputational risks by showing large profits in havens (or nowhere).¹²³

Under the fourth minimum standard (Action 14), States agreed to improve their dispute resolution mechanisms. This was the only minimum standard aimed primarily at preventing double taxation, rather than ensuring full taxation.

Other BEPS Actions, that have the status of mere recommendations, tackle aspects of the system that are equally critical to curb tax avoidance. For instance, Action 2 aims at limiting the use of hybrid mismatch arrangements that arise from the different qualification of financial instruments or entities in different countries and that are often exploited by MNEs to minimize their tax burden through modifications of their financial or corporate structure. Action 3 aims to reinforce and promote a more widespread use of controlled foreign company (CFC) legislations as an instrument to allow the taxation of low-taxed foreign passive income (i.e. interest, dividends and royalties) in the parent companies’ countries of residence. Action 4 tries to limit the widespread use of intercorporate loans as a way to shift profits from high to low-tax countries through interest expense deductions. Actions 7-10 face nexus, through a reinforcement of the permanent establishment definition, and the issue of transfer pricing manipulation, namely with reference to intra-group transactions involving financial or intangible assets. Action 11 is instrumental to the analysis of both the BEPS phenomena and the results of the BEPS Actions. Action 12 provides for the disclosure of aggressive tax planning schemes. Finally, Action 13 provides for the development of a Multilateral Convention to Implement Tax Treaty Related Measures to Prevent BEPS (the Multilateral Instrument - MLI) to speed up the implementation of BEPS measures that require modifications of double tax treaties.¹²⁴

Since the beginning of the BEPS Action 5 peer reviews, the Forum on Harmful Tax Practices (FHTP) has reviewed over 300 preferential regimes to ensure that there are no harmful features associated with

¹²¹ Before BEPS, a taxpayer could secure a ruling in which State A promised not to tax certain income because that income was more properly allocated to State B. However, there was no way to verify that the taxpayer declares the income in State B. Rulings exchange puts the States on notice of administrative decisions made elsewhere that may affect domestic tax liability. It also reduces incentives for States to collude with taxpayers trying to avoid foreign tax.

¹²² Before BEPS, companies reported to each State profits and activities that took place in that State only. Tax administrators therefore lacked a complete picture of a MNE’s global activities, being limited in their ability to identify and combat income shifting and stateless-income planning.

¹²³ To speed-up the implementation of the legal framework for the CbCr, the G20 encouraged countries to rely on the Convention on Mutual Administrative Assistance in Tax Matters (Multilateral Convention), and the related “Multilateral Competent Authority Agreement” (MCAA), a multilateral framework agreement that provides a standardized and efficient mechanism to facilitate the automatic exchange of information. As of January 2023, 146 jurisdictions had signed the MCAA. See <https://www.oecd.org/ctp/exchange-of-tax-information/CbC-MCAA-Signatories.pdf>.

¹²⁴ By adhering to the Multilateral Instrument, countries are able to make all their tax treaties compliant with BEPS standards, without the need to modify them one by one.

the activities they are intended to attract, and virtually all harmful preferential regimes have been amended or abolished. Over 41 000 exchanges on tax rulings between governments have taken place. Many intellectual property (IP) regimes had been either abolished or amended in order to make them compliant with the “nexus” approach.¹²⁵ Concerning Action 6 on Tax treaty abuse, a large majority of members of the IF are modifying their tax treaty network to comply with the standard, either through the Multilateral Convention or through bilateral tax treaty re-negotiation. Regarding Action 13 on Country-by-Country reporting, over 100 jurisdictions (including all EU Member States, Japan, Australia, Switzerland) have established more than 3,300 bilateral relationships for the exchange of CbC reports; however, developing countries still face significant challenges in meeting the standard. As to Action 14 on dispute resolution mechanisms, many countries have already introduced in their domestic legislation provisions aimed at implementing some of the new mechanisms and rules identified by the BEPS project. By December 2022 the Multilateral Instrument had been signed by 100 countries and already ratified by 80.¹²⁶

A.3.2 EU directives

In the EU, most BEPS Actions were transposed into directives that defined a coordinated framework and timing both for BEPS minimum standards and other Actions (see Table A.3.2) and provided for further anti-tax avoidance and anti-abuse measures.

