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Tax avoidance by small multinationals as a side effect of anti tax avoidance policy

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Abstract

The OECD's Base Erosion and Profit Shifting (BEPS) initiative, adopted in 2015, introduced country-by-country reporting (CbCR) obligations for multinational groups with consolidated turnover above €750 million. This paper examines whether the reform generated unintended behavioral responses among smaller firms below the reporting threshold. Using firm-level data on French multinationals from OFATS, FARE, and DIANE (2007, 2009, 2014–2022), we estimate difference-in-differences models in a linear probability framework with firm and year fixed effects. We focus on restructuring at the extensive margin, distinguishing entry into and exit from tax-haven jurisdictions. Firms below the threshold significantly increase their probability of opening tax-haven affiliates after 2016, the year CbCR started to be enforced in Europe, while larger firms become more likely to exit. The results are robust to alternative tax-haven definitions and to excluding firms near the cutoff. Heterogeneity analyses show that the post-reform entry in tax havens is concentrated among financially structured small MNEs. Overall, the findings suggest that targeted transparency reforms can reallocate tax-haven activity across the firm size distribution rather than uniformly reduce it.

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1 Introduction

The phenomenon of corporate tax avoidance (CTA) has taken on unprecedented proportions over the last three decades, in line with the global expansion of value chains and multinational enterprises. MNEs have increasingly exploited gaps in the international tax system to minimize their tax liabilities, and practices such as transfer pricing manipulation, the use of shell companies, and aggressive tax optimization have become widespread. Quite notably, Tørsløv et al. (2023) estimate that in 2015 alone, profits shifted to tax havens accounted for about 40% of worldwide foreign profits of multinational enterprises, corresponding to nearly $600 billion.

The 2010s marked a turning point in international anti–tax avoidance policies.In particular, in 2013, the OECD, supported by the G20, launched the Base Erosion and Profit Shifting (BEPS) Action Plan, a comprehensive global response to corporate tax avoidance. The plan outlined fifteen measures covering transfer pricing, fiscal transparency, and anti-abuse rules, including Country-by-Country (CbC) reporting and the alignment of profits with value creation. Following its formal adoption in 2015, the implementation of the Multilateral Instrument (MLI) between 2016 and 2018 enabled countries to rapidly revise bilateral tax treaties to incorporate BEPS standards. By 2018, more than one hundred jurisdictions were enforcing enhanced transparency measures.

Despite these advances, recent evidence suggests that CTA has continued to expand at the global level. In particular, Wier and Zucman (2022) show that over the period 2015–2019: (i) multinational profits grew faster than global profits, (ii) the share of profits booked in tax havens remained stable at around 37%, and (iii) the fraction of global corporate tax revenue lost due to profit shifting increased from 9% to 10%. This persistence gives rise to a paradox: despite intensified international regulation, no substantial decline in CTA practices has yet been observed.

In this paper, we investigate one possible explanation for this paradox by exploring the diffusion of CTA practices along their extensive margin, particularly among small multinational enterprises . Our central hypothesis is that anti–tax avoidance regulation may have reduced informational asymmetries across firms, thereby enabling smaller MNEs to catch up with their larger counterparts in tax planning capabilities.

We first emphasize that the BEPS framework was explicitly designed to target large multinational groups. Under Action 13, a reporting threshold of 750 million euros in consolidated turnover was introduced to focus compliance obligations on large firms. This stratified approach is also reflected in the French implementation of BEPS. In France, the Finance Act for 2016 notably

introduced country-by-country reporting obligations for multinational groups with consolidated worldwide turnover above €750 million, while transfer pricing documentation requirements were reinforced under Articles L13 AA and L13 AB of the French Tax Procedures Code. Another channel through which BEPS may have asymmetrically affected firms relates to the clarification and codification of acceptable tax practices. Actions 8 to 10 provide detailed guidelines for transfer pricing based on functions, assets, and risks (FAR), including standardized methodologies such as the Comparable Uncontrolled Price and Cost-Plus methods. These provisions reduce the technical expertise required to engage in compliant tax planning. Similarly, standardized advance pricing agreements under Action 14 facilitate proactive engagement with tax authorities. In this paper, we advance the hypothesis that differentiated enforcement across large and small firms, combined with greater regulatory clarity, may have lowered the barriers to CTA practices and thereby enabled smaller, less experienced firms to adopt strategies that were previously concentrated among large MNEs. We anchor this hypothesis in two complementary theoretical traditions. First, we draw on the general-equilibrium model of tax competition with firm heterogeneity developed by Krautheim and Schmidt-Eisenlohr (2011), which underscores the role of fixed costs in offshore investment decisions. Second, we build on the evolutionary framework proposed by Biondo et al. (2022), which emphasizes imitative behavior under uncertainty. Together, these perspectives imply that smaller firms, facing greater informational frictions, may respond more strongly to regulatory clarification.

To evaluate this hypothesis, we assemble a comprehensive panel of French multinational enterprises using administrative and statistical data from INSEE and the French Tax Administration, accessed through CASD, and combine these sources with firm-level information from the DIANE database published by Moody's. Our data cover the universe of French MNEs over the period 2014–2022. We identify foreign affiliates using INSEE's firm-level OFATS survey, and we classify foreign locations as tax havens based on the recent taxonomy proposed by Gravelle (2022)[1]. We then relate this information to firm-level characteristics, focusing in particular on the sophistication of firms' financial structures. Specifically, using DIANE, we observe as of 2021 whether firms report consolidated accounts and whether they are majority-owned by a financial shareholder. We define as "structured" MNEs those displaying consolidated accounts and/or majority financial ownership.

Our empirical strategy unfolds in two complementary steps. We begin by examining the cross-sectional correlates of tax-haven exposure among small multinational enterprises, with particular attention to whether ownership structure and accounting organization are associated with the pres-

[1]See Appendix A for details.

ence of affiliates in tax-haven jurisdictions. More specifically, we test whether small MNEs that display features commonly associated with greater organizational sophistication—such as financial ownership links and the use of consolidated accounts—are also more likely to engage in tax-haven activity. We then turn to a causal framework and implement a difference-in-differences design to evaluate whether the post-BEPS policy environment had heterogeneous effects across firms, and in particular whether it disproportionately reshaped the behavior of small but more structured multinational groups.

Our results point to three main findings. First, we document a persistent rise, beginning after 2016, in the probability that small MNEs establish affiliates in tax-haven jurisdictions, while large MNEs become comparatively more likely to exit or scale back their presence in those locations. This pattern is consistent with a reallocation of tax-haven activity away from the largest firms—those most directly exposed to the new reporting and compliance framework—and toward smaller multinationals. Second, within the population of small firms, tax-haven expansion is not randomly distributed: it is more strongly associated with firms characterized by financial ownership structures and by the existence of consolidated accounts, suggesting that even below the formal reporting threshold, some firms possess the internal capabilities needed to adopt sophisticated cross-border tax strategies. Third, the BEPS reform appears not simply to coincide with these patterns, but to have intensified them. The post-reform period is associated with a stronger take-up of tax-haven-related organizational practices among small firms, especially among those with more developed financial and organizational structures, indicating that firm heterogeneity is central to understanding how anti-avoidance regulation reshapes the geography of multinational activity.

These results contribute to the literature on corporate tax avoidance by highlighting the role of firm size and organizational complexity. While previous studies emphasize the dominant role of large firms (Gumpert et al., 2016; Davies et al., 2018; Martin et al., 2023; Kubick et al., 2015), our findings suggest that CTA is increasingly diffusing among smaller MNEs. More broadly, our results speak to the literature on firm responses to regulatory environments (Almunia and Lopez-Rodriguez, 2018; Al-Karablieh et al., 2021). They suggest that enhanced regulatory clarity may inadvertently facilitate aggressive tax practices among less experienced firms.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 presents the theoretical underpinning of our research hypothesis. Section 4 describes the

data. Section 5 reports the empirical results. Section 6 concludes.

