



# An analysis of corporation tax revenue growth

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## Overview

The purpose of this note is to contextualise the growth of Ireland's Corporation Tax (CT) receipts. It highlights the risks affecting CT, including concentration risk, volatility risk and the implications of international tax reforms. It also discusses tax windfalls, transfer pricing, and places Ireland's CT yield in an international context.

## Key Findings

1. Growth of CT receipts in Ireland: CT has become a significant source of government revenue. From 2014 to 2022 there was a rapid increase in CT receipts, with growth averaging 23% per year during the period, before stabilising in 2023.
2. Resilience amidst international tax reforms: Despite major international tax initiatives such as the original OECD BEPS project and the phasing-out of hybrid tax planning structures used by US companies, Ireland's CT receipts have continued to grow.
3. Globalisation of MNCs/Growing importance of Coordination Centres: MNCs, including US ones, have expanded their overseas activities in recent decades. Locations like Ireland have become key sites for MNC activities.
4. Onshoring of Intellectual Property (IP): Major US technology companies have moved IP to Ireland, contributing to the increase in CT receipts.
5. Computer Services exports: These grew from €32bn in 2012 to €196bn in 2022.
6. Pharmaceutical exports: The pharmaceutical sector makes a significant contribution to Ireland's CT revenue e.g., CT receipts from the chemical & pharma manufacturing sector grew from €2.645bn in 2021 to €5.536bn in 2022.
7. Concentration Risk: CT payments are heavily concentrated among a few corporate taxpayers in Ireland. This poses a risk to revenue stability.
8. Firm-Level Risk: The performance of individual large firms can significantly impact CT receipts.
9. Footloose Industry Risk: The movement of businesses to other countries can affect CT revenues.
10. Infrastructure Risk: The absence of adequate infrastructure and housing can reduce Ireland's attractiveness for foreign direct investment (FDI).
11. International Tax Reform Risk: Global tax changes could impact Ireland's attractiveness to MNCs and therefore reduce its CT receipts e.g., the OECD's BEPS Pillar One, which aims to reallocate the profits of large MNCs based on sales location, could reduce Ireland's tax receipts due to its small market size.
12. Offshoring of Intellectual Property Risk: The relocation of IP assets from Ireland to other jurisdictions could reduce the importance of MNC operations in Ireland and therefore reduce the level of taxable profit booked in the state.
13. Volatility Risk: CT revenue can be unpredictable, affecting government spending and taxation strategies.

## 1. Introduction

The international tax landscape has undergone substantial changes in recent years. Initiatives like the Organisation for Economic Co-operation and Development's (OECD) Base Erosion and Profit Shifting (BEPS) project and the phasing out of the hybrid tax planning structures used by US companies have reshaped the corporation tax environment. Despite these significant international tax reforms, Ireland's Corporation Tax (CT) receipts have continued to grow. There are various trends influencing CT receipts, including the internationalisation of Multinational Companies (MNCs), the growing importance of Coordination Centres, the onshoring of Intellectual Property (IP) into Ireland by major US technology companies, and the rise in pharmaceutical imports into the US. The practice of transfer pricing, a cornerstone of cross-border transactions within MNCs, also has implications for CT receipts.

The risks to CT revenues are varied and multifaceted. They range from concentration risk, where a disproportionate share of CT is paid by a few large corporations, to firm-level and footloose industry risks. Other risks include infrastructure adequacy, international tax reforms, offshoring of IP, and the inherent volatility of CT revenues.

An important aspect for policymaking is the concept of a 'tax windfall'. The pattern of CT receipts outperforming one-year ahead forecasts has lasted over a decade and may indicate a structural shift in CT receipts. However, it is not possible to be definitive as it may be the case that this level of outperformance will not be maintained long-term into the future.

This note benchmarks Ireland against other jurisdictions which act as Coordination Centres for MNCs e.g., Hong Kong, Luxembourg, the Netherlands, Singapore, and Switzerland. This comparison offers insights into how different tax structures and economic models impact CT receipts and the associated risks.

Ireland's CT revenue growth has been advantageous for the public finances. However, the opportunities it presents are accompanied by significant uncertainties and challenges. This note aims to provide a detailed understanding of these complexities, offering insights into the potential future trajectory of CT revenues and the strategic considerations necessary for mitigating some of the associated risks.

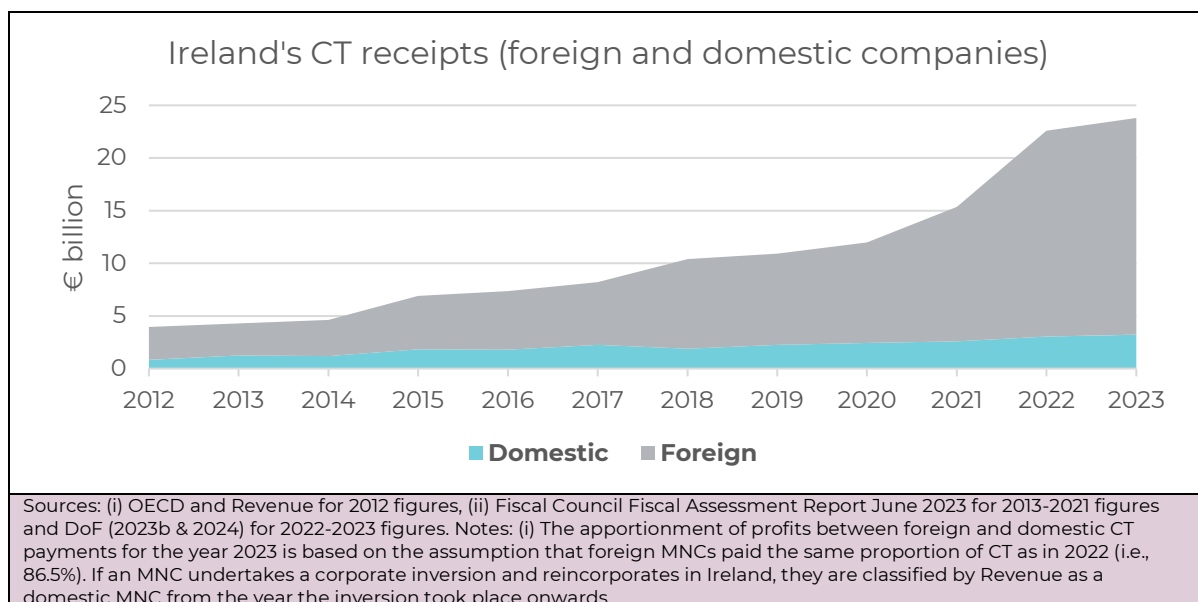
## 2. Background

The Irish Exchequer has become increasingly reliant on CT as a source of revenue. There are concerns about the resilience of CT receipts, especially due to international changes. In addition, there are concerns that the state is too reliant on this highly volatile tax head, mirroring the experience of relying on stamp duty and transaction-based taxes during the Celtic Tiger era (PBO, 2021). CT receipts fell to a low of €3.5 billion in 2011 (Pigott & Walsh, 2014) but have since grown to become the country's second biggest tax stream. In 2023 CT receipts amounted to €23.8 billion out of a total of €88.1 billion in collected tax receipts, whereas income tax receipts were €32.9 billion and VAT receipts were €20.3 billion (DoF, 2024).<sup>1</sup>

<sup>1</sup> Note that Irish authorities and the OECD have different methodologies for calculating total tax revenue e.g., the OECD includes social security contributions. Irish government exchequer figures represent only a portion of the total government financial position i.e., 'exchequer revenue' includes exchequer tax, exchequer non-tax, EU receipts and other capital receipts but excludes 'non-exchequer' items (e.g., the Social Insurance Fund, National Training Fund, non-commercial state bodies, and sovereign wealth funds) and items 'outside of general government' (e.g., commercial state bodies and the Central Bank) (Fiscal Council, 2016).

As shown in Figure 1 below, CT receipts have grown particularly quickly since 2014. The increase has not been completely smooth with particularly big increases occurring in 2015 and during the period 2020-2022.

**Figure 1: Corporation Tax receipts in Ireland 2012-2023**



## 2.1 Domestic companies versus foreign companies

CT revenue is highly reliant on the Foreign Direct Investment (FDI) sector (IMF, 2023a). Across the Irish business landscape, there is evidence of a 'dual economy'. In general, large foreign MNCs are generating large profits while small domestic companies are less likely to. Foreign MNCs paid 86.5% of CT receipts in 2022 (DoF, 2023b) and their employees paid about one-third of all income tax receipts in 2020 (DoF, 2022b), despite the fact they account for just 20% of private sector employment.<sup>2</sup> This heavy reliance on foreign companies for CT revenue shows that the Irish economy is closely linked with global markets.

A large number of domestic companies do not make significant profits. During the period 2004 to 2018, the number of companies with no tax liability exceeded the number of companies with a positive tax liability. Furthermore, small and medium-sized enterprises (SMEs) were significantly impacted by the pandemic, with a decrease of 40% in SME CT payments in 2020 (PBO, 2021). This contrasts with the 'MNC-heavy' manufacturing sector (which includes chemicals & pharma), where CT receipts increased from €2.917bn in 2019 to €10.078bn in 2022 and the similarly 'MNC-heavy' information & communication sector where CT receipts increased from €1.12bn in 2019 to €4.841bn in 2022 (McCarthy 2021 & 2023).

It should be noted that tax liabilities are affected by the use of capital allowances, losses, trade charges and group relief e.g., if a business makes a significant capital investment or incurs losses during a recessionary period, these factors may reduce its taxable income in subsequent years.

<sup>2</sup> See the DETE website [\[enterprise.gov.ie/en/what-we-do/trade-investment/foreign-direct-investment-fdi-/\]](https://enterprise.gov.ie/en/what-we-do/trade-investment/foreign-direct-investment-fdi-/)

## 2.2 Recent international tax reforms

The international tax landscape is going through a period of significant change. Major developments include the following:

- the original OECD BEPS process (2013-2019),
- the phasing out of hybrid tax planning structures used by US companies (e.g., the closure of the 'Double Irish' arrangement during 2015-2019),
- the US Tax Cuts & Jobs Act (2017),
- the EU Anti-Tax Avoidance Directive process (2016-2022),
- changes to the OECD's Transfer Pricing Guidelines (e.g., in 2017 and 2022), and
- the second round of OECD BEPS process – Pillar 1 and Pillar 2 (2019 – present)

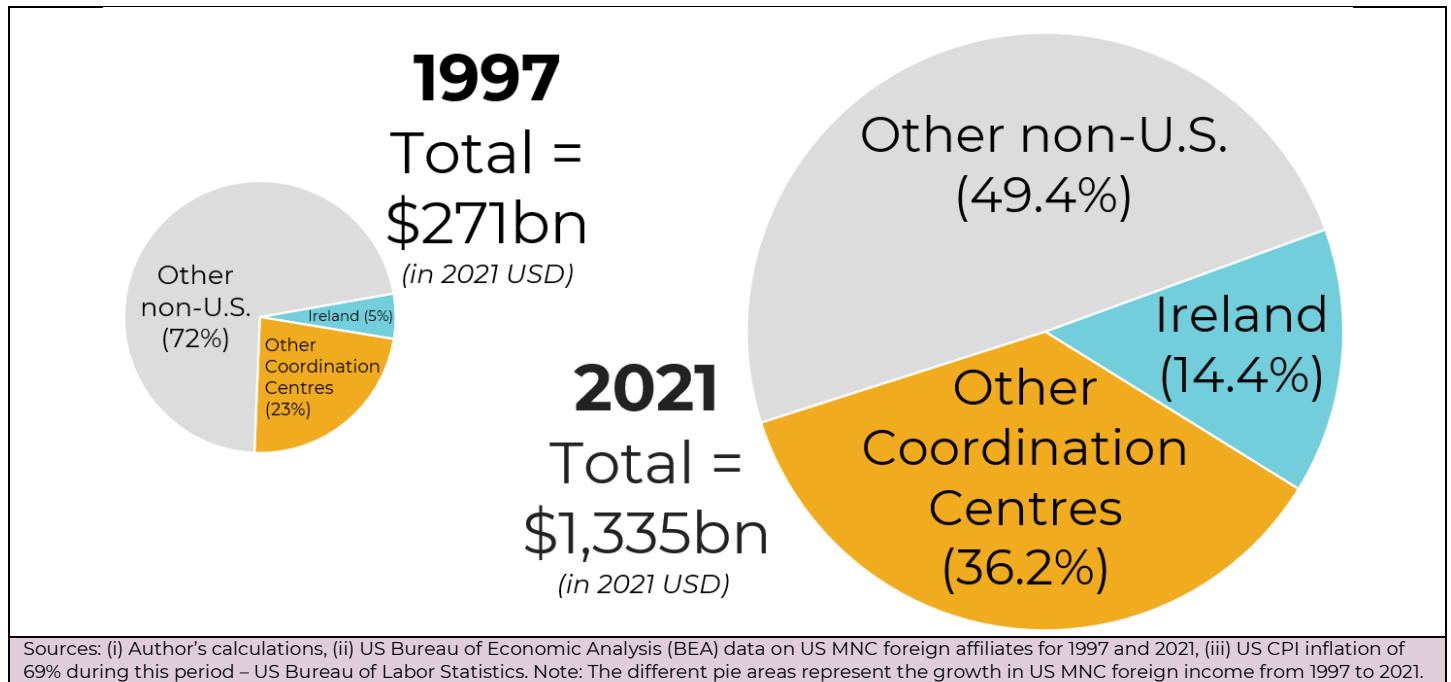
While many of these changes were expected to reduce MNC activity and therefore the allocation of profits in Ireland, thus far the opposite has occurred. For example, Ireland appears to have benefited from the original BEPS process. A key principle of BEPS is that MNCs should book profits in jurisdictions where they have substantive real operations and activities, rather than in low-tax or zero-tax jurisdictions where they maintain an office staffed by a minimal workforce (PBO, 2022). Many MNCs have significant operations in Ireland, providing employment to thousands of workers. Therefore, certain types of business activity and investment may have become comparatively less attractive to book or locate in certain British Overseas Territories in the Caribbean and comparatively more attractive to locate in Coordination Centres such as Ireland or in corporate HQ countries such as the US.

## 2.3 Drivers of increased MNC activity in Ireland

The following trends are relevant in relation to Ireland's growing CT receipts:

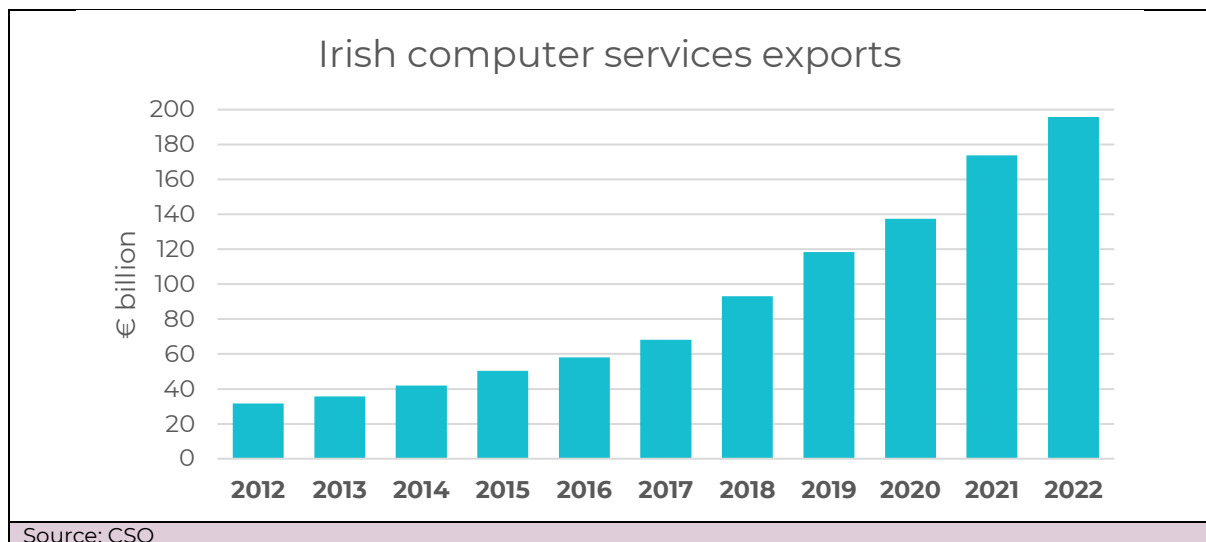
- Internationalisation of MNCs: In recent decades, with improvements in communications, technology, trading conditions and other factors, MNCs have become much more active in overseas markets in terms of investment, employment, income generation and profit allocation e.g., the total foreign profits of US MNCs consistently grew during the period 1998 to 2017, growing from the equivalent of just under 2% to over 4% of US GDP (CBO, 2023).
- Growing importance of Coordination Centres: Coordination Centres, which are regional gateways or investment hubs, are increasing in importance in terms of their share of MNC activity e.g., Hong Kong and Singapore in Asia; and Ireland, Luxembourg, the Netherlands and Switzerland in Europe (Keightley, 2013); (Garcia-Bernardo et al, 2023a). As shown in Figure 2, since 1997 the share of US MNC foreign net income booked in Coordination Centres has grown from below 30% to over 50%.