Table A.3.2 – EU Directives implementing BEPS and other anti-tax avoidance measures

Action 2 – Neutralizing the effects of hybrid mismatch arrangements	ATAD 1 and 2
Action 3 – Controlled foreign company (CFC)	
Action 4 – Limitation on interest deduction	
Action 5 – Harmful Tax Practices	DAC 3
Action 12 – Mandatory disclosure rules	DAC 6
Action 13 – Country-by-country reporting	DAC 4
Action 14 – Mutual agreement procedure for dispute resolution	DRM

Following BEPS Action 5 on harmful tax practices, Directive 2015/2376 (DAC 3), in effect from 1 January 2017, introduced mandatory exchange of cross-border tax rulings and advance pricing agreements issued to companies and entities since 2017. Directive 2016/881 (DAC 4) required Member States to collect and automatically exchange Country-by-country reports (CbCr) of MNEs (Action 13) as from 2018 (for data on 2016). More recently, in November 2021 the EU Council approved a Directive (EU 2021/2101) requiring large MNEs to publicly disclose their CbCr, a duty not required under BEPS Action 13. Member States will have to implement public CbCR by June 2023. Following BEPS Action 14, Directive 2017/1852 (DRM) introduced provisions aimed at improving tax dispute resolution mechanisms in the EU by setting clear deadlines for Member States to agree on binding solutions.

¹²⁵ The “nexus” approach requires a link between taxation and the underlying economic activity.

¹²⁶ See <https://www.oecd.org/tax/beps/beps-actions/action15/>. For a comprehensive review of the status of BEPS implementation, see OECD (2022).

Between 2016 and 2017 the Anti-Tax Avoidance Directives 2016/1164 (ATAD 1) and 2017/952 (ATAD 2) defined common rules for the implementation of anti-hybrid (Action 2), CFC (Action 3), interest deduction limitation (Action 4) and other anti-avoidance measures; all Member States had to transpose ATAD 1 by 2018 and ATAD 2 by 2019. In addition to BEPS Actions 2, 3 and 4, ATAD 1 introduces rules on exit taxation and a general anti-abuse rule. It aims at a coordinated EU wide response against corporate tax avoidance, making OECD guidance on Actions 2, 3, and 4 as mandatory. While ATAD 1 is limited to hybrid mismatches between EU members, ATAD 2 expands EU guidance to hybrid mismatches between EU member states and third countries. This allowed addressing aggressive tax planning structures used by US multinationals to shift profits abroad through the so called “Check the Box” regulations, that permitted the creation of hybrid entities treated as corporations in foreign countries and as partnerships or as disregarded (corporate) entities in the US. Directive 2018/822 (DAC 6), established criteria inspired by Action 12 on Mandatory Disclosure Rules, under which potentially aggressive tax planning arrangements, with a cross-border element, must be disclosed from 1 July 2020 by intermediaries, advisors or taxpayers to a national tax administration which, in turn, is compelled to exchange information with other EU tax administrations.

A.3.3 BEPS implementation in the US

After the adoption of the BEPS Action Plan, the US always kept the position that most of their domestic and treaty provisions were already compliant with BEPS standards, or should be considered substantially equivalent to them. However, some of the standards were implemented through the Tax Cuts and Jobs Act (TCJA) of December 2017 (the Trump Corporate Tax Reform).

The TCJA implemented anti-hybrid rules and modified interest deduction rules (Actions 2 and 4); the Reform also significantly expanded the US CFC regime (Subpart F legislation), even though through a different instrument, i.e. the enactment of the Global Intangible Low-taxed Income (GILTI), a minimum tax on foreign profits exceeding a 10 percent deemed return on tangible assets located abroad. It is applied at 10.5 percent (if no tax is paid abroad), with an 80% tax credit for taxes paid abroad; this means that the U.S. GILTI liability is wholly eliminated if the foreign tax exceeds 13.125 percent.