2 Related literature

The literature on CTA practices is structured around two main strands. The first seeks to quantify the phenomenon. The second examines how firms respond to various tax incentives and anti-tax-evasion policies.

Turning first to the quantification of CTA practices, it is well known that such measurement poses significant methodological challenges, although recent work has partly overcome them (Bolwijn et al., 2018; Clausing, 2016; Crivelli et al., 2016; Holzner et al., 2021). This literature shows that these practices have grown rapidly since the early 1980s, driven by the increasing globalization of firms and the liberalization of financial markets. In particular, Tørsløv et al. (2023) estimate that in 2015, $600 billion in excess foreign profits were funneled into tax havens, implying that tax avoidance affected at least 5% of total global corporate profits that year[2]. This estimate is consistent with earlier OECD estimates according to which between 4% and 10% of corporate tax revenues are lost annually due to such practices (see OECD, 2017), as well as with earlier contributions by Crivelli et al. (2016), who estimate that global tax revenue losses due to tax avoidance amount to roughly 4% of global GDP, and Cobham and Janskỳ (2017), who estimate losses of approximately 3.8%. Since the 2010s, CTA practices appear to have stabilized at high levels, with tax revenue losses approaching 10% of total global tax revenues between 2015 and 2019 (Wier and Zucman, 2022). This latter contribution is the first to emphasize the paradox that these persistently high losses coexist with the implementation, during the 2010s, of internationally coordinated anti-tax-evasion policies, especially the BEPS initiative, which should in principle have contained the phenomenon, at least since 2015.

Another way to quantify CTA practices is to examine the dynamics of tax havens. In this respect, the literature has clearly established the pivotal role that tax havens play in the broader landscape of tax avoidance. These jurisdictions, characterized by fiscal opacity and regulatory flexibility, offer MNEs opportunities to relocate profits away from high-tax countries (Hines Jr and Rice, 1994). The manipulation of intangible assets, such as patents, is a common practice, with profits from these assets often concentrated in tax havens, thereby depriving higher-tax jurisdictions

[2]Global gross value added that year was around $75 trillion, with corporate profits contributing approximately $11 trillion. Of this amount, 15% of global corporate profits, or $1.7 trillion, was attributed solely to multinationals.

of significant revenue. Over time, the list of tax havens has evolved, with the OECD identifying 35 jurisdictions as tax havens in the early 2000s. By 2021, international pressure had reduced this number to nine, with countries such as Switzerland and the Bahamas implementing reforms to exit the blacklist. However, despite these efforts, jurisdictions offering tax advantages remain numerous, and recent lists based on alternative sources rather than on the official classifications used by international institutions still identify as many as 50 active tax havens in the early 2020s.[3]

A part of this literature focusing on the French context shows that the scale of tax avoidance is particularly significant in France. Vicard (2015) estimates that the manipulation of transfer prices in 2008 resulted in a 10% shortfall in corporate tax revenue, corresponding to approximately €9 billion. By 2015, this figure had increased, with around €36 billion in untaxed profits, representing nearly 2% of France's GDP that year (Vicard, 2023). According to these estimates, the missing profits amounted to €36 billion in 2015, substantially reducing corporate tax revenues and highlighting the fiscal challenges posed by profit shifting in a globally interconnected economy. In terms of tax-haven presence, Laffitte et al. (2019) show that in 2016, while only 1.4% of French corporate groups[4] had a presence in tax havens, these groups belonged to the largest corporate groups in France, as they accounted for 39% of total French employment and contributed 30.2% of corporate tax revenues collected from French groups that year[5].

Turning now to the second strand of the literature, namely the microeconomics of tax avoidance, the literature has shown that transfer pricing (hereafter TP) is a critical mechanism through which MNEs optimize their global tax liabilities while formally complying with international regulations. TP refers to the process of determining the prices at which goods, services, or intangible assets are transferred between subsidiaries of the same enterprise. While these practices may be justified by the underlying business activities of MNEs, a broad literature shows that TP has become a central tool in the tax-minimization strategies of multinational firms (Rugman and Verbeke, 2004; Fuest et al., 2019). Beyond TP practices, other CTA strategies include cost-sharing agreements, contract manufacturing, profit transfers through inflated intra-group interest payments, and the strategic

[3]These lists, especially the one proposed by Gravelle (2022) on which this study relies, are presented in more detail in the data section.

[4]Namely, all French groups, including both purely domestic groups and internationalized ones.

[5]Note that the estimates by Laffitte et al. (2019) are based on the tax-haven list of Dharmapala and Hines (2009), which omits a large share of conduit destinations used by French firms for tax avoidance. In particular, this list excludes certain European jurisdictions such as the Netherlands, Ireland, and the United Kingdom. Consequently, the computations by Laffitte et al. (2019) offer only a partial view of the extent to which French multinational firms engage with tax havens. By contrast, Vicard (2019) show that tax havens such as Luxembourg and Switzerland alone account for one-third of profit shifting by multinationals operating in France, while large European conduit countries, including the United Kingdom and the Netherlands, account for another third.

location of intangible assets such as patents in favorable tax environments (Dischinger and Riedel, 2011). Treaty shopping, that is, the exploitation of tax treaties to benefit from lower withholding taxes, also plays a significant role (Beer et al., 2020). Focusing on the French context, Ramirez and Vicard (2025) provide systematic evidence on the relative importance of the different profit-shifting instruments used by French MNEs. They find that TP is quantitatively dominant, accounting for €10 billion in missing profits in France in 2018 (0.4% of GDP), while two other channels—the location of intangible assets in tax havens and intra-firm debt used to exploit the tax deductibility of interest payments—account for €6 billion and €2 billion, respectively.

As regards the relationship between firm size and CTA practices, the micro-oriented literature establishes that large companies are much more likely to adopt CTA practices than small firms (see in particular Desai et al., 2006; Clifford et al., 2025). However, recent contributions show that smaller firms are becoming more aggressive in their tax-optimization strategies (Almunia and Lopez-Rodriguez, 2018; Al-Karablieh et al., 2021). For instance, Almunia and Lopez-Rodriguez (2018) show that small firms often manipulate reported revenues—sometimes reducing them by up to 40%—or strategically bunch below thresholds for stricter tax enforcement in order to minimize their liabilities. These behaviors are particularly evident in sectors with greater transaction traceability, where firms exploit gaps in monitoring efforts.

This literature also shows how adaptive and agile firms can be in exploiting changes in the international tax environment, in a context in which countries frequently revise their tax systems to attract foreign investment. Once again, the earliest evidence of these adaptive behaviors was provided for large listed companies. For instance, Davies et al. (2018) show that multinational enterprises strategically adjust transfer prices in response to changes in tax rates, either overestimating or underestimating intra-group transaction prices in order to shift profits to jurisdictions with lower tax rates. Similarly, firms also adapt transfer prices to mitigate the impact of changes in trade tariffs, with higher tariffs leading to an immediate increase in intra-group transfer prices for goods (Swenson, 2001). These behaviors illustrate the remarkable adaptability of multinationals seeking to maintain their competitive edge under changing regulatory and fiscal conditions. They also highlight the role of negotiated tax rulings in enhancing the capacity of MNEs to navigate these complexities (Huesecken and Overesch, 2019).

The reactions to anti-avoidance rules further illustrate the adaptability of large MNEs. These firms may restructure their ownership structures in order to avoid triggering CFC rules and, in some

cases, reduce equity stakes in foreign subsidiaries below the threshold that would subject them to taxation while still maintaining operational control through other means (Prettl and von Hagen, 2018; Tørsløv et al., 2023).