**Figure 2: US MNC income booked abroad has more than quadrupled since 1997 - the 'pie' as well as the 'slice' allocated to Coordination Centres such as Ireland has grown**



- Onshoring of Intellectual Property in Ireland: In the years following 2014, several MNCs moved IP into Ireland (DoF, 2019a).<sup>3</sup> This may have contributed to some MNCs booking a greater share of their global profits in Ireland.<sup>4</sup> Gross Capital Stock, which includes intangible assets such as IP, increased by 35% between 2014 and 2015 (PBO, 2019b).<sup>5</sup>
- Computer Services exports: As shown in Figure 3 below, Ireland's computer services exports grew from €32bn in 2012 to €196bn in 2022, which may be related to the IP assets brought into Ireland in recent years.

**Figure 3: Ireland's computer services exports 2012 to 2022**



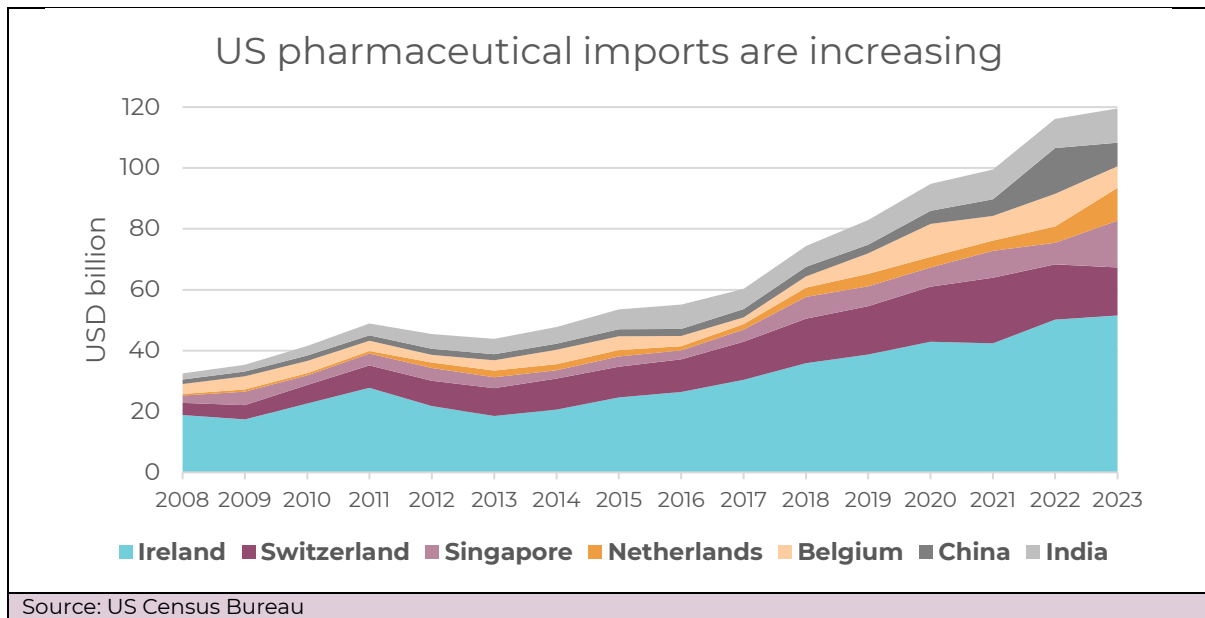
<sup>3</sup> See for example the Microsoft FY 2019 [annual report](#) and the Salesforce FY 2022 [annual report](#).

<sup>4</sup> Note that the cost of the IP may be deductible for CT purposes. This is done through capital allowances i.e., a certain amount of the expense incurred can be used each year or a number of years as a deduction when determining taxable income. The amount of the capital allowance used in each year must not exceed 80% of trading income. The exhaustion of these capital allowances can increase CT receipts (PBO, 2019b). See Coffey (2020) Economic Incentives blog post 11/08/2020 'Further insights into Apple's use of capital allowances'.

<sup>5</sup> Similarly, Ireland's GDP increased by 25% in 2015 (DoF, 2019a).

- Increased US pharmaceutical imports: As shown in Figure 4 below, US pharmaceutical imports have increased significantly in recent years. Many pharmaceutical products are produced by the overseas entities of American companies and then used by end-consumers in the US market (Sester, 2023).

**Figure 4: US pharmaceutical & medicines imports from a selection of countries**



## 2.4 Transfer pricing

Transfer Pricing is an accounting practice which is about comparing how connected parties set prices for products, services and the use of assets, in a way that approximates how parties would behave in an open market (Verlinden & Bakker, 2018). Understanding the mechanics and impact of transfer pricing is important for comprehending broader CT revenue changes. It is particularly relevant for cross border transactions within MNCs. More than half of all international trade is intra-MNC i.e., between different entities within the same corporate group (Dainoff, 2021).

For example, imagine an Irish MNC operating in the clothing sector, with its head office in Ireland, a manufacturing subsidiary in Indonesia, a financial services subsidiary in Luxembourg and a sales/distribution subsidiary in the UK. When an item of clothing is manufactured by workers in Indonesia before being shipped and sold to end-customers in the UK, the transaction 'generating' the profit occurred in the UK. However, using Transfer Pricing, most of this UK-generated profit is reattributed, transferred or shifted to the other parts of the MNC (i.e., the entities located in Ireland, Luxembourg and Indonesia). The rationale is to ensure that there is appropriate profit remuneration and cost contribution allocated between the MNC's various subsidiaries, accounting for the group's management expertise, brand name, insurance and accounting services etc (Shaxon, 2011), as all of the MNC's entities performed activities which contributed to the item of clothing being a valuable product in the UK market.

The core concepts of transfer pricing are the following:

1. Arm's Length Principle (ALP): The ALP means that 'controlled transactions' (i.e., transactions between related entities/subsidiaries) should be priced as if they were 'uncontrolled transactions' (i.e., transactions between unrelated parties), with each entity acting in its own best interest.

2. *Functions, Assets and Risks (FAR)*: The various entities/subsidiaries within an MNC group should be allocated profits in line with their functions performed, assets used, and risks assumed.
3. *Aligning profits with value creation*: Value creation is a proxy for economic substance. According to transfer pricing rules, profits should be allocated in line with where value-adding activities take place, rather than where end-customers, or the bulk of employees, are located.<sup>6</sup> The key drivers of value creation – the elements which differentiate a business and help it to win in the market - should be identified e.g., branding, digital solutions, distribution, marketing, merchandising or product innovation etc.<sup>7</sup>

The steps for allocating profits in a multinational corporate group are (i) entity/subsidiary classification, (ii) transfer pricing method selection and (iii) residual profit allocation. For additional information on transfer pricing see Appendix 1.

### 3. Risks

In this section several of the main risks affecting Ireland's CT yield are discussed. Table 1 below sets out the relevant risks. The risk level ratings are qualitative judgements.

**Table 1: List of risks affecting Ireland's CT yield**

No.	Risk	Description	Risk Level
1.	<b>Concentration risk</b>	The proportion of CT paid by the top ten firms.	High
2.	<b>Firm-level risk</b>	The performance of individual firms.	High
3.	<b>Footloose industry risk</b>	The movement of businesses to other locations outside of Ireland.	Low
4.	<b>Infrastructure risk</b>	Adequate infrastructure is important for attracting and expanding business operations.	High
5.	<b>International tax reform risk</b>	International tax changes could impact Ireland's attractiveness to MNCs.	High
6.	<b>Offshoring IP risk</b>	The relocation of IP assets could influence the share of taxable profits booked in Ireland.	Low
7.	<b>Volatility risk</b>	CT revenue can be unpredictable.	Medium

#### 3.1 Concentration risk

**Health Warning/Caveats:** Unless explicitly stated that the data originates from tax administrative sources. The estimates for the top ten corporate taxpayers in different jurisdictions within this section are derived from publicly available information. These estimates are susceptible to measurement errors or observational discrepancies. Importantly, the data was not uniformly generated under a single framework by any individual national or international organization. Additionally, the precise definition of 'corporation tax' may vary across jurisdictions. ***The estimates provided aim to give a general, indicative overview of concentration risk and should not be interpreted as exact amounts of CT paid by the companies.***

Data on the amounts of CT paid by individual taxpayers in the various jurisdictions are drawn from the following sources:

<sup>6</sup> OECD (2015) Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10 - 2015 Final Reports

<sup>7</sup> Verlinden (2023) Presentation State Aid & Taxation, specifically on remote work at the 'Women of IFA Nordic' event at the University of Copenhagen 20/03/2023.

- National tax administration datasets with corporate taxpayer information: For Australia and Denmark.
- Corporate reports: For Equinor, TSMC, and US publicly traded companies. Note that the US government's fiscal year runs from 1 October to 30 September. Many companies have financial years which do not align with these dates. Therefore, the tax paid figures shown may not all fully correlate with the fiscal year. Furthermore, domestic US (i.e., state and federal) 'provision for income tax' figures are used, which are net of current corporate income tax expense and deferred corporate income tax expense.
- Media reports: The data used for Finland, Norway, and Taiwan is largely drawn from a range of media outlets.

A key concern relating to CT receipts in Ireland is the overreliance on a small number of firms and sectors.<sup>8</sup> In recent years, it is probable that two or more companies have surpassed a 10% threshold in their contribution to corporate tax revenue.<sup>9</sup> Changes in the business operations or tax strategies of such firms would have a significant impact on Ireland's fiscal health.

As shown in Figures 5 to 6 (and in Appendices 4 to 7), the share of CT paid by the top ten taxpayers varies greatly in different years and in different jurisdictions. While Australia and Norway have comparatively high CT yields, the amounts collected are volatile due to the responsiveness of their mineral extraction sectors to changes in commodity prices. As oil and gas reserves are finite, Norway sets aside part of its CT revenue into a Sovereign Wealth Fund,<sup>10</sup> which aims to address intergenerational equity and long-term fiscal sustainability issues (Cumming, Wood, Filatotchev, & Reinecke, 2017).

A survey of 69 of Canada's largest businesses found that they contributed 11.6% of total federal CT revenue in 2020-2021 (PwC, 2022). The 500 largest companies in New Zealand pay approximately 51% of the CT (NZ, 2018). In the UK, members of the '100 Group' (a group of companies which represent the vast majority of the FTSE 100), paid 10.8% of total UK CT receipts in the 2022-23 tax year (PwC, 2023).

Based on the limited amount of information available, the concentration of Ireland's CT receipts amongst the top ten taxpaying corporate groups appears to be significantly above average. Therefore, Ireland's CT revenue appears to be exposed to a substantial level of concentration risk.

It should be noted that there is a level of churn in the top ten taxpayers (DoF, 2022c). The level of churn may be less regular amongst the top five or six taxpayers. It is unclear if the replacement and replenishment of major taxpayers or the 'pipeline' of incoming FDI companies partially offsets or significantly mitigates the level of concentration risk.

<sup>8</sup> Four sectors – Manufacturing (including pharmaceutical manufacturing), Wholesale and retail, Information & Communication, and Financial and Insurance – contributed between 80% to 90% of all CT owed over the period 2007 to 2018 (PBO, 2021), despite only accounting for circa 40% of private sector employment. See the CSO website [URL: [Labour Force Survey \(LFS\) Quarter 4 2018 - CSO - Central Statistics Office](https://www.cso.ie/en/pressroom/2018/20180401/labour-force-survey-lfs-quarter-4-2018-cso-central-statistics-office/)].

<sup>9</sup> There isn't a universal definition of 'concentrated corporate tax revenue'. In the field of investing, the term 'concentrated position', is sometimes applied to situations where shares in a single company exceed 10%, 20%, or 25% of a portfolio. The benefits of diversifying a portfolio beyond ten companies has long been a subject of debate (Evans & Archer, 1968). 'Diworsification' is the process of adding investments to a portfolio which lead to its risk-return trade-off being worsened. Berkshire Hathaway, one of the world's top investment companies, has a style called 'Focus Investing', i.e., concentrating on ten high quality holdings rather than 400 average holdings (Munger & Kaufman, 2023). According to Berkshire Hathaway's 2022 annual report, approximately 75% of their investments in shares are concentrated in five companies, including Apple (38.5%), Bank of America (11.1%), and Coca Cola (8.2%). Note that private investing is very different to fiscal/macroeconomic management e.g., drawing parallels between CT revenues and investing is problematic as shares in a company are 'stocks' while CT payments from companies are 'flows'.

<sup>10</sup> A Sovereign Wealth Fund (SWF) is a state-owned investment fund that invests in real and financial assets such as stocks, bonds, real estate, precious metals, or in alternative investments such as private equity funds or hedge funds. Investment strategies vary depending on the objectives of the fund. SWFs generally fall into three categories (i) 'Stabilisation Funds' which address the short-term challenges related to the year-to-year cyclical, volatility and unpredictability of government income e.g., from natural resources, (ii) 'Intergenerational Savings' Funds which save a portion of current revenue to fund future pension commitments and (iii) 'Infrastructure Funds' which invest in domestic capital projects which can bring long-term benefits.

Table 2 provides an overview of the jurisdictions where data on large corporate taxpayers is available.

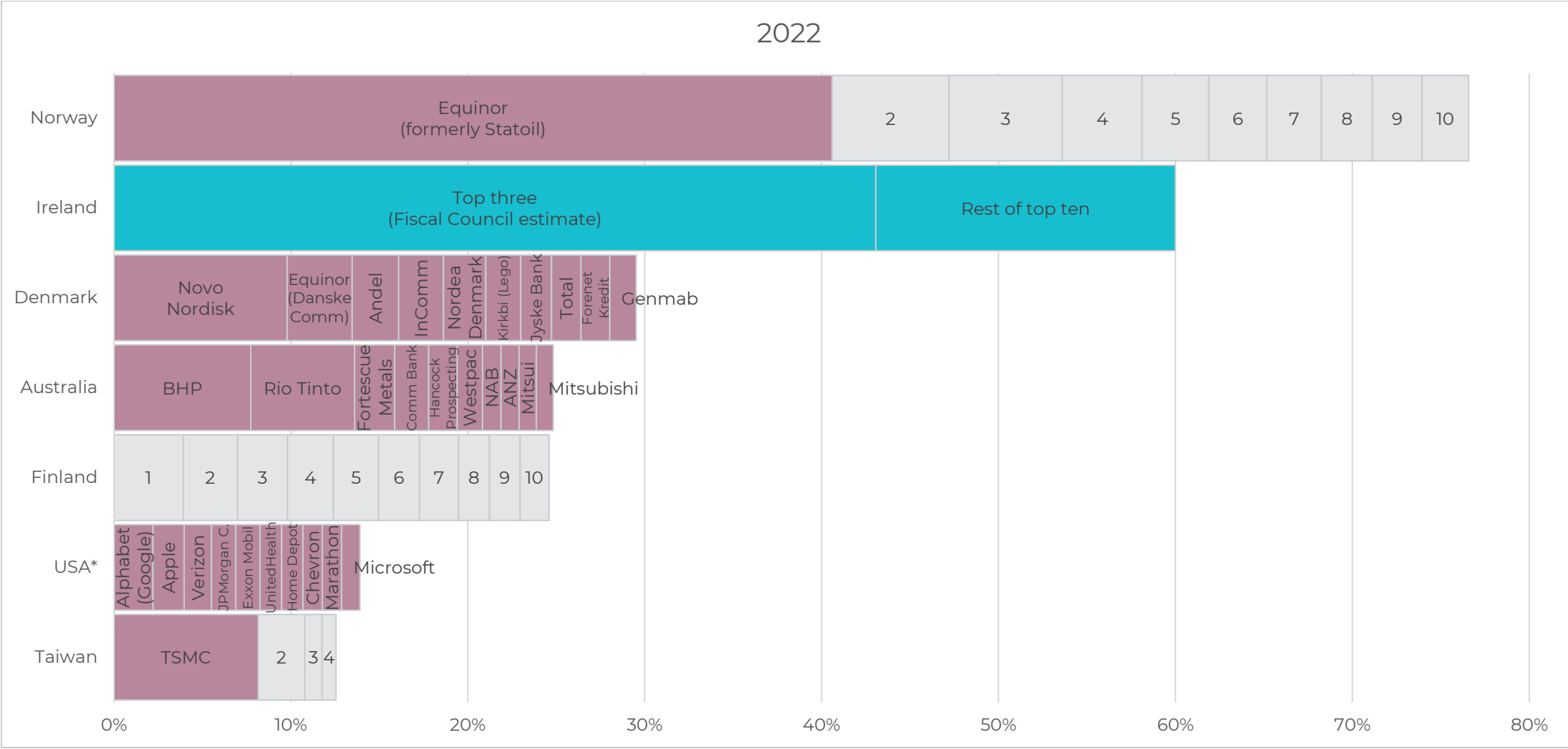
**Table 2: Summary of developed jurisdictions with data available on top ten taxpayers**

No.	Jurisdiction	GDP per capita 2023 USD	Population 2023 mil.	Headline CT rate	CT share of total tax take %
1.	Norway	99,270	5.5	22%	42%
2.	Taiwan	32,340	23.4	20%	31%
3.	Australia	63,490	26.4	30%	23%
4.	Ireland	112,250	5.1	15%**	21%
5.	Denmark	71,400	5.9	22%	8%
6.	Finland	54,510	5.5	20%	7%
7.	USA	80,410	340.0	21%*	6%

Sources: (i) GDP figures from [IMF](#) World Economic Outlook database and (ii) population figures from [UN](#) World Population Dashboard, (iii) PwC [Corporate income tax \(CIT\) rates \(pwc.com\)](#); (iv) Taiwan population figure [URL <https://eng.stat.gov.tw/Point.aspx?sid=t.9&n=4208&sms=11713>], (v) CT share figures are for 2022 and are sourced from the OECD (vi) Taiwan CT share figure is for 2023 and from Taiwan Ministry of Finance [website](#).  
 Note that the government fiscal years in Australia and the US do not align with the calendar year.  
 \* US state-level CTs range from 0% to 12% and may be a deductible expense for federal CT purposes.  
 \*\* From 2024 onwards, Ireland is applying the Pillar 2 minimum effective tax rate of 15% on MNCs with an annual global turnover of more than €750 million. Other businesses are subject to the 12.5% CT rate.