Regarding the prevention of treaty abuse, despite their participation in the discussion on the multilateral instrument, the US did not commit to sign Action 6, maintaining that their network of tax treaties already contained sufficient protections against BEPS. In February 2016 the Treasury released a revised US Model income tax convention, which made the limitation of benefit (LOB) provision more restrictive. With reference to Action 13, the US introduced mandatory country-by-country reporting for US entities that are the ultimate parent entity of a multinational enterprise with annual revenue of USD 850 million or more as from June 2016. The US has not signed the multilateral competent authority agreement, but has entered into bilateral Competent Authority Arrangements (CAAs) for the exchange of CbC reports with other countries. As to mandatory dispute resolution, the US held that their position on dispute resolution was already broadly consistent with Action 14 recommendations, highlighting that seven US tax treaties (those with Belgium, Canada, France, Germany, Japan, Spain, and Switzerland) provide for mandatory binding arbitration (see Avi Yonah, 2021).

Annex 4

The Two-Pillar package

The “Two-Pillar Package” (or “BEPS 2.0”) was endorsed by the G7 and the G20 between June and October 2021, after three years of intense negotiations and technical work; 137 out of 141 members of the Inclusive Framework on BEPS (IF) agreed on the new international tax rules. The agreement provides for a reallocation of a share of “excessive profits” to market jurisdictions (Pillar 1) and the introduction of a minimum taxation of 15% for MNEs (Pillar 2).

The two Pillars focus on two work streams, which address different, but related, issues linked to the increasing globalisation and digitalisation of the economy:¹²⁷

- *Pillar One*, which envisages a partial re-allocation of taxing rights towards “market jurisdictions”, identifying a new “nexus” in a “large and sustained economic presence” even without physical presence; and
- *Pillar Two*, which aims at avoiding cases of no or too low taxation of corporate income and putting a floor on excessive tax competition among countries through the introduction of a minimum level of effective taxation for large multinational groups.

More precisely, Pillar One allocates 25% of residual profit (“Amount A”) - defined as profit in excess of 10% of revenue - to market jurisdictions, using a revenue-based allocation key; the taxing right of a market jurisdiction arises when the in-scope MNE earns at least € 1 million revenue in that jurisdiction (€ 250.000 for smaller jurisdictions with GDP lower than € 40 bn.).¹²⁸ The rules will only apply to MNEs with global turnover above € 20 bn.¹²⁹ Extractive industries and regulated financial services are excluded. In order to simplify the new rules and increase certainty, Pillar One also introduces a simplified and streamlined approach to the application of the arm’s length principle to baseline marketing and distribution activities, with the application of a fixed rate of return to determine the income of such activities (“Amount B”). Moreover, mandatory and binding dispute prevention and resolution mechanisms will be established, but developing countries will be given the possibility to adhere to these mechanisms on an elective basis. The application of the new international tax rules will be coordinated with the removal of all existing digital service taxes (DSTs) and other similar measures on all companies.

Pillar Two provides for the introduction of an effective minimum tax of 15% for MNEs with global revenues of at least € 750 million.¹³⁰ The effective tax rate will be calculated on a country by country basis and will use a common definition of covered taxes and a tax base determined by reference to financial accounting income (with agreed adjustments consistent with the tax policy objectives of Pillar Two and mechanisms to address timing differences).¹³¹ Pillar Two consists of two rules intended for introduction

¹²⁷ The Two-Pillar approach was launched on 23 January 2019. For an overview of the Two-Pillar project see Avi-Yonah (2021).

¹²⁸ The relevant measure of profit or loss of the in-scope MNEs will be determined by reference to financial accounting income, with some adjustments.

¹²⁹ The turnover threshold should be reduced to € 10 bn. within 8 years after the agreement comes into force, contingent on successful implementation of the current package.

¹³⁰ Government entities, international organisations, non-profit organisations, pension funds or investment funds that are Ultimate Parent Entities (UPE) of an MNE group or any holding vehicles used by such entities, organisations or funds are not subject to Pillar Two.