The OECD's CbC reporting initiative has also prompted large MNEs to shift investments away from well-known tax havens and toward more compliant jurisdictions that offer less aggressive, but still favorable, tax regimes. Doeleman et al. (2024) summarize the limited empirical evidence on the effectiveness of CbC reporting in curbing profit shifting by European MNEs. Interestingly, this emerging literature relies on event-study designs that compare various profit- and tax-related outcomes for affiliates belonging to MNEs subject to CbC reporting legislation with the same outcomes for comparable affiliates that remain untreated by the legislation. In this empirical strategy, the €750 million consolidated-turnover threshold provides a clear cutoff between the two groups of firms. For example, Simone and Olbert (2022) use this size threshold in a regression-discontinuity design to show that firms above the threshold tend to shift capital and labor toward countries with preferential tax regimes while closing affiliates in tax havens. Doeleman et al. (2024) use a staggered difference-in-differences design to show that firms above the size threshold tend to substitute profit shifting from high-tax to low-tax countries for profit shifting from low-tax countries to tax havens. According to these authors, this asymmetric response by large MNEs may help explain the mixed findings of earlier studies on the effect of CbC reporting on the effective tax rates of large multinationals.

Contrasting with the accumulated evidence on large MNEs, very little is known about the behavior of small firms and how they respond to anti-tax-avoidance policies. A notable exception is Lawless et al. (2015), who show that small MNEs are also involved in CTA practices and in fact exhibit a high sensitivity to corporate tax rate differentials. Their study is based on a dataset covering 3,238 newly established foreign affiliates of multinationals from different source countries across 26 European countries between 2005 and 2012. Lawless et al. (2015) interpret their results as indirect evidence that smaller firms respond strongly to variations in effective average tax rates (EATR) when making location decisions for their foreign affiliates. Specifically, their marginal-effects analysis indicates that a one-percentage-point increase in the EATR is associated with a stronger reduction in the probability that small firms select a given location. By contrast, larger firms, while still demonstrating tax sensitivity, appear to have greater flexibility in structuring tax-efficient operations. Their results suggest that large firms are better able to absorb tax costs

or reallocate taxable profits through more complex corporate arrangements, thereby reducing the direct impact of host-country tax rates on their location decisions.

Overall, these findings challenge the traditional view that tax avoidance strategies are primarily the domain of large multinational enterprises and underscore the importance of considering firm size in the study of international tax avoidance behavior. Small MNEs engage in tax-motivated location choices, although in ways that may differ from the profit-shifting strategies more commonly associated with larger corporations. They are also highly responsive to tax incentives and tax differentials, albeit under constraints and through mechanisms that may differ from those affecting larger firms. Against this background, our paper provides new insights into the comparative behavior of large and small French MNEs by analyzing their extensive-margin decisions to enter into or withdraw from tax-haven jurisdictions worldwide, rather than focusing only on European locations. To our knowledge, this paper is among the first to document the characteristics of small French MNEs engaging in CTA practices and to examine how the BEPS framework reshaped their incentives to adopt such strategies.

3 Theoretical background

Our main theoretical premise is that small and large MNEs do not face the same incentives to engage in CTA practices and are not affected in the same way by anti-tax-avoidance policies.

This premise is first grounded in models of monopolistic competition, firm heterogeneity, and trade that feature fixed costs of internationalization[6]. In these models, individual firms optimally choose their internationalization strategy depending not only on the competitive environment they face, but also on their idiosyncratic characteristics. For instance, only firms with sufficiently high productivity are able to bear the cost of entering export markets, while less productive firms remain domestic (Melitz, 2003). Similarly, self-selection based on productivity is a key driver of the decision to invest abroad when the cost of setting up a foreign affiliate is fixed (Helpman et al., 2004). Beyond productivity, these models emphasize other dimensions of firm heterogeneity that can play a key role in shaping firms' internationalization strategies, among which firms' network histories (Chaney, 2014), the structural properties of firms' ownership and affiliate networks (Joyez, 2017), and managerial expertise (Bloom et al., 2021) have been particularly emphasized.

Extending the theoretical framework of firm heterogeneity and trade, Krautheim and Schmidt-

[6]See Antràs and Yeaple (2014) for an overview.

Eisenlohr (2011) study firms' heterogeneous responses to tax competition across countries. In a general-equilibrium model of a world economy composed of a large country and a tax haven, they predict that larger firms are more likely to use tax-haven operations to exploit international tax differentials than smaller firms. Indeed, while the fixed cost of opening an affiliate in the tax haven is the same for all firms, the gains from profit shifting depend on the level of profits a firm earns. In line with the standard self-selection mechanism operating in monopolistic-competition frameworks, only the most productive (and thus largest) firms shift profits in equilibrium, while less productive firms continue to pay taxes at home.

Krautheim and Schmidt-Eisenlohr (2011) use their model to determine the welfare impact of tax competition between the large economy and the tax haven, as their framework allows them to derive the pure-strategy Nash equilibrium of the tax game when both countries set their tax rates non-cooperatively. In doing so, they emphasize the role of the fixed costs of profit shifting. When these fixed costs decrease, it becomes less costly for firms to shift profits, a force that could allow smaller firms to establish an affiliate in the tax haven. However, in the general-equilibrium framework, this force is offset by the response of the large-country government, which optimally sets a lower tax rate, thereby making profit shifting less profitable for firms. In equilibrium, these two effects exactly offset each other, and both the fraction of firms shifting profits and the fraction of profits shifted abroad remain constant. Nevertheless, social welfare declines in the large country because equilibrium tax revenues fall as a result of the lower tax rate applied to a constant tax base.

As we will see, French data support the prediction that large firms have a higher propensity to establish affiliates in tax havens than smaller firms. However, our data do not support the prediction that the fraction of firms shifting profits abroad remains constant over time. On the contrary, French data exhibit a steadily increasing proportion of firms establishing affiliates in tax havens over our period of observation.

To reconcile this empirical evidence with economic theory, one can invoke plausible sources of distortion that may explain why equilibrium outcomes depart from those predicted by the friction-less general-equilibrium framework of Krautheim and Schmidt-Eisenlohr (2011).

First, stickiness in tax regimes can limit governments' ability to adjust their tax rates optimally. In that case, if the large country does not reduce its tax rate in response to a fall in the fixed cost of shifting profits, the number of firms shifting profits would increase in the new equilibrium, and

tax revenues would fall even more than under the equilibrium with an optimal tax response by the public authorities.

Second, in a complex tax environment characterized by (i) uncertainty about the risk of being audited, (ii) fixed costs of insuring against this risk through reliance on expensive tax consulting services, and (iii) anti-tax-avoidance instruments that extend beyond the setting of optimal tax rates, the optimal responses of small and large firms may differ. Depending on these parameters, the gap between the propensities of large and small firms to establish affiliates in tax havens could either widen or narrow, especially if the tax-compliance environment becomes relatively more favorable to small firms than to larger ones.

Finally, if uncertainty is sufficiently high, firms may develop imitative rather than fully optimizing behaviors. Especially when the competitive environment is intense, firms may observe and replicate the tax strategies of their peers or align themselves with perceived industry norms (Hanlon and Heitzman, 2010; Biondo et al., 2022). Such mimicry goes beyond simple replication, as firms actively assess the practices of their reference group and adapt their own strategies accordingly, creating a dynamic process of convergence within sectors. This process can lead to the emergence of informal sectoral standards in tax optimization (Dupuy and Scubla (1992); Bosco and Mittone (1994)).