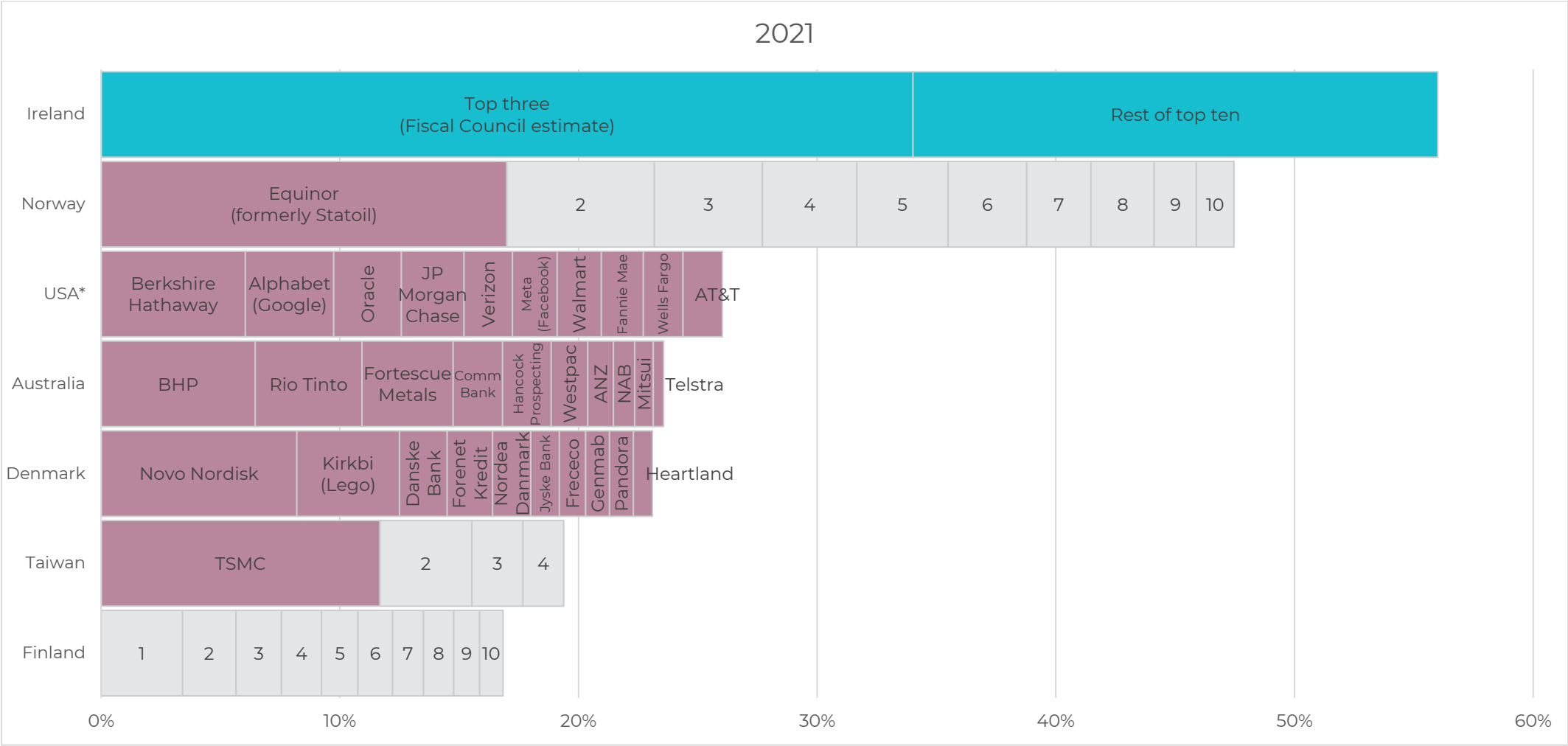
Please note that the CT rates shown in the table above (and throughout the paper) are 'headline rates' i.e., the rate applied to the taxable income of companies when calculating their tax liability before any tax credits are applied. In contrast, the 'effective rate' refers to the tax paid as a percentage of the profits of companies (DoF, 2014a).

Figure 5: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2022<sup>11</sup>



<sup>11</sup> Sources: Author’s calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#), [Australian Bureau of Statistics](#), and Taiwan Ministry of Finance [website](#). Top ten taxpayer data – Australian figures (including subsidiaries) from government [website](#), Danish figures from [Danish tax authority](#), Ireland [Fiscal Council Fiscal Assessment Report Dec. 2023 & McCarthy (2023)], Finland [Yleisradio Oy - Finnish Broadcasting Company [article](#) 8/11/23], \*US figures are provisions for domestic tax from relevant Form 10-Ks (and are proxy indicative figures as they may not align with the US government’s fiscal year), Norway [Equinor 2023 Tax Contribution Report & Kapital Magazine [article](#) 12/12/2023], and Taiwan [TSMC 2022 Sustainability Report & Focus Taiwan [article](#) 06/17/2023].

Figure 6: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2021<sup>12</sup>



<sup>12</sup> Sources: Author’s calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#) and Taiwan Ministry of Finance [website](#). Info on top taxpayers for \*US figures are provisions for domestic tax from relevant Form 10-Ks (and are proxy indicative figures as they may not align with the US government’s fiscal year), Australian figures (including subsidiaries) are from government [website](#), Danish figures from [Danish tax authority](#) website, Taiwan [TSMC 2021 Sustainability Report & Taipei Times [article](#) 17/7/22], Norway [Equinor 2022 Tax Contribution Report & Kapital Magazine [article](#) 24/6/22], Ireland [Fiscal Council Fiscal Assessment Report December 2023 & McCarthy (2022)], and Finland [Yleisradio Oy - Finnish Broadcasting Company [article](#) 9/11/22].

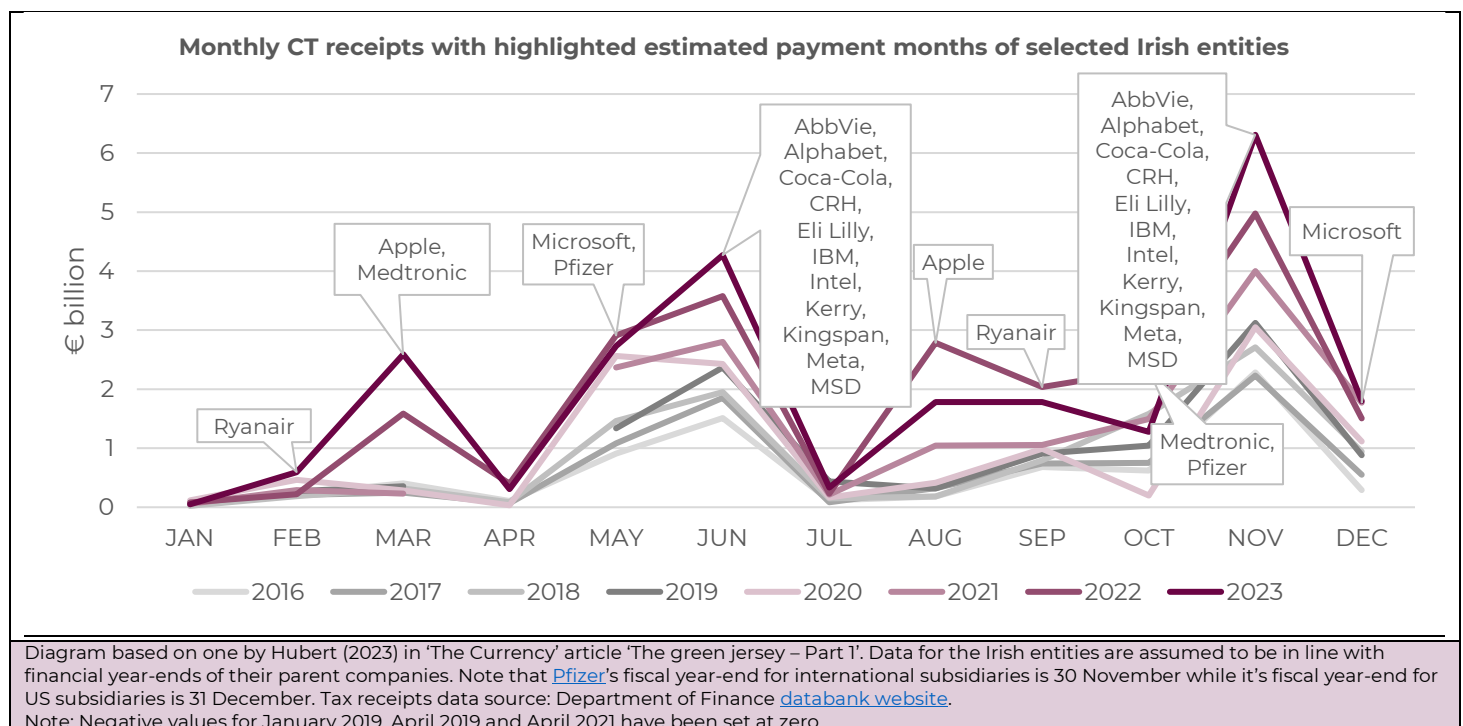
### 3.2 Firm-level risk

Individual businesses face a range of risks including operational risk, reputation risk, business environment risk, legal risk, environmental, social, and governance (ESG) risk, and financial risks (e.g., liquidity risk, credit risk, commodity prices, exchange rates and Interest Rates etc). Even in large countries like the United States, the performance of individual companies can have macroeconomic effects. Examples of impactful events include strikes at US Steel, Ford and General Motors in 1952, 1967 and 1970 respectively, IBM's strong PC sales in 1983, Walmart's successful implementation of a lean distribution model in 2002 and a special dividend issued by Microsoft in 2004 (Gabaix, 2011).

In small countries there are risks associated with having a single large domestic taxpayer e.g., Nokia's share of Finland's CT peaked at 21% in 2003 and declined markedly in subsequent years (Ali-Yrkkö, 2010).

As shown in Figure 7 below, the impact of individual firms on CT receipts is particularly evident in Ireland's monthly tax revenue data. Many companies have financial years which do not align with the January-to-December calendar year. Dates for preliminary tax, due in the sixth and eleventh months of an accounting year for large taxpayers, are key drivers of CT receipts (McCarthy, 2023);(DoF, 2023h). Companies pay around 90% of their estimated tax due for the financial year in these two months (Cronin, 2023). The third instalment is paid in the ninth month of the following accounting period. For example, a large Irish tax resident company with a December year-end would make preliminary corporation tax payments in June and November of the relevant accounting year. It would then have until the following September to file its tax return and pay the final outstanding amount.

**Figure 7: Total monthly CT receipts, 2016 to 2023, with corresponding estimated preliminary tax payment dates highlighted for an illustrative selection of Irish entities/branches (financial year months 6 and 11)**



Based on the chart above, it appears that Ireland's CT revenue may be highly exposed to firm-level risk.

### 3.3 Footloose industry risk

A footloose company is one which has relatively few constraints when making location decisions. From an individual company's perspective, the decision on where to locate part of a business is one of the most critical decisions it has to make. The consequences of the location choice will endure long after the decision has been made. It will strongly influence a company's competitiveness and profitability. There is evidence of agglomeration effects, cumulative effects and snowball effects in firm location i.e., when an area attracts a high number of companies it acquires a reputation for this and becomes part of the awareness set of locations for other companies contemplating a move (Decker & Crompton, 1993).

Low value-adding functions tend to be more footloose than high value-adding functions. Stages in a value chain or production system that add more value (e.g., R&D, design, or marketing), typically depend on highly qualified and trained workers who provide highly differentiated inputs that cannot easily be replaced by workers in a different country. In addition, high value-adding functions may require larger fixed cost investments which are often knowledge-intensive, making them harder to relocate (Jakubik & Stolzenburg, 2019).

It should be noted that in addition to tax competitiveness, the investment decisions of MNCs are influenced by a range non-tax factors including the availability of skilled workers, use of the English language, ease of doing business, the legal system, infrastructure, and access to the European market (PBO, 2021). Lastly, it is also important to note that many large foreign MNCs have operated in Ireland for over 20 years.<sup>13</sup>

Given the fact that Ireland has a track record in attracting foreign MNCs, many of whom perform high value-adding functions in the state, a large-scale exit in the short term is unlikely.

### 3.4 Infrastructure risk

Ireland's CT yield is dependent on companies choosing to locate and expand business operations in the country. Infrastructural capacity enables businesses to engage in investment and recruitment. Ireland's capacity constraints in relation to housing,<sup>14</sup> transport,<sup>15</sup> and utilities (e.g., water and electricity<sup>16</sup>) are well documented. The availability of housing and utilities are key issues for the FDI-MNC sector,<sup>17,18</sup> and failure to adequately address these issues could have a tangible impact on MNCs locating or expanding their operations in the State.

Planning delays may also potentially have an impact on the operations of MNCs e.g., for US MNCs it may be beneficial to build physical assets in Ireland and other countries outside the US for tax advantages. According to the 2017 TCJA law, they don't have to pay Global Intangible Low-Taxed Income (GILTI) tax on the first 10% return from these foreign assets (Huang, Osswald, & Wilson, 2023); (Mintz, 2018); (Clausing, 2020). See a description of GILTI in Appendix 3.

<sup>13</sup> See the IDA website for further information [URL: [Reasons to Invest in Ireland | IDA Ireland](#)]

<sup>14</sup> The availability of affordable housing impacts on the ability of employers to attract and retain talent, meet wage demands and offer a high quality of life to workers and their families. Preliminary Housing Commission research suggests that Ireland may need up to 62,000 homes built per year until 2050 to meet demand (which is almost double current targets). It should be noted that several European cities which act as international business centres, such as London and Amsterdam, also have high housing costs. Other cities such as Helsinki, Frankfurt and Vienna have comparatively low residential rent prices.

<sup>15</sup> In the 'TomTom Traffic Index - Ranking 2023' which looks at 387 cities around the world, Dublin was found have the second-slowest traffic travel times globally [URL: [Traffic Index ranking | TomTom Traffic Index](#)].

<sup>16</sup> Ireland has above average electricity prices (see Eurostat - Energy statistics - prices of natural gas and electricity)

<sup>17</sup> Sunday Business Post article 9/7/23 'Ireland has not done a great job on infrastructure – that must change: IDA chief executive'

<sup>18</sup> The planning system is often cited as an obstacle to increasing housing supply. Delays and difficulties in the planning permission system, the growing willingness of courts to intervene in planning matters, and the tendency of third parties to take Aarhus Convention-related (cost protected) judicial reviews have been highlighted as issues (IMF, 2023b);(NCPC, 2023).

To mitigate the risk of reduced CT receipts, it is important that Ireland continues to make strategic policy decisions that will enhance its competitiveness in non-tax areas such as infrastructure. This may help to maximise MNC investment. The renewed National Development Plan (2021) aims to address supply side capacity constraints.<sup>19</sup>

### 3.5 International tax reform risk

Ireland's CT receipts have grown in recent years despite a wide range of tax changes including:

- the original OECD BEPS process (2013-2019),
- the phasing out of hybrid tax planning structures used by US companies (e.g., the closure of the 'Double Irish' arrangement during 2015-2019) – see Appendix 2 for further details,
- the US Tax Cuts & Jobs Act (2017)
- the EU Anti-Tax Avoidance Directive process (2016-2022),
- changes to the OECD's Transfer Pricing Guidelines (e.g., in 2017 and 2022), and
- the second round of OECD BEPS process – Pillar 1 and Pillar 2 (2019 – present)

Over the long term, international tax reforms which may pose significant risks to Ireland's future CT revenues include the following:

1. OECD BEPS Pillar One: Generally, companies pay tax only where they have a physical location. If a company does not have a physical establishment in a jurisdiction, it does not have to pay tax.<sup>20</sup> Until recent decades it was very difficult to penetrate a market if a company did not have local staff physically present in it, but this has changed with advances in communications and technology. The current tax system, where taxing rights are based on a MNC's residency or physical presence, does not account for modern MNCs' ability to profit significantly from markets without substantial staff or physical presence, such as in the digital economy. OECD BEPS Pillar One is about reallocating the profits of large MNCs from base jurisdictions to market jurisdictions.<sup>21</sup> There are proposals to shift a greater proportion of residual profits to market jurisdictions i.e., shifting a share of up to 20%-30% of profits to locations where sales to end-customers occur (PBO, 2022);(OECD, 2023a). This would benefit large countries. This could result in less profit being allocated to entities in Ireland, as the country has a relatively small population and consumer market. A larger share of profits would be allocated to bigger countries (PBO, 2019b). It should be noted that this measure is still some years away from being agreed and implemented.
2. OECD BEPS Pillar Two: This is the global minimum effective corporation tax rate of 15% which applies to MNCs with revenue above €750 million per year (PBO, 2022).<sup>22</sup> All EU member states have agreed to implement Pillar Two. It was implemented in Ireland in 2024. This increases Ireland's CT rate for large business from 12.5% to 15%. It may reduce the competitiveness of Ireland as a place to do business. It may also lead to greater levels of international competition in relation to subsidies and tax credits (Singapore Ministry of Finance, 2023). On the other hand, the effective 15% rate will also be implemented in other business friendly jurisdictions such as Bermuda and Hungary, which previously had 0% and

<sup>19</sup> For further information see the Project Ireland 2040 Phase 1 Report Review of the National Development Plan [report](#).