¹³¹ See OECD (2021b).

in national domestic tax laws, and a treaty-based rule. The two domestic tax rules, the Income Inclusion Rule (IIR) and its backstop, the Under Taxed Payments Rule (UTPR), are known together as the Global anti-Base Erosion (“GloBE”) rules. They have been drawn along the lines of the US GILTI and BEAT provisions introduced by the 2017 Trump reform,¹³² but introducing several differences compared to the latter. The Income Inclusion Rule (IIR) operates as a “top-up” tax applied by the controlling entity’s home country on foreign entities’ income subject to an effective tax rate lower than 15% in their residence State. The “Undertaxed payments rule” (UTPR) denies the deduction of payments to related subjects located in jurisdictions with an effective tax rate lower than 15%.¹³³ Moreover, in order to protect the revenue base of developing countries, Pillar Two provides for the possibility that they request their partners to introduce a treaty-based rule (Subject To Tax Rule, STTR), which complements the GloBE by imposing limited source taxation at a maximum rate of 9% on certain related party payments.

In order to limit the impact on MNEs carrying out real economic activities with substance, a specific carve-out provides for the exclusion from the minimum tax of an amount of income equal to 5% of the carrying value of tangible assets and payroll, with higher thresholds over the first ten years of implementation.¹³⁴

On December 2021, the OECD released Model Rules for the minimum tax under Pillar Two; a related Commentary was released on March 2022.¹³⁵ The Model Rules partially differ from what originally agreed within the IF. One of the main differences is the possibility for jurisdictions where the group subsidiaries are located to apply the minimum taxation themselves, through a “Qualified Domestic Minimum Top-Up Tax” (QDMTT) preventing the parent residence countries from applying the “Top-Up Tax” and therefore benefiting from the related tax revenue, which would instead accrue to the subsidiary residence jurisdiction.

The Multilateral Convention (MLC) to implement the treaty changes required to implement Amount A of Pillar One should be published and opened for signature in the second half of 2023; it should enter in force in 2025, after being ratified by a sufficient number of countries. As regards Amount B, a final report will be published and incorporated into the OECD Transfer Pricing Guidelines by January 2024.

Although the two Pillars are considered a unitary package, they have a different “status”: while Pillar One is mandatory for all the IF jurisdictions adhering to the agreement, Pillar Two is only considered a “common approach”. This means that IF members are not required to adopt it; if adopted, implementation shall be consistent with the rules provided by OECD; application by other IF members must be accepted.

¹³² GILTI (Global Intangible Low-Taxed Income) is a minimum tax on foreign profits exceeding a 10 % deemed return on tangible assets located abroad. It is applied at 10.5 %, with a foreign tax credit equal to 80% of taxes paid abroad. As a consequence, the U.S. GILTI liability of 10.5% is wholly eliminated if the foreign taxes are equal or higher than 13.125%. If foreign taxes are lower than 13.125%, the maximum US GILTI liability is 10.5% (when foreign taxes are equal to zero). BEAT (Base Erosion and Anti-Abuse Tax) operates as an alternative minimum tax that denies the deduction of some expenses paid to foreign subsidiaries.

¹³³ The GILTI and BEAT provisions differ in several respects from the GloBE rules. First, the GILTI tax rate of 10.5% is lower than the Pillar Two minimum rate of 15%. Second, Pillar Two requires the application of a conforming income inclusion rule on a country-by-country basis, whereas the GILTI regime allows the blending of income from high- and low-tax jurisdictions. Third, the GILTI rate applies only to income above a deemed tangible income return of 10%. And, finally, GILTI is calculated based on tested income, whereas Pillar Two calculations are based on book income.

¹³⁴ Moreover, a *de minimis* exclusion will be provided for those jurisdictions where the MNE has revenues of less than € 10 million and profits of less than € 1 million, and another exclusion is provided for MNEs in their initial phase of international activity.

¹³⁵ OECD (2022a); OECD (2022b).

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