In this paper, we build on these theoretical premises to formulate the research hypothesis that the regulatory framework introduced by the BEPS initiative in 2015 may have unintentionally promoted CTA practices among small firms. Our reasoning is as follows. First, by introducing explicit size thresholds to regulate transfer-pricing activities, this policy may have allowed smaller firms to better assess which CTA practices they could afford without incurring the substantial risk of audit and sanction by tax authorities. Second, by shedding more light on the CTA practices of large MNEs, anti-tax-avoidance policies may have created a new channel through which less experienced small firms could effectively imitate the CTA practices of their larger counterparts.

4 Data

4.1 data sources

In this study, we combine several micro-level datasets on French multinational enterprises (MNEs). Our main source is the Outward Foreign Affiliates Statistics (OFATS) database compiled by INSEE, which provides detailed information on French parent (head of group) firms and their foreign affiliates. Using this source, we identify the majority-owned foreign affiliates of French-controlled groups for the initial pilot OFATS wave in 2007, the second wave in 2009, and the annual waves from 2014 to 2022. The OFATS database allows us to merge affiliate-level information, including host country location, with parent-level characteristics such as industry affiliation, number of foreign subsidiaries, and French and worldwide employment. The major information OFATS provides us with is the consolidated turnover of French global groups, allowing us to identify those above the 750 million euros threshold, impacted by OECD's CbCR reform, and those below it.

We complement these data with firm-level accounting information from the INSEE–FARE database, which is constructed from exhaustive administrative and statistical sources. FARE provides comprehensive balance-sheet and income-statement information on French firms, including detailed measures of output and input, which enable us to classify firms by size and to compute indicators of economic performance.

Finally, we enrich our dataset with financial and ownership information from the DIANE database, the French section of the ORBIS database maintained by Moody's. This source allows us to characterize corporate groups along two key dimensions: the presence of financial shareholders and the existence of consolidated accounts.

To identify tax haven jurisdictions, we rely on the list recently compiled by Gravelle (2022). This list is constructed using a systematic methodology that combines official sources with independent assessments of financial secrecy and profit-shifting activities. It builds on the OECD's 2000 list of low-tax and non-cooperative jurisdictions, as well as on the European Union's blacklists and greylists introduced in 2017, which focus on jurisdictions that do not fully comply with international standards, particularly those related to the Base Erosion and Profit Shifting (BEPS) initiative.

Gravelle (2022) emphasizes that official lists tend to omit several influential jurisdictions that, despite formal compliance, continue to facilitate tax avoidance through regulatory arbitrage and financial opacity. To address these omissions, he draws on alternative sources, including the Tax

Justice Network's Financial Secrecy Index, reports from the U.S. Government Accountability Office, and data from the Internal Revenue Service. These sources highlight jurisdictions that remain attractive for profit shifting because of favorable corporate regulations and weak transparency requirements.

Moreover, Gravelle (2022) argues that political and economic considerations contribute to the exclusion of major financial centers such as Switzerland, Luxembourg, Delaware, and the City of London from many official blacklists. Despite their central role in global tax avoidance networks, these jurisdictions are often shielded from explicit designation as tax havens. By integrating these locations into his classification, Gravelle (2022) constructs an expanded list of approximately 50 tax havens, providing a more comprehensive representation of international profit-shifting structures.

4.2 Sample construction

Using data from the OFATS database, Table 1 documents the evolution of the internationalization of French multinational enterprises over the period 2007, 2009, and 2014–2022. Table 1 documents substantial variation over time in the scale and geographic scope of French multinational activity rather than a simple monotonic expansion. The number of French MNEs declines between 2007 and 2009, rises markedly by 2014, and then fluctuates around a lower plateau between 2015 and 2019 before increasing again in the early 2020s. A similar non-linear pattern emerges for the number of foreign affiliates: after a contraction in the late 2000s, affiliate counts recover by 2014, dip again in the mid-2010s, and subsequently rise, reaching levels in 2021–2022 comparable to or exceeding those observed before the mid-decade slowdown.

The geographic footprint, measured by the number of host countries, follows a broadly upward trend over the full period—from 93 countries in 2007 to 110 in 2022—despite intermittent contractions. Overall, the data point to cycles of consolidation and renewed expansion rather than uninterrupted growth. By the end of the sample, French multinationals operate in a wider set of destinations and control a large network of foreign affiliates, indicating a sustained international presence, albeit shaped by episodic adjustments over time.

We combine the OFATS database with the FARE database in order to incorporate detailed firm-level accounting and fiscal information. The match between OFATS and FARE is exact, as all multinational enterprises identified in OFATS are covered in FARE. This reflects the comprehensive nature of FARE, which is constructed from exhaustive administrative sources and provides complete

Table 1: The Dynamics of French Multinational Enterprises, OFATS Database, 2007–2022

Year	Number of MNEs	Number of Affiliates	Number of Countries
2007	1,636	14,268	93
2009	1,483	11,218	98
2014	2,191	13,387	107
2015	1,995	12,305	110
2016	1,586	11,217	98
2017	1,794	11,433	102
2018	1,743	11,822	98
2019	1,741	12,215	97
2020	1,832	13,164	108
2021	1,920	13,546	98
2022	1,844	13,527	110

Notes: This table reports the yearly annual number of French multinational enterprises (MNEs), their foreign affiliates, and host countries covered in the OFATS–FARE–ORBIS database. The year gap between 2010 and 2013 is due to OFATS data limitation. The number of affiliates corresponds to the total number of foreign subsidiaries held by French MNEs in each year.

accounting and fiscal information for French firms.

To characterize the structure of French multinational enterprises in our baseline dataset, we document the distribution of firms by size category, international footprint, and geographical coverage. Table 2 reports pooled statistics for the full OFATS–FARE sample.

Table 2: Large versus Small Multinational Enterprises, Pooled Years (Full Sample)

	Full Sample
Number of firm–year observations	19,765
Small MNEs	16,276
Large MNEs	3,489
Number of distinct firms	6,281
Small MNEs	5,746
Large MNEs	1,422
Number of host countries	160
Small MNEs	137
Large MNEs	143
Mean number of affiliates per firm	38.70
Small MNEs	15.26
Large MNEs	148.85

Notes: Large (small) MNEs are defined as firms with consolidated worldwide turnover above (below) 750 million euros. Firm size status is highly persistent over time: only 80 firms change status from small to large MNEs over the sample period. Pooled statistics may therefore involve repeated observations of the same firms.

Table 2 shows that the majority of French multinational enterprises are classified as small according to the consolidated turnover threshold. Small MNEs account for more than four-fifths of firm–year observations and for most distinct firms in the sample.

However, size differences translate into markedly different international footprints. Although large MNEs represent a minority of firms, they control substantially larger foreign networks. On average, a large multinational operates nearly ten times more affiliates than a small multinational (148.9 versus 15.3 affiliates per firm). This concentration of foreign affiliate ownership highlights the structural asymmetry between large and small groups in terms of global deployment.

In terms of geographical reach, both categories exhibit wide international coverage. Small MNEs collectively operate in 137 host countries, while large MNEs are present in 143 destinations. Overall, the full sample spans 160 host countries, illustrating the broad global exposure of French multinational activity.

Finally, we document the sectoral composition of French multinational enterprises. We group the French NAF industrial classification into three broad sectors: *Broad Manufacturing*, *Services*, and *Other activities*.

Table 3 reports the sectoral breakdown by year. The sectoral structure of French multinational enterprises is consistently dominated by services, which account for roughly 55–62% of firm–year observations over the period. Manufacturing represents between 35% and 44%, with moderate cyclical fluctuations, while other activities remain marginal (around 2–3%)

Table 3: Sectoral Composition of French Multinational Enterprises (Full Sample)

Year	Broad manufacturing (%)	Other (%)	Services (%)
2007	34.96	3.12	61.92
2009	38.17	3.57	58.26
2014	35.78	3.33	60.89
2015	44.21	2.76	53.03
2016	40.67	2.71	56.62
2017	41.53	2.29	56.19
2018	37.98	2.47	59.55
2019	36.99	2.35	60.65
2020	41.16	2.73	56.11
2021	37.45	2.50	60.05
2022	40.08	2.82	57.10

Notes: Sectoral shares are computed from firm–year observations after retaining one observation per firm and year. Firms are classified into Broad manufacturing, Services, and Other activities according to the French NAF nomenclature.