<sup>20</sup> Feargal O'Rourke, IDA Ireland – Joint Committee on Enterprise, Trade and Employment 21/02/2024

<sup>21</sup> Chartered Institute of Taxation – ADIT – Dec. 2022 – Transfer Pricing option

<sup>22</sup> Its key provisions include (i) the Income Inclusion Rule (IRR) which imposes on a parent entity a top-up tax on the taxed income of a subsidiary within the group, if the subsidiary is operating in a low tax country, i.e., lower than the global minimum corporation tax rate of 15%, (ii) the Undertaxed Payment Rule (UTPR) to protect jurisdictions against base erosion through intragroup payments to low-taxed entities and (iii) the Subject to Tax Rule (STTR) which allows source countries to apply limited source taxation on certain payments, e.g., interest and royalties, paid to related parties that are taxed below a specified minimum rate (PBO, 2022).

9% CT rates respectively.<sup>23,24</sup> There is no clear consensus as to whether 'invest hub' jurisdictions, such as Ireland and Netherlands, will benefit from the global minimum tax (Hugger, González Cabral, Bucci, Gesualdo, & O'Reilly, 2024).<sup>25,26</sup>

3. *Future changes to the US tax system*: Many US-based multinationals operate in Ireland. Changes in US tax policy, such as increased taxation on foreign earnings, could influence their operations in Ireland. Historically, the US has tended to engage in large-scale tax reform once only every 20-30 years e.g. the 1962-65 reforms during the Kennedy/Johnson administrations (Furno, 2022), in 1986 during the Reagan administration and in 2017 during the Trump administration (Heinemann & Spengel, 2018). Therefore, it may be several decades before the US undertakes further widescale change to its tax system. That being said, smaller changes can have an impact on international tax e.g., in 1997, the simplification of the IRS's 'check the box' (CTB) procedures paved the way for the creation of hybrid entities. This may have contributed to the increase in the amount of US companies operating in Ireland in subsequent years (Barry, 2019), (Samarakoon, 2023). In addition, repatriation tax holidays, such as the one in 2004, may have indirectly incentivised US companies to build up offshore cash. Furthermore, the US Treasury periodically issues new regulations (which are similar to Irish Revenue guidelines), which can lead to administrative changes. Lastly, with proposals for the US to implement Pillar Two related measures, and scheduled increases in 2017 US TCJA rates, there may be significant corporate tax changes in the US in 2025.
4. *EU tax agenda*: There are a range of tax proposals under discussion at European level (DoF, 2023f).
5. *UN tax agenda*: The UN is becoming more active in relation to international tax matters.<sup>27</sup>

There is still a large degree of uncertainty regarding the direction and size of the potential impact of these changes on Irish CT receipts.

### 3.6 Offshoring of intellectual property risk

The sale of IP from Irish entities to overseas entities within an MNC group may be an additional risk e.g., the Irish subsidiary of an online holiday rental marketplace reportedly repatriated previously on-shored IP (in this instance certain technology and brand rights) to an entity in the US in 2021.<sup>28</sup> These sorts of transactions could reduce the amount of intangible assets in Ireland and therefore reduce the amount of profit allocated by MNCs to the state. However, thus far this phenomenon has not developed into a major trend. It should be noted that, apart from brands, many forms of IP and intangible property can come to the end of their useful lives relatively quickly.

### 3.7 Volatility risk underlying commodities or industries

Volatile tax revenues can complicate fiscal planning. Periods of unexpected high revenue may be followed by years of unanticipated low revenue. When CT revenue is low it can lead to cuts in government spending or increases in other taxes. On the other hand, when revenue is higher than

<sup>23</sup> See the following EY (2023) articles; (i) 'Bermuda Parliament passes legislation to enact a 15% corporate income tax' 22/12/2023 and (ii) 'Hungary enacts local legislation on BEPS 2.0 Pillar Two' 15/12/2023.

<sup>24</sup> KPMG list of CT rates [URL: [kpmg.com/sg/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html](https://www.kpmg.com/sg/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html)]

<sup>25</sup> Agyemang (2024) Financial Times article 'Global minimum tax will boost revenues for tax havens, says OECD' 10/02/2024.

<sup>26</sup> Ireland's R&D tax credit rate was increased from 25% to 30% in 2024. In addition, some commentary suggests that introducing a dividend participation exemption and a foreign branch exemption may lessen the administrative burden associated with determining CT payments in Ireland, thus helping to ensure that the state remains attractive to business investment (ITI, 2023).

<sup>27</sup> See the UN [press release](#) from 22/11/2023.

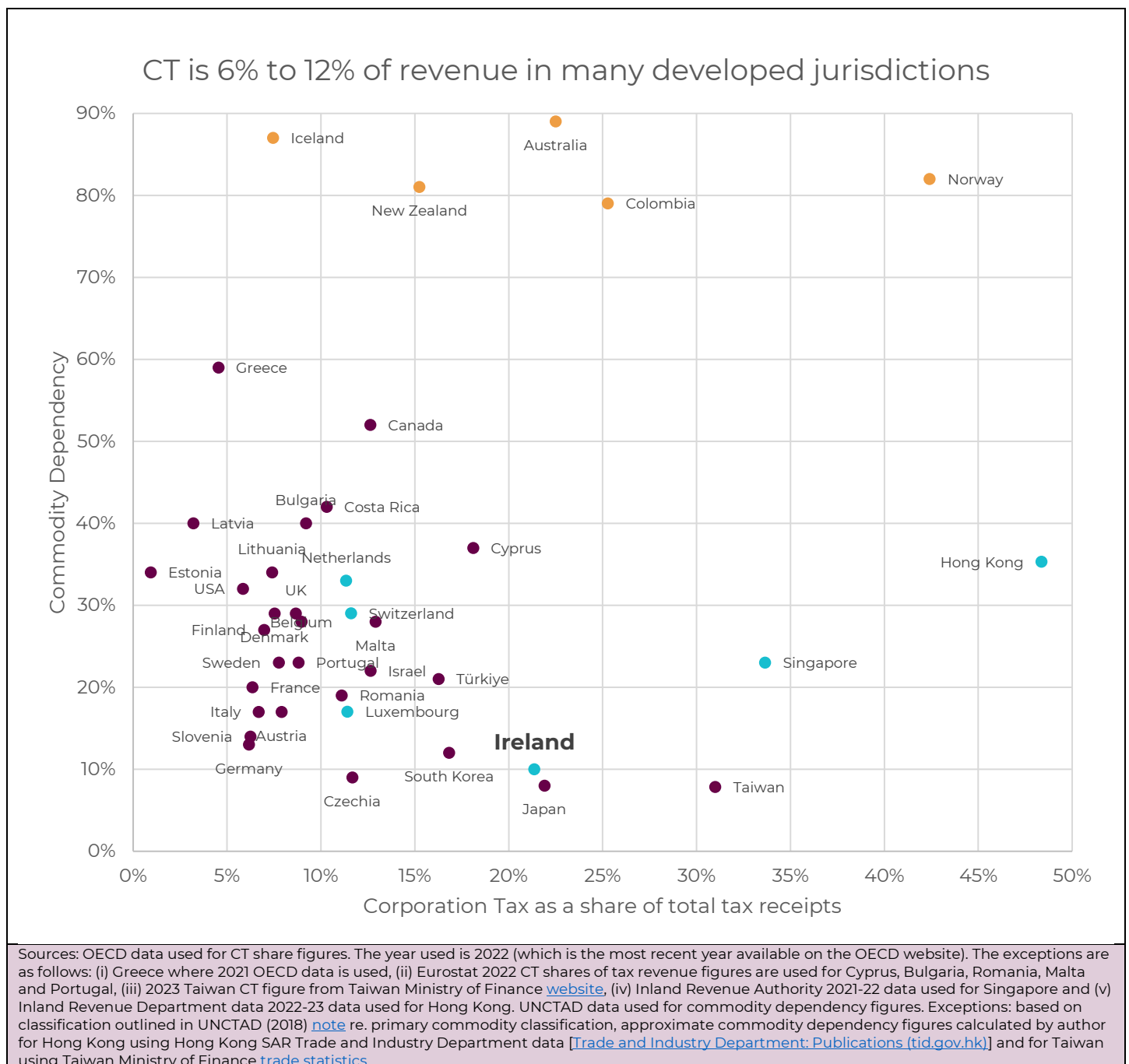
<sup>28</sup> RTE (2021) 'Airbnb's Irish staff enjoy \$55.4m share windfall' news article 30/11/2021.

anticipated, it can be used to improve infrastructure, reduce debt levels, or set aside as savings for later use, e.g., in a Rainy-Day Fund or Sovereign Wealth Fund (Pew, 2014); (Bedogni & Fitzgerald, 2020).

Many factors contribute to CT revenue responsiveness to the economic cycle and inherent volatility in general. Key factors include the cyclicity of commodity prices, the mix of industries in a country and population size (Morris, et al., 2009).

As can be seen in Figure 8 below, most developed jurisdictions that have high CT yields as a share of total tax take fit into one of the two following categories: (i) resource rich countries - highlighted in orange, or (ii) Coordination Centres - highlighted in turquoise. A country is Commodity Dependent when its merchandise (i.e., physical) exports are heavily concentrated in basic commodities (UNCTAD, 2023).

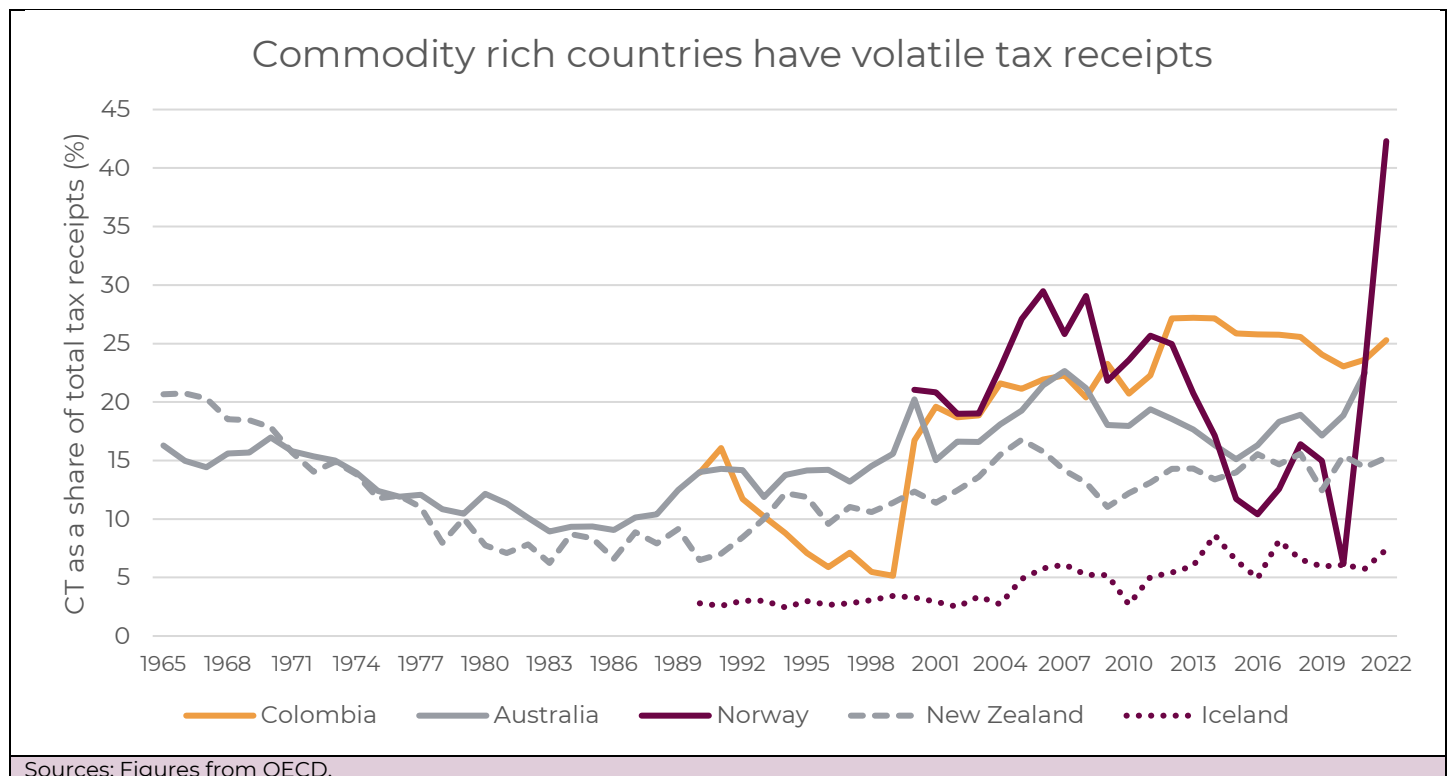
**Figure 8: Developed jurisdictions CT share of tax take and commodity dependency**



Ireland's share of revenue from CT is different to other EU member states. CT is often not among the top three tax streams for other EU countries. For many EU member states and other developed jurisdictions, CT revenue is typically around 6% to 12% of total tax revenue.

Ireland's CT revenue is sometimes compared to Norway's. However, the Irish economy is far less reliant on commodity exports and therefore CT receipts may be comparatively less volatile. CT revenues are highly volatile in resource rich nations as they are very exposed to changes in commodity prices (see Figure 9 below).<sup>29</sup> For governments that depend on these revenues, it poses a significant challenge for year-to-year budgetary planning (Dixon, Schena, & Capap, 2022).

**Figure 9: CT revenues as a share of total tax take in five commodity rich OECD member states**



To mitigate the exposure of the Irish public finances to volatility risk, several long-term public savings vehicles have been established in recent years including the National Reserve Fund, the Future Ireland Fund and the Infrastructure, Climate and Nature Fund. The aim of these funds is to create fiscal buffers, address future budgetary pressures and reduce the risk of CT receipts going towards the funding of permanent expenditure commitments (DoF, 2023f).

#### 4. Benchmarking Ireland against comparable jurisdictions

Different jurisdictions attract different varieties of FDI. Reurink & Garcia-Bernardo (2021) and Garcia-Bernardo et al (2023a) discuss five distinct FDI attraction profiles:

1. Back-Office Centres e.g., Estonia and Portugal.
2. Coordination Centres e.g., Hong Kong, Ireland, Luxembourg, the Netherlands, Singapore, and Switzerland.<sup>30</sup>

<sup>29</sup> US states with local economies dependent on natural resources, such as Alaska and Wyoming, have extremely volatile state-level revenues. US states with similar local economies to Ireland, such as New Jersey and Massachusetts, with large financial services, pharmaceutical, and technology sectors, have below average levels of revenue volatility (Pew, 2014).

<sup>30</sup> Note that Belgium and the United Kingdom are described as Coordination Centres in Reurink & Garcia-Bernardo (2021) but not in Garcia-Bernardo et al (2023a).

3. *Innovation Centres* e.g., Austria, Denmark, Finland and Sweden.
4. *Manufacturing Centres* e.g., Bulgaria, Czechia, Hungary, Poland and Slovakia.
5. *Profit Centres* e.g., Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Gibraltar, Isle of Man, Jersey, Malta, Mauritius, and Puerto Rico.<sup>31</sup>

‘Coordination Centres’ are jurisdictions with competitive CT rates that are used by MNCs for management and other coordination activities, play a central role in global value and wealth chains, host intermediate holding companies which receive royalty payments, and also act as locations to book profits in (Garcia-Bernardo et al, 2023a); (Reurink & Garcia-Bernardo, 2021). These jurisdictions act as regional gateways and investment hubs for Europe or Asia. The Coordination Centre jurisdictions, which act as a useful set for benchmarking Ireland’s CT revenues, are set out in Table 3 below:

**Table 3: Coordination Centres**

No.	Jurisdiction	GDP per capita 2023 USD	Population 2023 mil.	CT rate	CT share of total tax take %
1.	<b>Hong Kong</b>	51,170	7.5	16.50%	48%
2.	<b>Singapore</b>	87,880	6.0	17.00%	34%
3.	<b>Ireland</b>	112,250	5.1	15.00%*	22%
4.	<b>Switzerland</b>	102,870	8.8	Varies by Canton	12%
5.	<b>Netherlands</b>	61,770	17.6	25.80%	11%
6.	<b>Luxembourg</b>	135,610	0.7	24.94%	11%

Sources: (i) GDP figures from World Economic Outlook database and (ii) population figures from UN World Population Dashboard, (iii) PwC [Corporate income tax \(CIT\) rates \(pwc.com\)](https://www.pwc.com/tax/cit-rates). The headline CIT rate is generally the highest statutory CIT rate, inclusive of surtaxes but exclusive of local taxes (iii) CT share of total tax figures are OECD figures for 2022, except for Hong Kong, Ireland and Luxembourg which have 2023 data from their finance ministries or tax administrations, and Singapore which has 2022 data from its inland revenue authority.

\* Note that Ireland's CT rate was 12.5% from 2003 until 2023. From 2024 onwards, Ireland is applying the Pillar 2 minimum tax rate of 15% on MNCs with an annual global turnover of more than €750 million. Other businesses are subject to the 12.5% CT rate.