4.3 Descriptive statistics

We now turn to a comparative analysis of the economic weight of small and large multinational enterprises. To assess the relative importance of both groups, Table 4 reports their respective characteristics.

Table 4: Comparative Firm Characteristics by Size, Pooled Years

	Small MNEs			Large MNEs		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Employment in France	16,276	464.95	1,455.71	2,656	14,259.22	30,688.69
Value added (k€)	9,696	6,936.54	24,412.87	1,503	261,923	1,416,009
Total assets (k€)	12,384	88,778.05	345,212.50	1,975	7,563,115	21,300,000
Taxes paid (k€)	12,384	398.70	1,553.72	1,975	30,540.88	198,971.40
Effective tax rate	7,626	0.151	0.199	853	0.142	0.197
Firms declaring financial ownership	9,094	0.105	0.307	2,489	0.470	0.499
Firms declaring consolidated accounts	9,094	0.593	0.491	2,489	0.863	0.343

Notes: This table reports descriptive statistics for French multinational enterprises using the OFATS database. Large MNEs are defined as firms with consolidated worldwide turnover above 750 million euros. Value added, total assets, and taxes are expressed in thousands of euros. The effective tax rate is defined as the ratio of taxes to profits, trimmed to the interval [0,1]. Financial ownership and consolidated accounts are dummy variables.

Table 4 highlights substantial differences in scale and financial characteristics between small and large multinational enterprises. On average, small MNEs employ approximately 465 workers in France, whereas large MNEs employ more than 14,000 workers. This pronounced gap is also reflected in value added: large MNEs generate, on average, close to 262 million euros in value added, compared with about 6.9 million euros for small MNEs, implying a ratio of nearly 40 to 1. Similar disparities are observed for balance-sheet size and tax payments, confirming the markedly different economic scale of the two groups.

Consistent with this size gradient, we find that large MNEs face slightly lower effective tax rates than their smaller counterparts. The average effective tax rate of small MNEs is around 15%, compared with approximately 14% for large MNEs. Although moderate in magnitude, this difference is in line with existing evidence on heterogeneous corporate taxation in France, which documents systematic advantages for large firms (CPO, 2023)[7].

Marked differences also emerge in financial ownership and accounting practices. Financial shareholders are substantially more prevalent among large MNEs: nearly 47% of large firms declared to be majoritary-owned by a financial organization, compared with about 10% among small MNEs. Sim-

[7]The *Conseil des Prélèvements Obligatoires* (CPO) is a French institution affiliated with the French Court of Audit, in charge of assessing the economic, social, and budgetary impact of taxes and social security contributions and of formulating related policy recommendations.

ilarly, consolidated accounts are far more commonly declared among large groups, with more than 86% of them reporting consolidated statements, against roughly 59% among small MNEs. These patterns reflect the greater organizational complexity and financial integration of large multinational groups.

We complete this first comparative overview with a yearly evolution of total tax paid domestically (i.e. in France) by each head of group and their economic importance captured by their total Value Added. This additional evidence is reported in Table 5.

Table 5: Economic Weight of Small and Large MNEs (2014–2022)

Year	Total Taxes (thousands €)			Total Value Added (thousands €)		
	Small MNEs	Large MNEs	Share of Taxes by small MNEs (%)	Small MNEs	Large MNEs	Share of VA by small MNEs (%)
2014	859,002	7,571,152	10.19	13,000,000	70,300,000	15.61
2015	801,326	7,355,883	9.82	12,300,000	66,700,000	15.57
2016	446,726	6,331,273	6.59	7,358,774	51,500,000	12.51
2017	471,255	6,296,987	6.96	8,138,315	50,500,000	13.88
2018	516,519	6,466,001	7.40	8,566,013	53,700,000	13.76
2019	534,336	7,392,572	6.74	9,206,253	54,900,000	14.36
2020	526,800	7,186,992	6.83	8,668,705	46,100,000	15.83
2021	399,153	5,842,388	6.39	9,011,647	47,200,000	16.03
2022	382,364	5,875,002	6.11	8,546,306	22,400,000	27.62

Notes: Small (Large) MNEs are defined as firms with consolidated worldwide turnover below (above) €750 million. Shares are computed within the OFATS–FARE sample for each year.

Table 5 (*Economic Weight of Small and Large MNEs (2014–2022)*) documents a growing divergence between the economic weight and the fiscal contribution of small multinational enterprises. Over the period, the share of value added generated by small MNEs remains broadly stable—hovering around 13–16% between 2014 and 2021 —while their share of total tax revenues declines steadily, from about 10% in 2014 to slightly above 6% by 2021[8]. This decoupling between economic presence and tax contribution may reflect intensified use of tax optimization strategies among smaller firms. The temporal coincidence of this shift with the implementation of BEPS reforms makes the evolution particularly salient and warrants closer empirical investigation into the mechanisms underlying this divergence.

Taken together, these descriptive statistics underscore the deep structural heterogeneity between small and large MNEs in terms of scale, financial structure, and governance. This heterogeneity provides a natural basis for examining whether firm size conditions the response to international

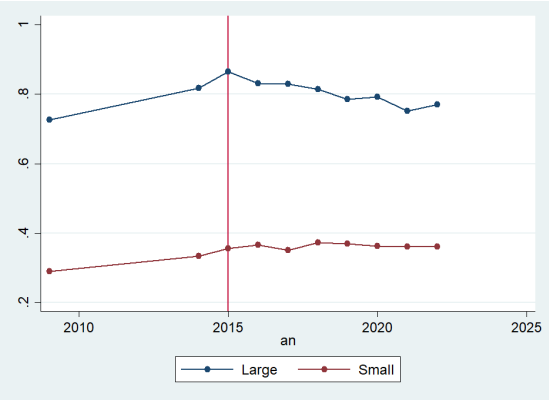
[8] Although the 2022 value-added figure appears unusually high and should be interpreted cautiously, the downward trend in the tax share is already clearly visible prior to this potential outlier.

anti–tax avoidance policies in the subsequent analysis.

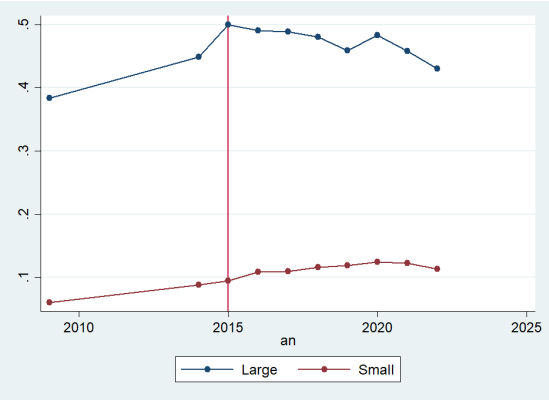
4.4 Firm frequency in tax havens

We now turn to compare the frequency of large MNEs versus small ones that are operating in tax havens. We do so by counting the number of firms which have an affiliate in at least one jurisdiction listed by Gravelle (2022) in any given year. Figure 1 displays these counts for the categories of small and large MNEs separately for each year of observation.

Figure 1: Evolution of Tax Haven Exposure and Ownership Structure among Small and Large MNEs



(a) Share of affiliates in tax havens and low-tax jurisdictions



(b) Share of affiliates located in "pure" tax havens

Notes: The vertical red line indicates the implementation of the BEPS Action Plan in 2015. The figures report yearly shares for small and large French multinational enterprises in the restricted OFATS sample.

Figure 1 documents a persistently high exposure of large multinational enterprises to traditional tax havens (THG, following Gravelle, 2022) throughout the observation period. The share of large MNEs connected to at least one THG jurisdiction rises from about 72.7% in 2009 to a peak of 86.4% in 2015, before declining gradually after 2017. By the end of the period, this share remains substantial, reaching approximately 77.0% in 2022. This moderate post-2017 decline coincides with the progressive implementation of the BEPS regulatory framework, although it does not translate into a major disengagement of large firms from tax-haven locations.

By contrast, small MNEs display a markedly lower but steadily increasing exposure to traditional tax havens. Their presence in THG jurisdictions rises from 27.0% in 2007 to 33.4% in 2014, and continues to increase thereafter, stabilizing around 36.0% between 2018 and 2022. In 2022, approximately 36.0% of small MNEs operate in at least one traditional tax-haven destination.

A sharper contrast emerges for pure tax havens (PureTHG), defined as jurisdictions characterized by very limited local market potential. Among large MNEs, exposure to these locations increases rapidly from 11.2% in 2007 to 50.0% in 2015, before declining gradually to about 43.0% in 2022. Over the same period, small MNEs remain much less present in a selection of "pure tax haven" jurisdictions, that is countries with a very low market power (see below section 7 with shares fluctuating between 7.7% and 12.4%. This pattern suggests that the use of highly specialized low-demand jurisdictions is largely concentrated among large corporate groups.

Finally, the figures indicate a strong association between tax-haven exposure and financial ownership. More than 80% of large MNEs with financial shareholders (THGI) are connected to tax-haven jurisdictions after 2014, compared with around 47–52% among small MNEs. In 2022, these shares amount to 82.6% for large firms and 49.0% for small firms, respectively. This highlights the role of financial investors and complex ownership structures in facilitating international tax planning.

Overall, these descriptive patterns indicate that large MNEs remain structurally embedded in traditional and pure tax-haven networks despite a moderate post-BEPS adjustment. At the same time, the gradual increase in exposure among small MNEs points to a diffusion of tax-planning practices across firm-size categories, reinforcing the relevance of firm size and ownership structure in shaping responses to international tax regulation.

These aggregate patterns conceal substantial heterogeneity across industries. Table 6 reports the average propensity of firms to operate at least one affiliate in a traditional tax-haven jurisdiction for the five largest sectors in our sample, defined as the sectors with the highest shares of multinational enterprises (see Appendix C for details).

Table 6: Share of Tax-Haven Affiliates by Sector and Firm Size

Sector	All Firms	Small MNEs	Large MNEs
Manufacturing (C)	35.2%	28.9%	65.6%
Wholesale and retail trade (G)	42.9%	38.4%	63.0%
Information and communication (J)	45.0%	40.6%	78.7%
Financial and insurance (K)	53.8%	45.9%	72.7%
Professional services (M)	40.9%	37.7%	66.5%

Notes: This table reports the share of foreign affiliates located in traditional tax-haven jurisdictions (THG) by sector and firm size. Percentages are computed within the restricted OFATS–FARE–DIANE sample. Large MNEs are defined as firms with consolidated worldwide turnover above 750 million euros.

Across the selected industries, the share of foreign affiliates located in tax-haven jurisdictions varies substantially across sectors. At the aggregate level, it ranges from 35.2% in "Manufactur-

ing" to 53.8% in the "Financial & insurance" industry. Intermediate values are observed in the "Wholesale & Retail" industry (42.9%), "Professional services" (40.9%), and the "Information and communication" industry (45.0%). A clear size gradient emerges across all sectors, with large MNEs systematically exhibiting higher tax-haven exposure than small MNEs. Among small firms, the share of tax-haven affiliates ranges from about 28.9% in "Manufacturing" to 45.9% in the "Financial & insurance" industry, while it reaches between 63% and almost 79% for large MNEs depending on the sector. The size gap is particularly pronounced in "Information and communication", where nearly 79% of affiliates of large firms are located in tax havens compared with about 41% for small firms. Even in sectors where the gap is narrower, such as the "Wholesale & Retail" industry , large MNEs still display a substantially higher tax-haven presence than their smaller counterparts.

Finally, we further explore the propensity of MNEs to be operating in a tax haven by discriminating firms according to our two key attributes, namely the presence of a financial shareholder in their ownership structure, and the existence of consolidated accounts. Table 7 displays this breakdown for the initial and final years of observation.

Table 7: Share of Firms with Affiliates in Traditional Tax Havens, 2014 and 2022

	2014		2022	
	Small MNEs	Large MNEs	Small MNEs	Large MNEs
All firms	33.42%	81.75%	36.03%	77.82%
With financial shareholder	47.31%	85.71%	48.57%	82.79%
With consolidated accounts	43.27%	84.90%	45.49%	79.79%
Structured groups	43.48%	85.05%	44.47%	80.19%

Notes: This table reports the share of firms with at least one affiliate located in a traditional tax-haven jurisdiction (THG) in 2014 and 2022, by firm size and organizational characteristics. Small MNEs correspond to firms with consolidated worldwide turnover below 750 million euros. Large MNEs correspond to firms above this threshold. Financial shareholder, consolidated accounts, and structured groups are defined using DIANE data.

Table 7 shows that firm-level organizational characteristics are closely related to the propensity of multinational enterprises to operate in traditional tax-haven jurisdictions. In particular, firms with a financial shareholder are substantially more likely to hold affiliates in tax havens than the average MNE, both in 2014 and in 2022. Among small MNEs, this share rises from 33.4% in the overall population in 2014 to 47.3% among firms with financial ownership, and from 36.0% to 48.6% in 2022. A similar pattern holds for large MNEs, whose exposure exceeds 85% in both years when a financial shareholder is present.

Turning to accounting practices, Table 7 indicates that firms reporting consolidated accounts are also more likely to be connected to tax-haven jurisdictions. In 2014, 43.3% of small MNEs with consolidated accounts operate in tax havens, compared with 33.4% in the overall population. This share increases further to 45.5% in 2022. Among large MNEs, the corresponding proportions remain close to 80% in both years. These patterns suggest that organizational complexity, as reflected in ownership and consolidation status, is strongly associated with international tax-haven exposure, especially among smaller multinational groups.

Overall, these descriptive statistics support our working assumption that our two key firm attributes are linked with internationalization strategies that are more tax-aggressive.

5 Empirical Strategy

Our empirical strategy is organized in two steps. We first evaluate the overall effect of the BEPS implementation on firms' tax-haven dynamics across the full sample of multinational enterprises (MNEs). We then investigate whether the response of small firms is driven by specific organizational characteristics related to financial structure. To do so we use the merged OFATS-FARE & Orbis Database. Although the matching is incomplete, with only 73% of OFATS French MNEs recovered, we believe the representativeness of the sample to be preserved as detailed in appendix B.

Throughout, the key distinction is between *small* and *large* firms, where a firm is classified as small if its annual turnover is below the €750 million threshold. This threshold corresponds to the scope of the BEPS reporting requirements and therefore defines the relevant treatment contrast.

5.1 Tax-haven entry and exit decisions

To identify the mechanisms underlying post-BEPS adjustments, we focus on firms' restructuring decisions at the extensive margin rather than on the stock of tax-haven affiliates. A stock variable conflates heterogeneous dynamics: an unchanged number of affiliates may reflect simultaneous entry and exit, and a small net change may conceal substantial gross reallocation. Because our hypothesis implies potentially asymmetric responses across firm size—large firms retrenching from tax havens while smaller firms might expand there, a net stock measure would obscure the underlying mechanisms.