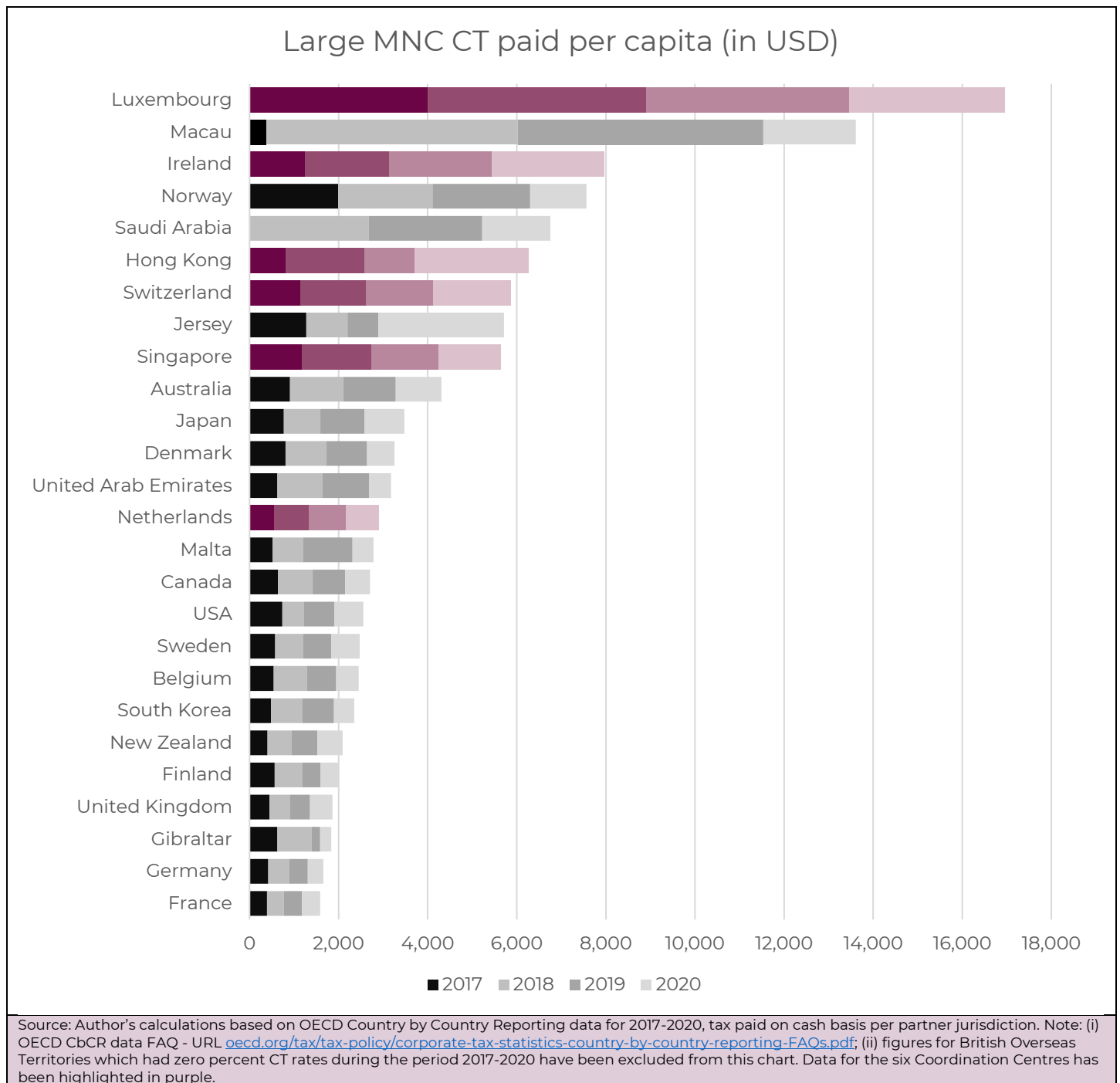
It is important to note that none of the jurisdictions in the set of comparable Coordination Centres appears to publish a list of their top ten largest corporate taxpayers. Also note that in many respects these jurisdictions are very different to Ireland e.g., several of them are not member states of the EU or the OECD. However, what they share in common with Ireland is a high level of substantive foreign MNC activity and an above average share of tax receipts being derived from CT.

Singapore’s development model and industrial policy has some similarities with Ireland’s. It is English-speaking, has a highly educated workforce and is particularly focused on attracting foreign direct investment (FDI) from the United States (Kuan-Yew, 2000).

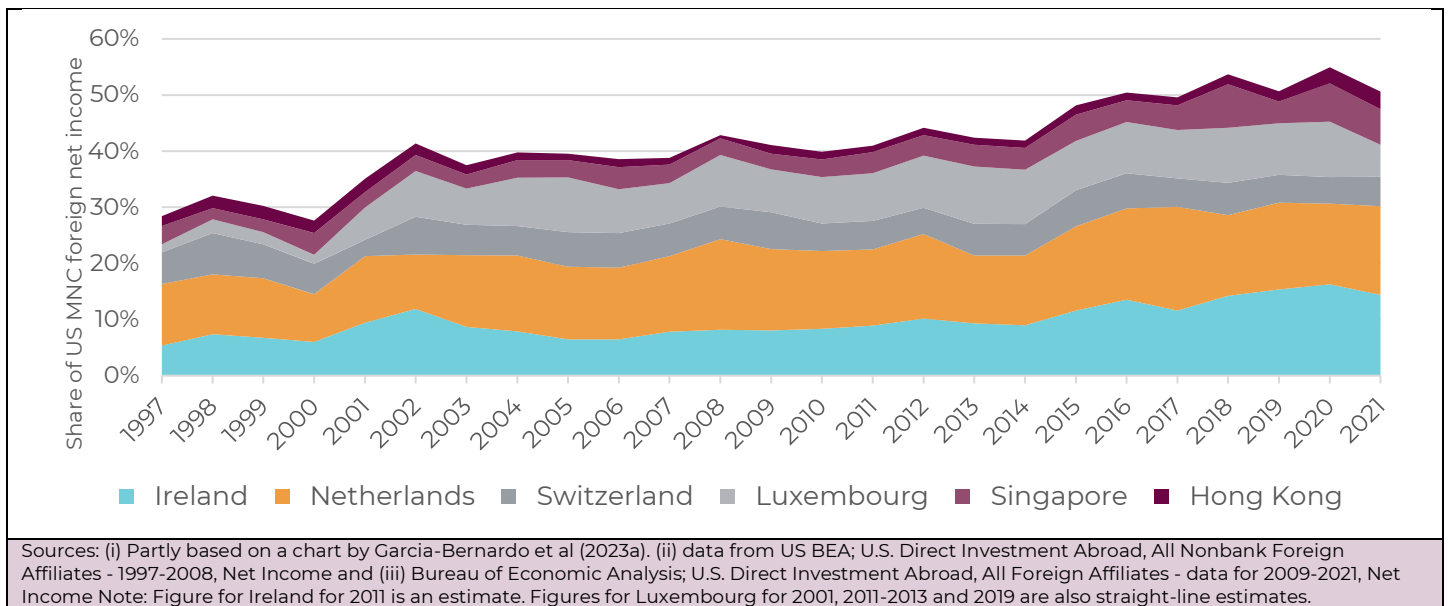
As shown in Table 3, Ireland’s CT receipts as a share of total revenue is within the range of other Coordination Centres i.e., between approximately 11% and 48%. As can be seen Figure 10 below, Coordination Centres receive amongst the highest levels of CT paid by large MNCs per capita globally.

<sup>31</sup> Note that Cyprus is described as a Profit Centre in Reurink & Garcia-Bernardo (2021) but not in Garcia-Bernardo et al (2023a).

**Figure 10: Top 26 jurisdictions for CT paid by large MNCs on cash basis per capita with annual global turnover of more than €750 million, 2017-2020**

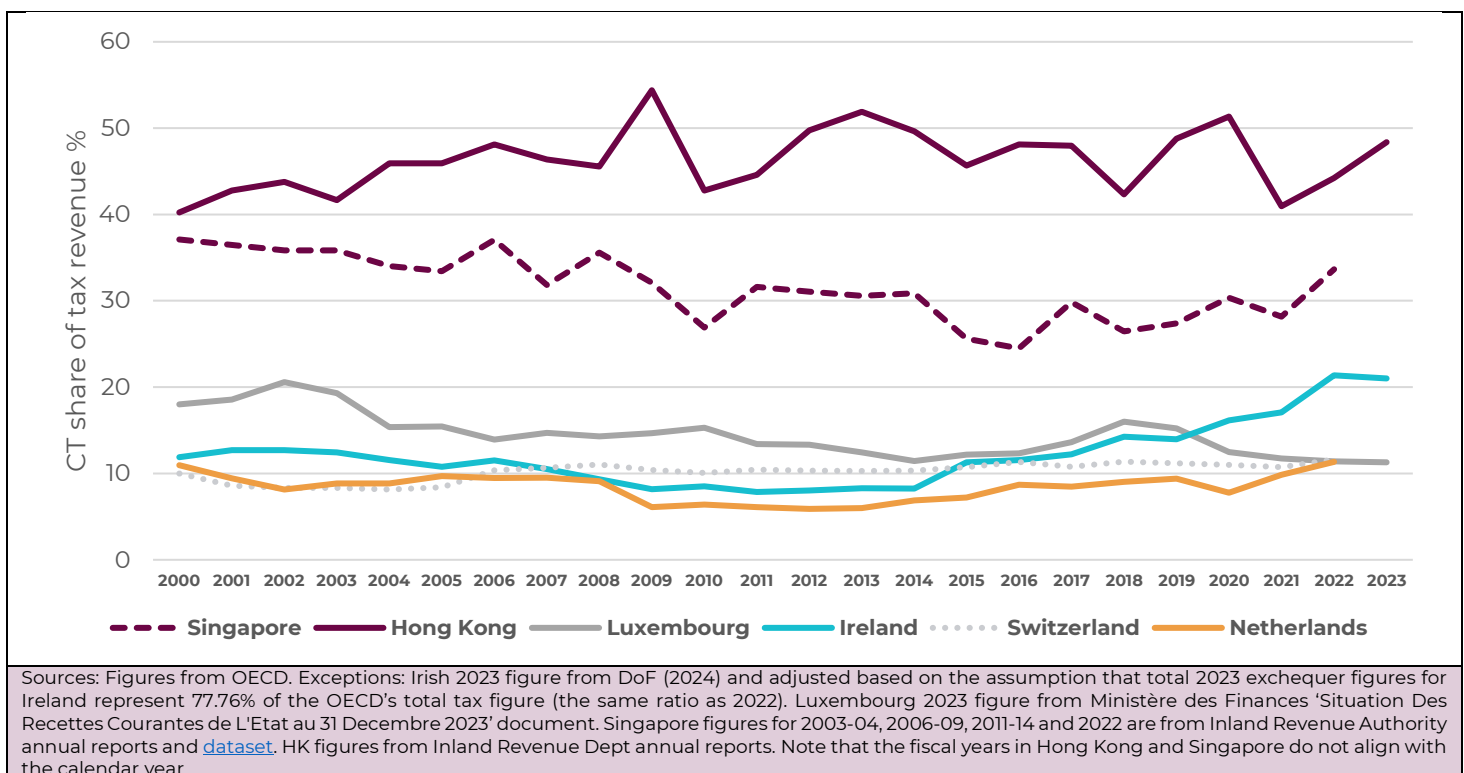


In the case of Ireland and the other Coordination Centres, their relatively low corporate tax rates, as well as other incentives, have made them attractive destinations for US MNCs. As can be seen in Figure 11 below, the share of US MNC foreign net income booked in the six Coordination Centres has grown from circa 30% to circa 50% over the past 25 years. At the same time, the foreign economic profits of US MNCs grew from the equivalent of 2% to 4% of US GDP between 1997 and 2021 (CBO, 2023). As these MNCs book more of their foreign income in Ireland, they contribute to the state's corporate tax revenue.

**Figure 11: Share of foreign net income of US MNCs booked in Coordination Centres, 1997-2021**

As shown in Figure 12, Coordination Centres have relatively stable CT yields, except for the following two examples:

- **Ireland:** Ireland's CT revenue has grown significantly in recent years. This hasn't happened before. While there has been CT volatility, it has been largely in an upward direction, growing strongly from 2014 to 2022 before stabilising in 2023.
- **Luxembourg:** The country recorded a decline in its CT yield as a share of total tax revenues in the early 2000s, although this may have been caused in part by a cut in its combined CT rate from 37.45% to 30.38% in 2002.<sup>32</sup>

**Figure 12: CT as a share of total tax take in Coordination Centres from 2000 to 2023**

<sup>32</sup> See OECD statistics [URL: [Table II.1. Statutory corporate income tax rate \(oecd.org\)](https://data.oecd.org/tax/Statutory-corporate-income-tax-rate)]

## 5. Corporation Tax forecasting methodologies

Understanding how to forecast CT is crucial given the rapid increase in Ireland's receipts. Accurate forecasting helps to manage increased CT revenues effectively. Forecasting CT is a complex task due to the unpredictable nature of economies, which are influenced by technological advancements and unforeseen events (Australian Government - Treasury, 2012).

Forecast precision depends on a range of factors such as the timing of the forecast and the tax structure of the jurisdiction involved. Some countries embed revenue forecasts in macroeconomic models or use micro-simulations for specific taxes (Buettner & Kauder, 2009). In many jurisdictions, CT is one of the most difficult tax heads to accurately forecast (OBR, 2018); (Shahnazarian, Solberger, & Spånberg, 2017). Several factors contribute to fluctuations in CT receipts, including leads and lags in tax collection, the ability to offset losses against future profits, and the occurrence of extraordinary profits and losses (Morris, et al., 2009). Luxembourg, the Netherlands and the UK have track records in developing accurate tax revenue forecasts (Afonso & Carvalho, 2014).

Many jurisdictions release only limited information on their revenue forecasting methodologies, making international comparisons challenging. See an overview of the methods and variables used for CT forecasts in several countries (for which methodological information is available) in Table 4.

**Table 4: Comparison of CT forecast methodologies**

No.	Country	Overview of methods and macro-drivers used for CT forecasts
1.	<b>Australia</b>	Gross Operating Surplus (GOS) adjusted for depreciation, treatment of losses, interest income and capital allowances, with judgement used for mining sector revenues (Australian Government - Treasury, 2012).
2.	<b>Belgium</b>	Variables used include (i) corporate net operating income, (ii) property income (excluding dividends) and (iii) Net Value Added (Cour des Comptes, 2017).
3.	<b>Germany</b>	Consensus tax estimates developed by expert Working Group twice per year. <sup>33</sup> The Working Group bases its estimates on government macroeconomic data. The members of the Working Group are not given a binding set of forecasting instruments. They can develop their own estimates using their own methods and models. Eight members of the Working Group (i.e., the economic research institutes, the Bundesbank, the German Council of Economic Experts and the Federal Ministry of Finance) independently prepare their own estimates.
4.	<b>Ireland</b>	Regression-based estimate of the relationship between tax revenue and GOS. Tax revenue is assumed to grow in line with changes in GOS, subject to certain adjustments. The Department of Finance (DoF) uses an elasticity of one i.e., a single unit change in GOS results in a corresponding one-unit change in tax revenue (DoF-TFMR, 2019).
5.	<b>Italy</b>	Microsimulation model using financial data from databases with firm-level or tax return data. <sup>34</sup>
6.	<b>Netherlands</b>	Separate CT forecasts for the gas and non-gas sectors (Verkade, 2015).
7.	<b>New Zealand</b>	Total Operating Surplus (Keene & Thomson, 2007).
8.	<b>UK</b>	HMRC forecasts CT by breaking it down into four sub-models which each one focusing on the following sectors: (i) industrial and commercial companies, (ii) life insurance companies, (iii) financial sector companies and (iv) offshore oil & gas. <ul style="list-style-type: none"> <li>Onshore Forecasts (i-iii): Economic determinants (non-oil, non-financial profits, financial company profits, investment, private non-financial company short-term interest payments and foreign income) and judgements (e.g., implications of in-year instalment payments, carry-forward of losses, repayments, tax-motivated incorporations and the impact of previous policy changes).</li> <li>Offshore Forecast (iv): Micro-simulation model that uses production and expenditure data on each individual oil and gas field. Economic determinants (oil price and \$/£ exchange rate) and judgements (oil and gas production, capital and operating expenditure, implications of in-year instalment payments, gas prices, exploration and appraisal expenditure and company-specific changes) (OBR, 2011).</li> </ul>

<sup>33</sup>See the BMF working group [webpage](#).

<sup>34</sup> UPB (Italian PBO) training session, June 2023.

One of the main differences in the methodologies of the various countries is the use of microsimulation models and more granular micro data. The use of more disaggregated data and modelling techniques may help to improve forecast accuracy.

## 6. Tax shortfalls and windfalls

A windfall is an economic gain independent of work, planning, or other productive activities that society wishes to reward. It is impossible to anticipate where and when future windfalls will arise; by definition such events are surprises. True surprises are uncommon and by definition are not recurring events (Kades, 1999).

For an individual firm, a 'Windfall Profit' is a fortuitous gain from an unanticipated event (Hebous, Prihardini, & Vernon, 2022). In addition to Windfall Profits, it is informative to note other varieties of outsized firm-level profit e.g., Economic Rent,<sup>35</sup> Excess Profit,<sup>36</sup> Extraordinary Profit,<sup>37</sup> and Residual Profit.<sup>38</sup>

In the context of tax revenue forecasts, the term 'windfall' describes an unanticipated and substantial revenue increase. These windfalls can arise due to various factors. Windfall tax receipts are typically temporary and surprising, and not part of a long-term structural trend in revenue growth. They represent a deviation from projected or baseline expectations. While tax revenue can indeed exceed projections for reasons unrelated to windfalls (such as slightly higher than expected but still structurally related increases in profits), the term 'windfall' specifically highlights those exceptional and unforeseen spikes in government income. Similarly, the term 'shortfall' is used to refer to unexpected and substantial tax revenue losses.

Revenue windfalls and shortfalls are a measure of how well an underlying revenue forecast model approximates reality (Morris, et al., 2009).

There are many drivers of revenue windfalls and shortfalls, including:

- changes in residential property prices,
- developments in equity markets,
- improved tax compliance,
- changes in oil prices, and
- macroeconomic developments

Fluctuations in tax revenue, including corporate, capital, and indirect taxes, typically exhibit a cyclical pattern. From around 1999 to 2007, the fiscal positions of many EU countries, including Ireland, the UK and Spain, improved considerably due to favourable economic conditions and booming housing markets. Capital tax yield trends are heavily related to developments in asset prices (Girouard & Price, 2004); (Morris & Schuknecht, 2007). In Ireland from 2003 to 2008, a booming housing market led to large stamp duty and VAT receipts which then contributed to the

<sup>35</sup> Economic Rent refers to income derived from the ownership, possession, or control of scarce assets under conditions of limited or no competition e.g. in the financial, natural resource, IP, digital platform, service contract, infrastructure or land sectors (Christophers, 2020).

<sup>36</sup> Excess Profit refers to earnings that exceed the normal or expected rate of return or return on assets. These profits are above what would typically be anticipated in a competitive market and might result from factors like market dominance, unique competitive advantages, or inefficiencies. 'Excess Profit' is a subjective term, as it is based on defining what counts as an acceptable profit, and then labelling everything above that level as excessive (Lazzari & Pirog, 2008).

<sup>37</sup> Extraordinary Profit refers to earnings that are outside the normal course of business operations, often arising from one-time events or transactions that are not related to regular trading income.

<sup>38</sup> Residual Profit refers to the profit remaining after (i) all costs have been accounted for and (ii) the less complex, less unique and less valuable parts of a business have already earned an appropriate profit.

subsequent deterioration in the public finances (Addison-Smyth & McQuinn, 2010); (Addison-Smyth & McQuinn, 2016).

Temporary increases in revenue may be mistakenly regarded as permanent increases in tax receipts. During these good times, upswings in receipts can lead to significant deteriorations in the underlying fiscal position. Difficulties are created for municipalities and governments in resisting demands for higher levels of spending or tax cuts (Berset & Schelker, 2020). From a multiannual budgeting viewpoint, if an expenditure programme is funded using windfall tax receipts, additional revenue (or spending cuts to other areas) may be required to continue the funding of this programme should these windfall receipts fail to materialise in subsequent years (Fitzgerald & Bedogni, 2019).

It is difficult to disentangle the permanent and transitory components of fiscal balances. There are several challenges associated with measuring windfalls, including the following issues:

1. Differences between actual and budgeted revenues may be explained by unexpected underlying macroeconomic developments,
2. Differences between actual and budgeted revenues may be explained by unexpected microeconomic or firm-level developments (Gabaix, 2011),
3. When actual results are compared with the forecasted ones, adjustments made after the budget was set may be overlooked, and
4. Irregular developments which impact on the accuracy of a model may have to be explained on a case-by-case basis using expert judgment (Morris, et al., 2009).

In relation to Ireland, the issue of CT windfalls has been discussed and analysed. For example, the Department of Finance has undertaken scenario analysis to identify what proportion of CT receipts are unexpected or beyond the norm using four approaches assuming: (i) the share of CT receipts falls to the long run norm, (ii) CT receipts move in line with GNI\*, (iii) CT receipts increase in line with wages in the multinational sector and (iv) CT receipts move in line with CT payments from sectors and firms more closely aligned with domestic activity. The analysis suggests that €4bn to €6bn of the €15.4bn in CT revenue collected in 2021 could be classified as windfall in nature (DoF, 2022c). In addition, the Irish Fiscal Advisory Council notes that the exact amount of CT receipts that can be considered excess is uncertain. Reflecting the uncertainties involved, the Fiscal Council estimates a range for the excess CT revenue of between €10.2bn and €15.4bn in 2023 (Fiscal Council, 2023c).

## 6.1 At what point is a tax windfall no longer a windfall?

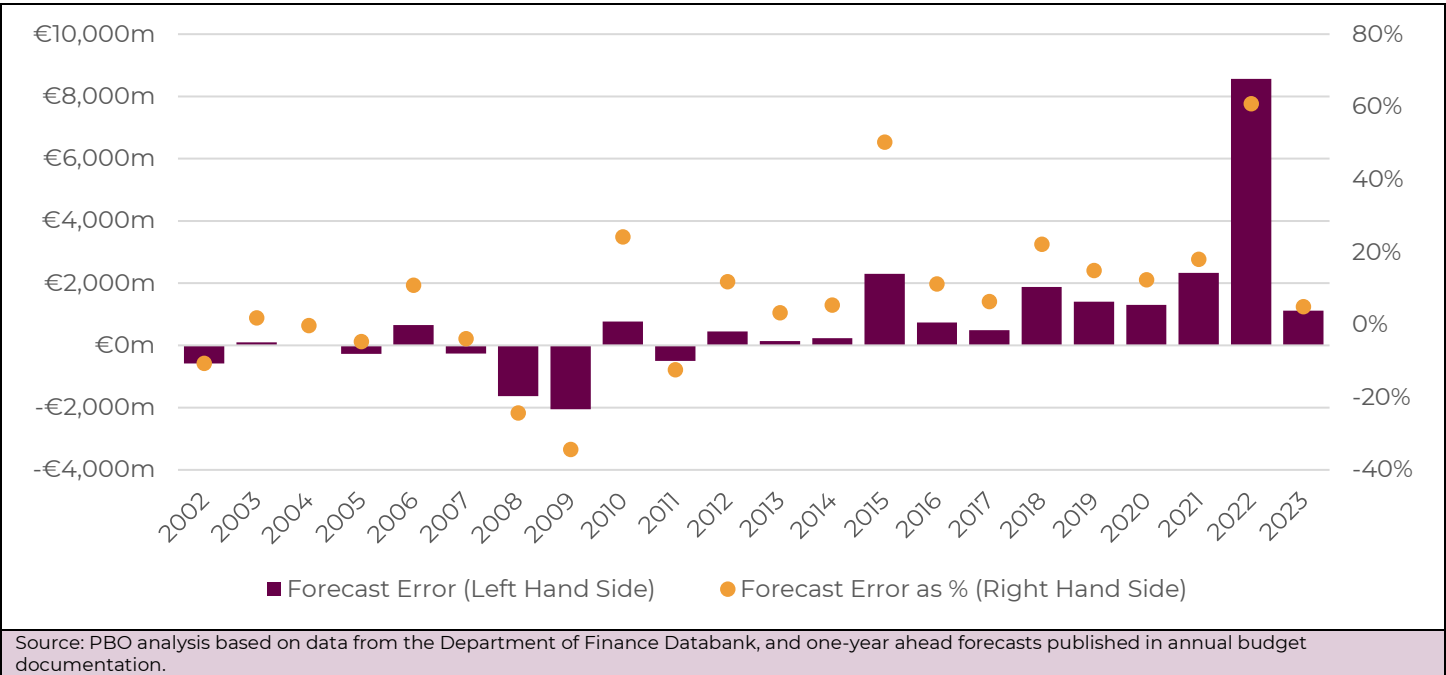
While it is difficult to be definitive, a tax windfall is generally a short-term phenomenon, rather than a long-term one. Much of the literature on tax windfalls or shortfalls explores examples lasting between one and five years. If revenue windfalls or shortfalls display a systematic pattern, this may be an indication that the revenue forecasting model is not well specified (Morris, et al., 2009). For example, the Australian authorities consistently underestimated the strength of the mining sector during the fiscal years 2008-09 to 2011-12 (Australian Government - Treasury, 2012), but later adjusted their CT forecasting methodology.<sup>39</sup>

In the case of Ireland, since 2012 CT receipts have displayed a systemic pattern of outperforming one-year ahead forecasts (see Figure 13). As this phenomenon has lasted for over a decade, it can be argued that Ireland's CT receipts are no longer windfalls. The elevated level of CT revenue may

<sup>39</sup> Similarly, in the early 2000s, the New Zealand Treasury consistently underestimated the actual outturns in its annual one-year-ahead budget forecasts before conducting an analysis of forecast errors (Keene & Thomson, 2007).

represent a structural shift caused by a range of factors including international tax changes and greater levels of MNC investment in Coordination Centres such as Ireland.

**Figure 13: CT receipts have outperformed one-year-ahead forecasts since 2012**



While, arguably, the high levels of CT revenue may not be strictly defined as windfalls, there is still a case for considering them as such. A large portion of the profit being booked in Ireland is related to international activity and is influenced by global factors. In addition, some of the relevant risks facing CT receipts are beyond the control of the state to fully mitigate against. Therefore, there is a case for saving or strategically investing some of the CT revenue and waiting for CT to stabilise as share of tax revenue over a period of years before making significant changes to current expenditure levels.

7. Conclusion

CT receipts present both risks and opportunities for the Irish Exchequer. Increased CT receipts allow for increased levels of spending, the funding of capital projects, the reduction of national debt and the allocation of money to Rainy Day Funds or Sovereign Wealth Funds. However, CT revenue growth is not without its risks. The key insights and implications of this note are the following:

- 1. Growth of CT receipts in Ireland: CT has become a significant source of government revenue. From 2014 to 2022 there was a rapid increase in CT receipts, with growth averaging 23% per year during the period, before stabilising in 2023.
- 2. Resilience amidst international tax reforms: Despite major international tax initiatives such as the first round of the OECD's BEPS project and the phasing out of hybrid tax planning structures used by US companies, Ireland's CT receipts have continued to grow.
- 3. Globalisation of MNCs/Growing importance of Coordination Centres: MNCs, including US ones, have expanded their overseas activities in recent decades. Locations like Ireland have become key sites for MNC activities.
- 4. Onshoring of IP: Major US technology companies have moved IP to Ireland, contributing to the increase in CT receipts.

5. Computer Services exports: These grew from €32bn in 2012 to €196bn in 2022.
6. Pharmaceutical exports: The pharmaceutical sector makes a significant contribution to Ireland's CT revenue e.g., CT receipts from the chemical & pharma manufacturing sector grew from €2.645bn in 2021 to €5.536bn in 2022 (McCarthy, 2023).
7. Concentration Risk: CT payments are heavily concentrated among a few corporate taxpayers in Ireland. This poses a risk to revenue stability.
8. Firm-Level Risk: The performance of individual large firms can significantly impact CT receipts.
9. Footloose Industry Risk: The movement of businesses to other countries can affect CT revenues.
10. Infrastructure Risk: Infrastructural capacity is essential for maintaining a stable and attractive environment for business, employment, and investment. Ireland's CT revenue significantly relies on MNCs choosing to operate within the country, a decision influenced by factors beyond taxation, such as infrastructure. The country faces challenges related to housing, transport, and utilities. Additionally, planning delays can affect MNC operations, notably for US companies which may benefit from building assets in Ireland due to tax incentives like the exemption from the Global Intangible Low-Taxed Income (GILTI) tax on the first 10% return from foreign assets. To mitigate risks to CT receipts and retain MNC investment, it's crucial for Ireland to enhance its competitiveness through non-tax factors such as improving infrastructure.
11. International Tax Reform Risk: Global tax changes could impact Ireland's attractiveness to MNCs and therefore reduce its CT receipts e.g., the OECD's BEPS Pillar One, which aims to reallocate the profits of large MNCs based on sales location, could reduce Ireland's tax receipts due to its small market size.
12. Offshoring of Intellectual Property Risk: The relocation of IP assets from Ireland to other jurisdictions could reduce importance of MNC operations in Ireland and therefore reduce the level of taxable profit booked in the state. This is because the profits generated from these assets would no longer be tied to Irish operations.
13. Volatility Risk: CT revenue can be unpredictable, affecting government spending and taxation strategies.

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## Appendix 1. Transfer Pricing

Transfer pricing is an accounting practice which is about comparing how connected parties set prices for products, services and the use of assets in a way that approximates how parties would behave in an open market (Verlinden & Bakker, 2018). It is particularly relevant for cross border transactions within MNCs.

More than half of all international trade is intra-MNC i.e., between different entities within the same corporate group (Dainoff, 2021).

There are three core aspects of transfer pricing:

1. Arm's Length Principle (ALP): The ALP means that 'controlled transactions' (i.e., transactions between related entities/subsidiaries) should be priced as if they were 'uncontrolled transactions' (i.e., transactions between unrelated parties), with each one acting in its own best interest.
2. Functions, Assets and Risks (FAR): The various entities/subsidiaries within an MNC group should be allocated profits in line with their functions performed, assets used, and risks assumed.
3. Aligning profits with value creation: Value creation is a proxy for economic substance. Profits should be allocated in line with where value-adding activities take place, rather than where end-customers, or the bulk of employees, are located.<sup>40</sup> The key drivers of value creation – the elements which differentiate a business and help it to win in the market – should be identified e.g., branding, digital solutions, distribution, marketing, merchandising or product innovation etc.<sup>41</sup>

The steps of shifting/allocating profits in a multinational corporate group are (i) entity/subsidiary classification, (ii) transfer pricing method selection and (iii) residual profit allocation:

### 1.1 Entity or subsidiary classification

In this step, all the entities or subsidiaries in a corporate group are classified e.g., limited risk distributor, fully-fledged manufacturer etc. The entities with more IP, FAR and complex functions are remunerated with higher levels of profit. The entities with lower levels of FAR and IP are remunerated with lower levels of profit. See descriptions of common entity categories in the table below. This table below gives an overview of the added value of various kinds of entities.

<sup>40</sup> OECD (2015) Aligning Transfer Pricing Outcomes with Value Creation, Actions 8-10 - 2015 Final Reports

<sup>41</sup> Verlinden (2023) Presentation at Women of IFA Nordic at the University of Copenhagen 20/03/2023 on State Aid & Taxation, specifically on remote work.

No.	Entity Function	Entity Type	Description	FAR level <sup>42</sup>
1.	Distribution/ Sales	<b>Agent or Commissionaire</b>	A Sales Agent or Commissionaire solicits sales for a Principal Entity. It does not conclude contracts in its own name, possess valuable marketing IP or possess inventory (Deloitte, 2012).	Low
2.	Distribution/ Sales	<b>Sales Entity</b>	A Sales Entity either sells group products in its own name and account, or brokers sales on behalf of Core Manufacturers, Licensed Manufacturers, or Project Lead Entities.	Low-Medium
3.	Distribution/ Sales	<b>Limited-Risk Distributor (LRD), Stripped Distributor, or Buy-Sell Distributor</b>	An LRD performs limited marketing activities under the supervision of a Principal Entity, employing limited marketing intangibles and assuming limited risks in its customers relationships (OECD, 2022). It resells products purchased from an affiliate.	Low-Medium
4.	Distribution/ Sales	<b>Full-Fledged Distributor</b>	A Fully-Fledged Distributor concludes sales contracts and invoices in its own name and is responsible for the associated risks (Deloitte, 2012). It owns inventory and marketing intangibles.	High
5.	Manufacturing	<b>Toll Manufacturer</b>	A Toll Manufacturer is given raw materials and does not own any valuable intangibles (Taxand, 2019).	Low
6.	Manufacturing	<b>Contract Manufacturer</b>	A Contract Manufacturer performs manufacturing activities on behalf of a Principal Entity.	Low-Medium
7.	Manufacturing	<b>Licensed Manufacturer</b>	A Licensed Manufacturer obtains the necessary IP licenses from Core or Fully-Fledged Manufacturers for the manufacture and sale of products (Deloitte, 2012).	Medium
8.	Manufacturing	<b>Fully-Fledged or Core Manufacturer</b>	A Fully Fledged Manufacturer owns the IP needed to produce products (Deloitte, 2012). It undertakes the full range of activities relating to the production process. Purchase orders and invoices for customers are made in its own name. It has full ownership of raw materials, components, work-in-progress and finished goods. It is responsible for all of its risks.	High
9.	R&D	<b>Contract R&amp;D</b>	Contract R&D can involve highly skilled personnel and can vary considerably both in its nature and in its importance to the success of the group. It can take a variety of forms from the undertaking of detailed programmes laid down by the principal party, extending to agreements where the research company has discretion to work within broadly defined categories. In the latter instance, the additional functions of identifying commercially valuable areas and assessing the risk of unsuccessful research can be a critical factor in the performance of the MNC group as a whole (OECD, 2022).	Low-Medium-High
10.	Service Provider	<b>Local Service Centre</b>	A Local Service Centre performs local standard services on-site or within its own service facility.	Low
11.	Service Provider	<b>Local Service Centre (complete)</b>	This entity may sell spare parts in its own name and for its own account or broker service sales on behalf of a Principal Entity and perform local standard services on-site or within its own service facility.	Low-Medium

<sup>42</sup> OECD (2022) Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2022

12.	Service Provider	<b>Contract Service Provider</b>	This entity provides a narrow range of services (Deloitte, 2012).	Low
13.	Service Provider	<b>Shared Services Centre</b>	This entity provides a wider variety of services (Deloitte, 2012).	Low-Medium
14.	Service Provider	<b>Routine Service Provider</b>	This entity provides a variety of services and possesses a sophisticated workforce (Deloitte, 2012).	Medium
15.	Service Provider	<b>Sophisticated Service Provider</b>	This entity provides a variety of services, possesses a sophisticated workforce, and owns IP (Deloitte, 2012).	High
16.	Other	<b>Sales/ Assembly Entity</b>	This is an entity that assembles and sells group products either in its own name and for its own account or, brokers sales on behalf of Core Manufacturers, Licensed Manufacturers, or Project Lead Entities.	Low-Medium
17.	Other	<b>Project Lead Entity</b>	An entity that acts as a project coordinator. It is responsible for project management, direct contact with the customer and assembly of the product.	Medium-High
18.	Other	<b>Project Support Entity</b>	An entity that supports a Project Lead Entity with services such as project management and assembly.	Low-Medium
19.	Other	<b>Project Manufacturer</b>	An entity that makes parts that are purchased by a Project Lead Entity and assembled as part of the project.	Low-Medium
20.	Other	<b>Principal Entity/ Ultimate Parent Entity (UPE)</b>	This may be a headquarters (HQ) which may own IP and is responsible for risks throughout the MNC group e.g., marketing, pricing risk, volume risk, warranty/adverse event risk, inventory risk and credit risk etc.	High

## 1.2 Transfer pricing methods

The second step is to select transfer pricing methods and set appropriate prices for each intra-group transaction between the relevant entities/subsidiaries. See a description of the main transfer pricing methodologies in the table below. These are the established rules for setting prices between related entities and often require the identification of benchmarks.