We therefore construct two binary outcomes at the firm-year level: (i) $Enter_{it}$, equal to one if firm i increases its number of affiliates in tax havens in year t (i.e. opens at least one such affiliate),

and (ii) $Leave_{it}$, equal to one if firm i decreases its number of tax-haven affiliates (i.e. closes at least one affiliate there). These variables capture active organizational adjustments and allow us to separately identify expansion and retrenchment dynamics.

This distinction is central to our empirical design. If BEPS primarily constrained large multinationals, we should observe an increase in exit probabilities among firms above the reporting threshold. Conversely, if the reform lowered informational or organizational barriers for firms below the threshold, we should observe a relative increase in entry probabilities among smaller firms. Analyzing both margins therefore provides a sharper test of the reallocation hypothesis than a single stock measure, as it allows us to disentangle whether post-2016 dynamics reflect genuine retrenchment among large firms, expansion among small firms, or both simultaneously.

To assess the global effect of BEPS on firms' restructuring decisions, we estimate a Difference-in-Differences (DiD) model implemented as a linear probability model (LPM) with two-way fixed effects (TWFE). We first estimate a parsimonious specification including only firm and year fixed effects, and then augment it with time-varying firm-level controls. The baseline specification is:

$$Y_{it} = \alpha_i + \gamma_t + \beta_1 Small_i + \beta_2 (Small_i \times Post2016_t) + \beta_3 X_{i,t-1} + \varepsilon_{it}, \tag{1}$$

where Y_{it} is alternatively $Enter_{it}$ or $Leave_{it}$, $Post2016_t$ equals one for years from 2016 onward, $Small_i$ identifies firms below the €750 million threshold, $X_{i,t-1}$ is a vector of lagged firm-level characteristics capturing factors that may independently shape firms' internationalization and tax-planning strategies. Specifically, the vector of lagged firm-level controls includes: the logarithm of employment, measuring firm size in labor terms; the logarithm of the total number of foreign affiliates, capturing the overall degree of international organizational complexity; the logarithm of export revenues, proxying for foreign market exposure and trade intensity; the logarithm of firm age, reflecting accumulated experience and organizational maturity; and the firms' global inclination defined as the ratio of foreign affiliates to domestic affiliates.

All controls are measured at $t-1$ to mitigate simultaneity concerns and to ensure that firm characteristics precede the tax-haven restructuring decision observed at time t. At last, α_i are firm fixed effects, and γ_t are year fixed effects.

The coefficient of interest is β_2, which measures the differential change in the probability of entering (or leaving) tax havens for small firms relative to large firms after BEPS. Under our hypothesis, because BEPS primarily targets large multinationals, small firms may face weaker

scrutiny and therefore stronger incentives to expand into tax havens. Accordingly, we expect β_2 to be positive in the entry specification and negative in the exit specification: small firms should enter more and leave less relative to large firms in the post-2016 period.

To assess the dynamics of the adjustment and test the parallel-trends assumption, we complement the DiD estimates with an event-study specification in which the interaction between $Small_i$ and year dummies is estimated for each year, using 2016 as the reference category:

$$Y_{it} = \alpha_i + \gamma_t + \sum_{\tau \neq 2016} \theta_\tau \left(Small_i \times \mathbb{1}\{t = \tau\} \right) + \beta X_{i,t-1} + \varepsilon_{it}. \tag{2}$$

This specification allows us to verify that pre-treatment trends are parallel and to trace the year-by-year evolution of the differential response of small firms relative to large firms.

The entire sequence — TWFE without controls, TWFE with controls, and event study — is estimated separately for entry and exit decisions. We then replicate the same analysis using more restrictive definitions of tax havens, including the Dharmapala list and a narrower classification of "pure" tax havens (low-tax jurisdictions with limited market potential), in order to verify that results are not driven by classification choices. As an additional robustness check, we exclude firms with turnover very close to the €750 million threshold (e.g. between 720 and 780 million euros) to mitigate concerns about strategic manipulation around the cutoff.

5.2 Heterogeneity among small firms

In a second step, we focus exclusively on small firms and examine whether post-BEPS behavior is driven by those with more structured financial organization. We restrict attention to firms with no prior tax-haven settlement and concentrate on the entry margin, as exit decisions are mechanically limited in this subsample.

The specification remains a TWFE model, but instead of interacting size with the post-2016 indicator, we interact financial-structure indicators with the post-reform period:

$$Enter_{it} = \alpha_i + \gamma_t + \beta_1 (FO_i \times Post2016_t) + \beta_2 (CA_i \times Post2016_t) + \beta_3 X_{i,t-1} + \varepsilon_{it}, \tag{3}$$

where FO_i indicates the presence of a financial shareholder and CA_i denotes the adoption of consolidated accounts. These characteristics proxy for organizational sophistication and the capacity

to design complex cross-border structures.

If the aggregate post-BEPS expansion of small firms into tax havens is primarily driven by financially structured firms, we expect positive and significant interaction coefficients in this specification. Such a result would indicate that the observed increase in entry among small firms is not uniform but concentrated among those with the internal capabilities to implement advanced tax-planning strategies.

6 Results

This section reports the baseline Difference-in-Differences (DiD) estimates for the probability of entering and leaving tax havens. The dependent variable is alternatively (i) an indicator equal to one if the firm opens at least one affiliate in a tax haven in year t (entry), and (ii) an indicator equal to one if the firm closes at least one affiliate in a tax haven in year t (exit). All specifications are estimated as linear probability models with firm and year fixed effects. Columns (1) report the baseline specification without additional controls, while columns (2) include lagged firm-level covariates.

Entry into tax havens

Table 8 presents the estimates for the probability of entering a tax haven.

Several patterns emerge. First, the interaction term $Small_i \times Post2016_t$ is positive and becomes statistically significant and economically large once firm-level controls are included. In the fully specified model, firms below the €750 million threshold exhibit a 16.1 percentage point higher probability of opening a tax-haven affiliate after 2016 relative to large firms. The effect is precisely estimated and strongly significant, indicating that the post-BEPS adjustment along the entry margin is economically meaningful. The lack of statistical significance in the baseline TWFE specification, contrasted with the sizeable and significant coefficient in the controlled model, suggests that compositional differences across firms conceal the underlying treatment effect unless observable characteristics are properly accounted for.

Second, the coefficient on $Small_i$ is negative and statistically significant in both specifications. Although firm fixed effects absorb all time-invariant cross-sectional differences across firms, the $Small_i$ indicator is not mechanically constant over time: some firms move across the €750 million reporting threshold during the sample period. The coefficient on $Small_i$ is therefore identified

Table 8: Probability of Entering a Tax Haven (Opening an Affiliate)

	(1) TWFE/LPM	(2) With controls
Small MNE	-0.064***	-0.224***
	(6.26)	(4.73)
Small MNE × post2016	0.028	0.161***
	(1.50)	(4.95)
Employment (log, $t-1$)		0.007
		(0.89)
Nb. of foreign aff. (log, t - 1)		0.066***
		(5.44)
Domestic Turnover (log, k€)		0.006
		(1.16)
Domestic Total assets (log, k€)		0.007**
		(1.98)
Global Inclination		0.054
		(1.15)
Constant	0.084***	-0.172**
	(8.42)	(2.04)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	18,019	12,822
R^2	0.25	0.31

Notes: Dependent variable equals one if the firm opens an affiliate in a tax-haven jurisdiction in year t. Small MNE denotes firms below the €750 million reporting threshold. Absolute t-statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

from within-firm variation and captures how the probability of entry changes when a given firm is classified as below rather than above the threshold. The negative estimate implies that, conditional on firm and year fixed effects, periods in which a firm is below the reporting cutoff are associated with a structurally lower baseline propensity to open tax-haven affiliates in the pre-BEPS period. The positive and significant interaction term should thus be interpreted as a post-reform convergence between groups.