No.	Method	Description
1.	<b>Common Uncontrolled Price (CUP)</b>	CUP compares the price (e.g., prices agreed in contracts) in a 'controlled transaction', i.e., a transaction between related/affiliated entities, to the price of a comparable uncontrolled transaction between unrelated parties in comparable circumstances. CUP can be used to set transfer prices for commodities, loans, IP, licenses, and royalties (PCT, 2017); (Feinschreiber, 2004).
2.	<b>Resale Price Method/Resale Minus (R-)</b>	R- is based on the price at which a product that has been purchased from an associated enterprise is resold to an independent enterprise (OECD, 2022). It is similar to CUP (see above) except that R- uses Gross Margin as a metric rather than the price. It is often used to determine profitability of a distributor or in the sale of tangible property (Feinschreiber, 2004).
3.	<b>Cost Plus (C+)</b>	C+ starts with the costs incurred by the supplier for a good or service in a controlled transaction (OECD, 2022). An appropriate mark-up remunerating the FAR level is added. C+ may be the best method if the producer provides more complete data than the distributor (Feinschreiber, 2004). This may be applicable in low-risk routine activities e.g., the manufacturing or assembly of semi-finished goods.
4.	<b>Profit Split</b>	<p>A Profit Split is an allocation of profit based on the relative value of each participant's contribution to the combined profit (Feinschreiber, 2004). Profit splits can be analysed using:</p> <ul style="list-style-type: none"> <li>(i) 'Contribution Analysis' i.e., splitting the profit based upon a reasonable approximation of the value of contributions, or</li> <li>(ii) 'Residual analysis' i.e., Compensating the non-unique, routine contributions at arm's-length before allocating the residual profit amongst the parties based on their unique, non-routine contributions.</li> </ul> <p>Useful where:</p> <ul style="list-style-type: none"> <li>• Transactions are highly inter-related or interdependent and cannot be evaluated on a separate basis.</li> <li>• Both parties to a transaction contribute unique and valuable intangible assets (i.e., no 'least complex entity' exists).</li> <li>• Combined sharing of risks.</li> </ul>
5.	<b>Transactional Net Margin Method (TNMM)</b>	The TNMM compares a tested party's (e.g., an MNC's local subsidiary in country) net profit margin ratio, relative to comparable independent companies. The ratio selected is called a Profit Level Indicator (PLI). PLIs used include operating margins, gross profit margins, gross margins, return on assets, net cost plus and the Berry ratio. 'Rule of thumb' operating margins for certain entity-types include circa 3% for limited risk distributors, circa 5% for contract manufacturing and circa 10% for contract R&D. These rates vary depending on the industry and jurisdiction involved.

Other less commonly used methodologies include the following:

No.	Method	Description
1.	<b>Goldscheider's Rule (i.e., the 25% rule)</b>	<ul style="list-style-type: none"> <li>Licensors receive a 25% share of the profit in IP licensing agreements (Richter &amp; Breuer, 2015).</li> <li>Licensees of IP get a 75% share of the profit.</li> </ul>
2.	<b>Knoppe Formula</b>	Similar to the above, although licensors may receive a 25%-33% share of the profit in IP licensing agreements (Richter & Breuer, 2015).
3.	<b>Risk free rate</b>	The risk-free rate of return (e.g., the interest rate on US government bonds) may be relevant, for example, as a component in calculating a risk-adjusted rate of return on an investment or as the return allocable to an investor who has provided funding but has not assumed any of the risks related to the funding (OECD, 2022).

In addition, the strategies listed below are sometimes used by companies use to shift income to lower tax jurisdictions.

1. Cost-sharing arrangements (CSAs): This is a type of contract where the parties involved agree to share the costs and risks of R&D project. In return, they also share the rights to the IP that is developed (Samarakoon, 2023); (Coffey, 2021).
2. Earnings Stripping: This is a strategy where MNCs strategically distribute debt among their subsidiaries. A subsidiary in a low-tax jurisdiction lends money to a subsidiary in a high-tax country. This increases the costs (due to the debt and loan repayments) for the high-tax subsidiary, reducing its tax bill. Meanwhile, it increases the income for the low-tax subsidiary (from the loan repayments), reducing the overall tax bill for the MNC (Dainoff, 2021).
3. IP transfers: This refers to the process where an MNC moves the ownership of intellectual property (IP) from one country (e.g., the U.S.) to a subsidiary in a country with lower taxes, possibly without moving the actual R&D work (De Simone, Huang, & Krull, 2018).

### 1.3 Residual profit allocation

The remaining profit (i.e., residual profit) is allocated to the MNC's entities which carry out the most complex and non-routine functions. This may include:

- the HQ,
- the locations with the most value-adding activities, or
- the locations with DEMPE (Development, Enhancement, Maintenance, Protection and Exploitation) functions.

## Appendix 2. Hybrid tax planning structures used by US companies

The period from 1997 to 2012 has been described as the ‘Golden Era of Tax Planning’ (Altshuler, 2023). During this period, the US had a worldwide tax system, coupled with a credit and deferral system. Under this system, the US levied taxes on both the domestic and foreign profits of US multinationals. To prevent the double taxation of foreign income, a foreign tax credit was provided for taxes paid abroad. Importantly, no tax was due on foreign profits until the funds were repatriated (i.e., when they were brought back to the U.S.). In 1997, the US Treasury issued the so-called ‘check-the-box’ (CTB) regulations which facilitated easier entity classification changes for US corporations. The regulations were known as the ‘check-the-box’ rules because changing entity type was as straightforward as ticking a box on a tax form. Entities could transition between pass-through corporate and non-corporate (e.g., a branch or partnership) classifications. The distinction between being a corporation or not significantly impacted corporate tax liability. The rules allowed for the use of pass-through ‘hybrid entities’ (i.e., entities which are corporations from the host country point of view and pass-throughs from the home country point of view or vice-versa) which could be treated as ‘disregarded entities’ (when a non-corporate entity is disregarded, transactions involving itself with its parent entity and other disregarded entities were effectively invisible to the US authorities - consequently, there was no US tax levied on these transactions). This move significantly facilitated multinational tax planning, particularly for IP-related profit shifting. Multinationals harnessed these hybrids to exploit tax law mismatches across different jurisdictions. The end goal was to generate ‘stateless income’ (i.e., income earned outside the US that, through tax planning, was not taxed where it was earned but instead was booked in a low or zero tax jurisdiction). These hybrid structures were gradually implemented. Post-2000, the foreign effective tax rates of US MNCs using hybrid structures fell, but remained stable for other MNCs e.g., in 2016, US MNCs using hybrid tax structures had an effective foreign tax rate of 10%, which was half the rate of other US MNCs. Three of the most common CTB-related hybrid tax planning structures used by US MNCs were (i) the ‘Double Irish with a Dutch Sandwich’, (ii) the ‘Reverse Hybrid Mismatch with Dutch Entities’ and (iii) the ‘Reverse Hybrid Mismatch with Luxembourg Entities’ (Altshuler, 2023).

### 2.1 The Double Irish with a Dutch Sandwich arrangement

The Double Irish arrangement was a tax strategy which allowed companies to shift income to zero-tax jurisdictions e.g., Bermuda and the Cayman Islands (Samarakoon, 2023). It was used by several US software and pharmaceutical MNCs.

- Pre-2017 TCJA, under US tax law, the foreign income of US MNC subsidiaries was generally not subject to US tax until the income was repatriated to the United States.
- US companies could therefore build up cash reserves in countries which had Double Taxation Agreements with the US.
- US Controlled Foreign Company (CFC) rules prevented the artificial deferral of tax payments via aggressive tax planning e.g., by using subsidiaries located in zero-tax jurisdictions (which did not have a Double Taxation Agreement with the US). In these circumstances the income was immediately liable to US tax. The accumulation of untaxed income in tax havens was only possible by circumventing these provisions.
- Ireland has a Double Taxation Agreement with the US.
- The Double Irish structure involved the establishment of two Irish companies, only one of which was tax-resident in Ireland. A foreign corporation in Ireland could elect non-residency

in Ireland for tax purposes if it was “managed and controlled” in another jurisdiction (e.g., Bermuda). This allowed the Irish subsidiary to take on a hybrid structure i.e., located in Ireland but taxed in another jurisdiction. Non-resident Irish companies were only subject to Irish corporate tax and withholding tax on trading profits of their Irish affiliates. The US tax system, on the other hand, depends on the place of incorporation, rather than the place of management and control (Richter & Hontheim, 2013).

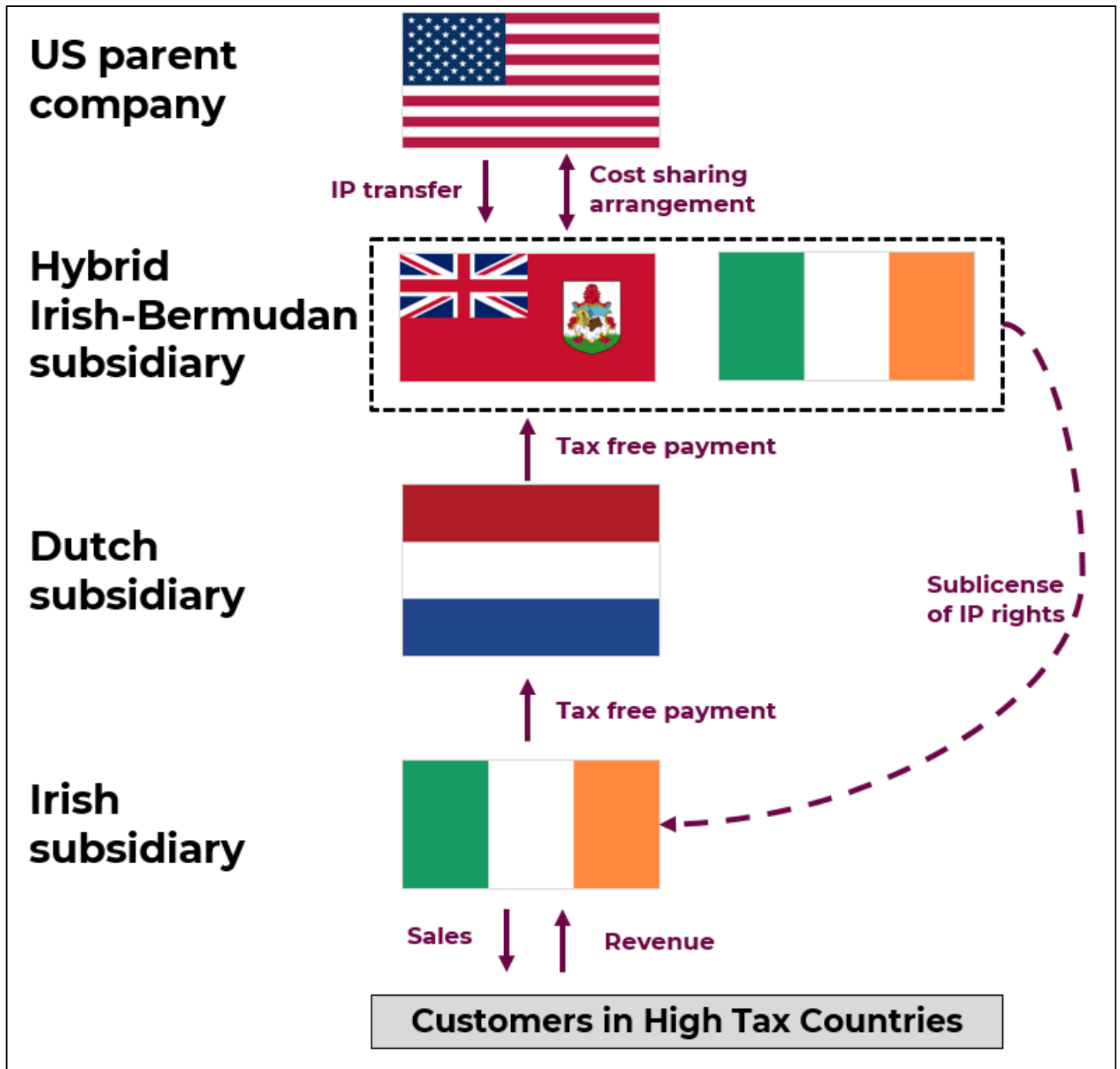
The steps used were often as follows:

- An Irish subsidiary would generate the majority of non-US revenue.
- The Irish subsidiary would further reduce its tax burden by reducing its income through royalty payments to another group company that had its registered office in the Netherlands.
- If payments were made directly from Ireland to Bermuda, a 20% Withholding Tax would be imposed.
- Tax free payments are possible between Ireland and the Netherlands.
- The Netherlands did not levy a withholding tax on license fee structures used by MNCs for tax planning. Payments could therefore be made from the Netherlands to Bermuda.
- Profits moved through the Netherlands on their way from Ireland to Bermuda (Richter & Hontheim, 2013).
- Repatriation tax holidays, such as the 2004 American Jobs Creation Act (AJCA), allowed US MNCs to bring home overseas profits at significantly reduced tax rates. Arguably, this incentivised US MNCs to build up cash overseas and wait for subsequent tax holidays before repatriation of additional foreign income.

The Double Irish arrangement was phased out during the period 2015-2019 and could no longer be used from 2020 onwards. Ireland changed its residency rules, requiring that any new company located in Ireland had to be tax resident in Ireland. This meant that income within Irish companies could no longer be taxed in a zero-tax jurisdiction (Barry, 2019).<sup>43</sup> See a diagram of the Double Irish arrangement below:

<sup>43</sup> Coffey (2021) ‘Why exaggerate when the reality is bizarre enough’ blog post. [URL: [economic-incentives.blogspot.com/2021/03/why-exaggerate-when-reality-is-bizarre.html](https://economic-incentives.blogspot.com/2021/03/why-exaggerate-when-reality-is-bizarre.html)]

Diagram of the Double Irish with a Dutch Sandwich arrangement

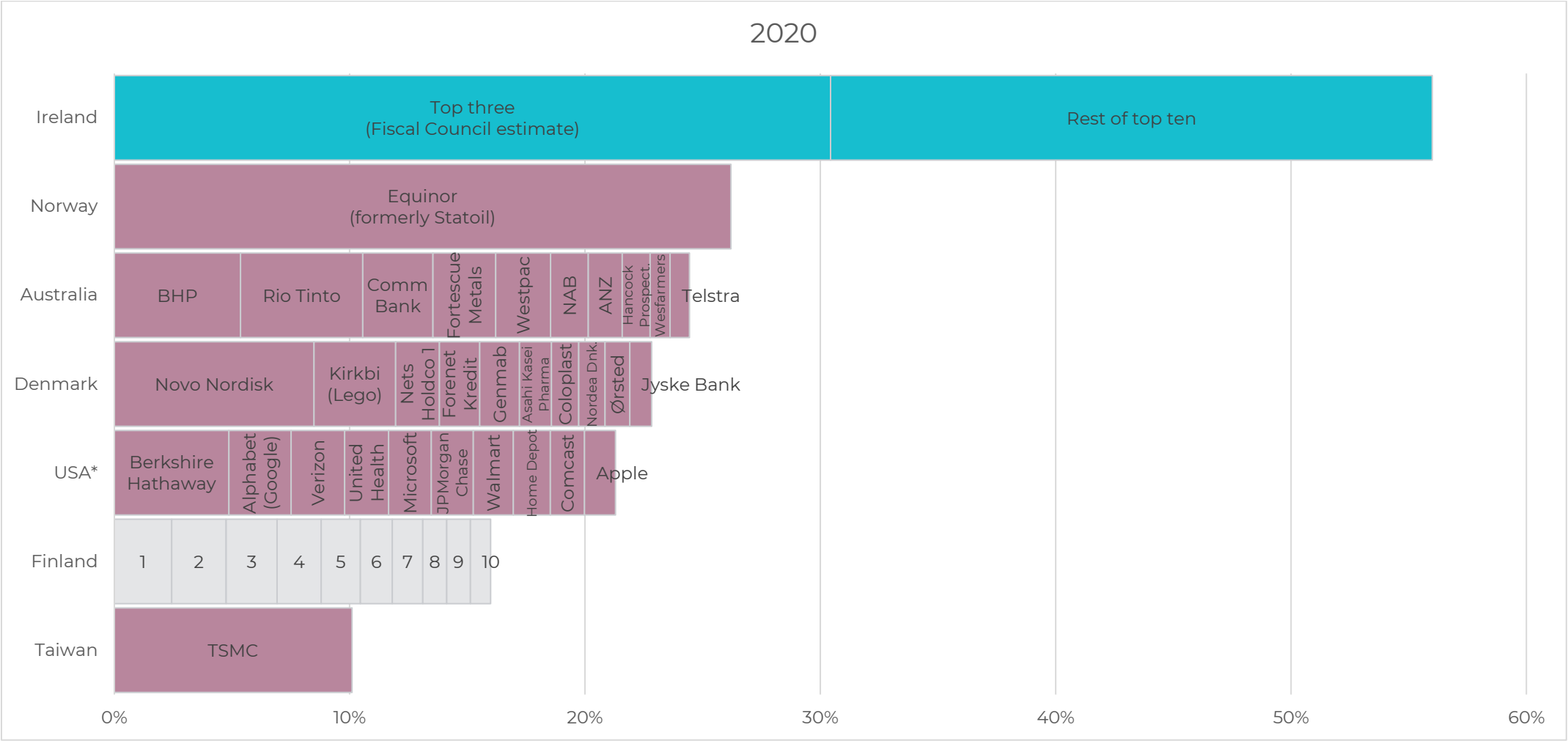


### Appendix 3. The 2017 US Tax Cuts & Jobs Act

The 2017 Tax Cuts & Jobs Act (TCJA) introduced many changes for both corporate and individual taxes. Domestically (in the US), the federal CT rate was cut from 35% to 21%. In relation to international tax, big changes in the taxation of the profits of MNCs were introduced. See a description of some of the main measures in the table below:

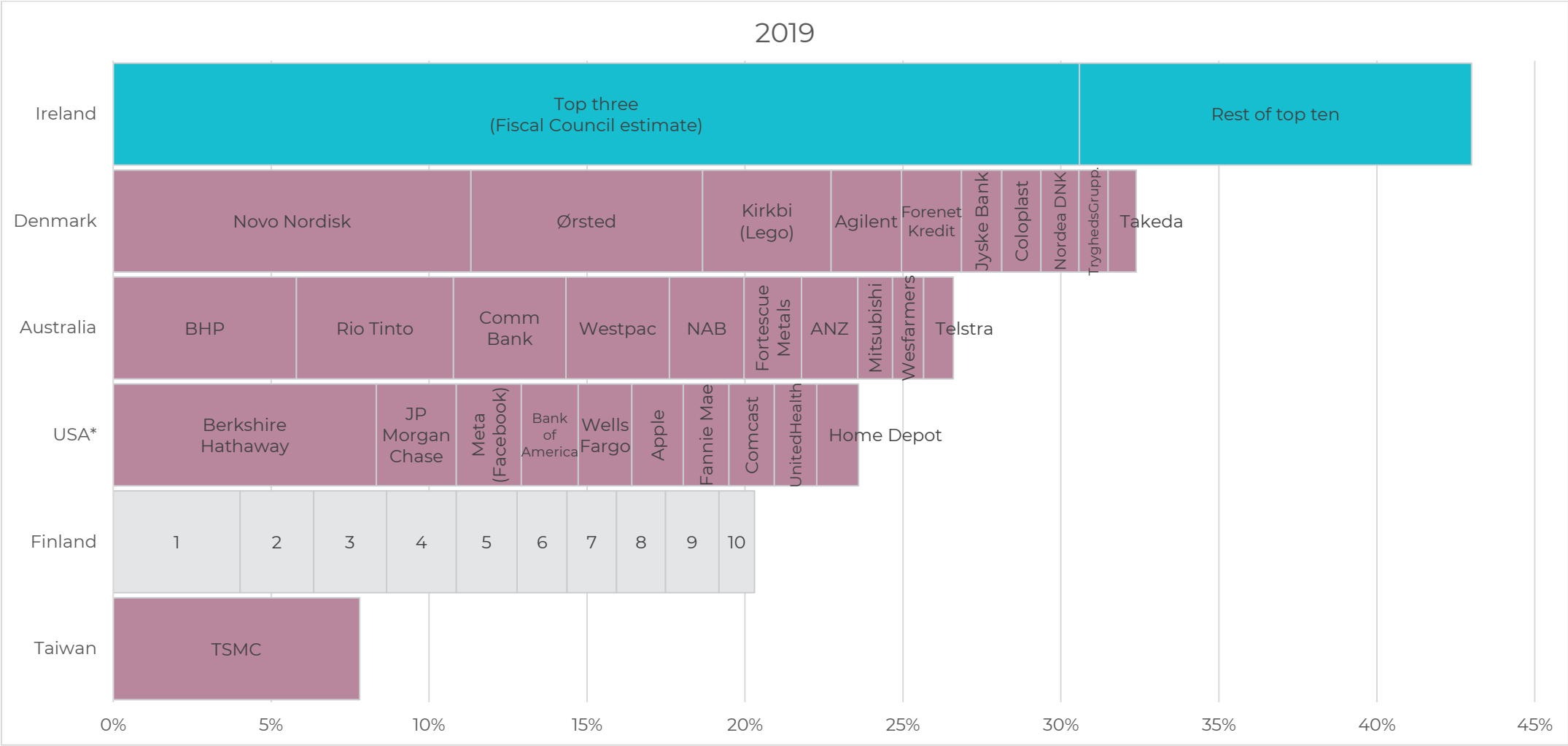
Measure	Description
<b>BEAT</b>	The Base Erosion and Anti-Abuse Tax (BEAT) discourages MNCs from shifting profits out of the US. It imposes a 10% minimum tax (increasing to 12.5% in 2025) on MNCs making base erosion payments to foreign related parties and disallows deductions for payments to foreign related parties in certain circumstances (Dharmapala, 2023), (Dowd, Giosa, & Willingham, 2020). The BEAT regime only applies to MNCs with gross revenue of over \$500 million per year (Kamin, et al., 2019).
<b>FDII</b>	Foreign-Derived Intangible Income (FDII) is a reduced tax on US-based earnings derived from foreign sales (Dowd, Giosa, & Willingham, 2020). It aims to incentivise US MNCs to book intangible related income in the US (Samuel, 2022). FDII assumes a 10% routine return on domestic tangible assets and defines any excess domestic return as intangible income (Huang, Osswald, & Wilson, 2023). Above this routine profit, a share of income from exports is taxed at 13.125% (which is much lower than the standard 21% CT rate), with the share being the ratio of intangible-related income to non-intangible-related income. The greater the income from exports, the greater the amount of income that gets the 13.125% rate. FDII may incentivise sales to sales to foreign manufacturers, rather than domestic firms in the US (Kamin, et al., 2019).
<b>GILTI</b>	Global Intangible Low-Taxed Income (GILTI) is a complex provision. It is tax on the foreign income of US MNCs. It assumes a 10% routine return on foreign tangible assets and any excess return is considered as intangible income, subject to GILTI tax (therefore GILTI may be encouraging US companies to hold more tangible assets overseas, as the first 10% return on assets is exempt from GILTI tax). The tax rate is 10.5% until 2026, when it increases 13.125%. A tax credit is given by the US authorities for 80% of foreign taxes paid, (Chodorow-Reich, Smith, Zidar, & Zwick, 2023). If the foreign tax paid exceeds 13.125%, no additional U.S. tax is due (Mintz, Global Implications of U.S. Tax Reform, 2018).
<b>Transition Tax</b>	To reduce the incentive to accumulate cash overseas, the TCJA abolished repatriation tax. Instead, it imposed a one-time transition tax on accumulated unremitted foreign earnings (Pflitsch, 2022).

Appendix 4: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2020 <sup>44</sup>



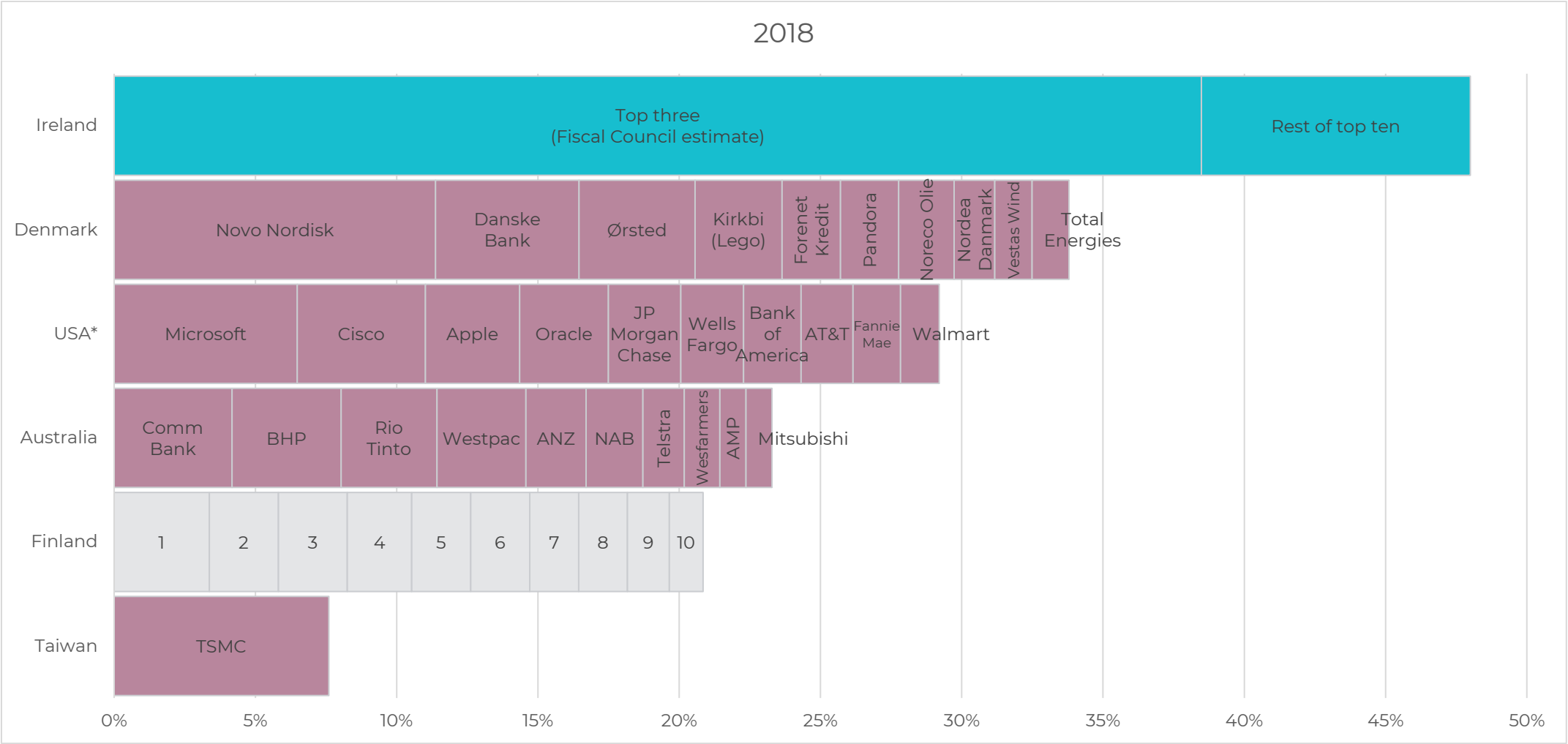
<sup>44</sup> Sources: Author's calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#). Info on top ten taxpayers - \*US figures are provisions for domestic tax from relevant Form 10-Ks (and are proxy indicative figures as they may not align with the US government's fiscal year), Australian figures (including subsidiaries) are from government [website](#), Danish figures from Danish authority [website](#), Norway [Equinor Tax Contribution Report September 2021], Ireland [Fiscal Council Fiscal Assessment Report December 2023 & McCarthy (2021)], and Finland [Yleisradio Oy - Finnish Broadcasting Company [article](#) 10/11/21] and Taiwan [TSMC 2020 Corporate Social Responsibility Report].

Appendix 5: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2019 <sup>45</sup>



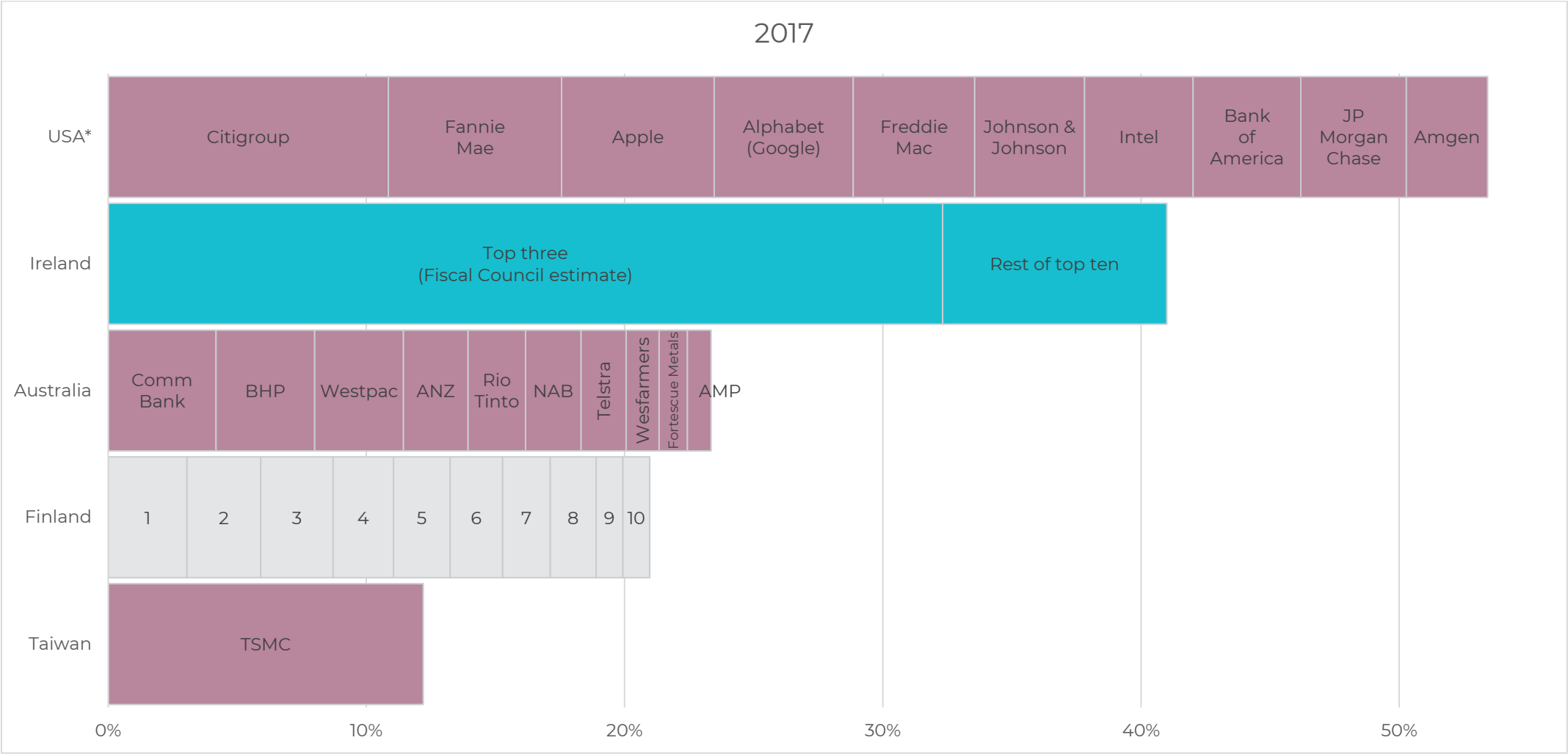
<sup>45</sup> Sources: Author’s calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#). Top ten taxpayer info - \*US figures are provisions for domestic tax from relevant Form 10-Ks (and are proxy indicative figures as they may not align with the US government’s fiscal year), Australian figures (including subsidiaries) are from government [website](#), Danish figures from [Danish tax authority](#), Ireland [Fiscal Council Fiscal Assessment Report December 2023 & McCarthy (2020)], Finland [Yleisradio Oy - Finnish Broadcasting Company [article](#) 3/11/20] and Taiwan [TSMC 2019 Corporate Social Responsibility Report].

Appendix 6: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2018<sup>46</sup>



<sup>46</sup> Sources: Author’s calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#). Info on top ten taxpayers - \*US figures are provisions for domestic tax from relevant Form 10-Ks (and are proxy illustrative figures as they may not align with the US government’s fiscal year), Australian figures (including subsidiaries) are from government [website](#), Danish figures from [Danish tax authority](#), Ireland [Fiscal Council Fiscal Assessment Report December 2023 & McCarthy (2019)], Finland [Yleisradio Oy - Finnish Broadcasting Company article 4/11/19 ‘Metsäyhtiö UPM kipusi suurimmaksi yhteisöveron maksajaksi – pankit tipahtivat kärjestä’] and Taiwan [TSMC 2018 Corporate Social Responsibility Report].

Appendix 7: Estimated share of total Corporation Tax receipts paid by the top ten largest corporate taxpayers/groups in 2017<sup>47</sup>



<sup>47</sup> Sources: Author’s calculations as well as total CT paid figures from OECD [Details of Tax Revenue](#). Info on top ten taxpayers - \*US figures are provisions for domestic tax, net of current income tax expense and deferred income tax expense, from relevant Form 10-Ks (and are proxy indicative figures as they may not align with the US government’s fiscal year), Australian figures (including subsidiaries) are from government [website](#), Ireland [Fiscal Council Fiscal Assessment Report December 2023 & McCarthy (2019)], Finland [Yleisradio Oy - Finnish Broadcasting Company article 1/11/18 ‘Pankit nousivat Suomen suurimmiksi yhteisöveron maksajiksi – OP:n työntekijä ei haluaisi olla töissä veroilla kikkailevassa yrityksessä’] and Taiwan [TSMC 2017 Corporate Social Responsibility Report].