Turning to the control variables, the number of foreign affiliates (log, $t-1$) exhibits the strongest and most robust association with entry. Firms with more extensive international networks are significantly more likely to expand into tax havens, consistent with fixed organizational costs and network complexity playing a central role in tax-planning strategies. Domestic total assets (log) also enter positively and significantly, suggesting that larger balance sheets facilitate such restructuring decisions. Employment (log), domestic turnover (log), and global inclination are positively signed but not statistically significant in the fully controlled specification.

Exit from tax havens

Table 9 reports the corresponding estimates for the probability of closing a tax-haven affiliate.

The interaction term between the Large MNE indicator and the post-2016 period is positive and statistically significant in both specifications. This result indicates that, following the BEPS reform, large multinational firms became significantly more likely to withdraw affiliates from tax-haven jurisdictions. Quantitatively, the estimates suggest that large firms are about 15.9 percentage points more likely than firms below the €750 million threshold to close tax-haven affiliates after 2016. This result mirrors the entry margin documented in Table 8: while smaller multinationals increase their relative probability of establishing affiliates in tax havens, large multinationals become more likely to reduce their presence in these jurisdictions after the reform.

Taken together, the entry and exit estimates reveal a clear post-BEPS divergence in tax-haven adjustment across firm size. Large firms—directly subject to country-by-country reporting and heightened regulatory scrutiny—appear to restrain their net exposure to tax-haven jurisdictions. In contrast, firms below the reporting threshold exhibit a relative intensification of tax-haven engagement, combining higher entry with reduced exit.

Overall, these patterns are consistent with a reallocation mechanism induced by targeted regulation. By concentrating compliance and transparency requirements on the largest multinational

Table 9: Probability of Leaving a Tax Haven (Closing an Affiliate)

	(1) TWFE/LPM	(2) With controls
Large MNE	-0.051***	-0.085
	(2.95)	(1.51)
Large MNE × post2016	0.159***	0.159***
	(6.46)	(4.58)
Employment (log, $t-1$)		-0.011
		(0.41)
Nb. of foreign aff. (log, $t-1$)		-0.083***
		(2.84)
Domestic Turnover (log, k€)		0.016
		(0.95)
Domestic Total assets (log, k€)		-0.061***
		(7.44)
Global Inclination		-0.081
		(0.68)
Constant	0.298***	1.078***
	(59.30)	(4.93)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	8,749	6,424
R^2	0.49	0.40

Notes: Dependent variable equals one if the firm closes an affiliate located in a tax-haven jurisdiction in year t. Large MNE denotes firms above the €750 million reporting threshold. Absolute t-statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

enterprises, the reform may have shifted tax-planning activity toward firms that remain outside its direct scope, thereby reshaping the composition—rather than uniformly reducing the level—of corporate tax-haven use.

7 Robustness Checks

This section provides additional evidence supporting the credibility of our baseline findings. We proceed in two steps.

First, we examine whether our results are sensitive to firms located very close to the €750 million turnover threshold, in the spirit of Doeleman et al. (2024). Excluding firms in a narrow bandwidth around the cutoff alleviates concerns that mechanical classification issues or marginal reporting differences drive the treatment effect.

Second, we assess whether our conclusions depend on the specific definition of tax havens employed. Re-estimating the specifications using alternative tax-haven lists allows us to verify that our findings are not an artifact of a particular classification but reflect a broader pattern in multinational organizational restructuring.

7.1 Excluding firms around the €750 million threshold

A potential concern is that firms located very close to the €750 million reporting threshold may not constitute clean treatment and control groups. Measurement error in consolidated turnover, temporary fluctuations in revenues, or strategic adjustments aimed at avoiding the reporting requirement could blur the distinction between firms just below and just above the cutoff. Such sorting or bunching behavior would mechanically attenuate the discontinuity exploited for identification.

Following the robustness strategy adopted by Doeleman et al. (2024), who exclude multinational groups in a narrow bandwidth around the CbCR threshold to address similar concerns, we re-estimate our baseline specifications after removing firms with consolidated turnover in the €720–€780 million range. This "donut" exclusion ensures that our results are not driven by firms located marginally around the regulatory cutoff and strengthens the credibility of the treatment–control comparison.

Tables 10 and 11 report the results obtained after excluding firms with consolidated turnover in the €720–780 million bandwidth around the reporting threshold. The estimates remain quantitatively close to the baseline specifications.

Table 10: Probability of Entering a Tax Haven (Opening an Affiliate)
Excluding Firms with Turnover in €720–780m Bandwidth

	(1) TWFE/LPM	(2) With controls
Small MNE	-0.063***	-0.222***
	(6.23)	(4.34)
Small MNE × post2016	0.028	0.162***
	(1.44)	(4.85)
Employment (log, $t-1$)		0.008
		(0.99)
Nb. of foreign aff. (log, $t-1$)		0.067***
		(5.64)
Domestic Turnover (log, k€)		0.005
		(1.03)
Domestic Total assets (log, k€)		0.007**
		(2.04)
Global Inclination		0.058
		(1.23)
Constant	0.084***	-0.177**
	(8.24)	(2.08)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	17,873	12,711
R^2	0.26	0.31

Notes: Dependent variable equals one if the firm opens an affiliate in a tax-haven jurisdiction in year t. Small MNE denotes firms below the €750 million reporting threshold. Firms with turnover between €720m and €780m are excluded from the sample. Absolute t-statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 11: Probability of Leaving a Tax Haven (Closing an Affiliate)
Excluding Firms with Turnover in €720–780m Bandwidth

	(1) TWFE/LPM	(2) With controls
Large MNE	-0.041**	-0.051
	(2.29)	(0.80)
Large MNE× post2016	0.162***	0.154***
	(6.41)	(4.38)
Employment (log, $t-1$)		-0.009
		(0.35)
Nb. of foreign aff. (log, $t-1$)		-0.081***
		(2.74)
Domestic Turnover (log, k€)		0.014
		(0.86)
Domestic Total assets (log, k€)		-0.062***
		(7.57)
Global Inclination		-0.091
		(0.77)
Constant	0.295***	1.081***
	(55.29)	(4.97)
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	8,646	6,346
R^2	0.49	0.40

Notes: Dependent variable equals one if the firm closes an affiliate located in a tax-haven jurisdiction in year t. Large MNE denotes firms above the €750 million reporting threshold. Firms with turnover between €720m and €780m are excluded from the sample. Absolute t-statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

On the entry margin (Table 10), the interaction term $Small_i \times Post2016_t$ remains positive and statistically significant in the fully controlled model, with a magnitude virtually identical to the main specification. Firms below the threshold therefore continue to exhibit a higher post-reform probability of opening a tax-haven affiliate relative to large firms.

On the exit margin (Table 11), the interaction term also remains positive and highly significant when using the $LargeMNE_i$ specification, implying that large firms are more likely to close tax-haven affiliates after 2016, while smaller firms display a comparatively lower exit probability. The magnitudes are again very similar to the baseline estimates.

Taken together, these results confirm that the main findings are not driven by firms located marginally around the €750 million regulatory cutoff. Excluding observations close to the threshold does not attenuate the estimated divergence in post-BEPS tax-haven dynamics across firm size, reinforcing the interpretation that the observed effects reflect genuine behavioral adjustment rather than mechanical classification around the reporting boundary.

7.2 Alternative definitions of tax havens

We next assess whether our results are sensitive to the definition of tax havens. Because there is no universally accepted classification, empirical findings may depend on how jurisdictions are categorized. Using alternative definitions allows us to verify that our results are not driven by borderline cases or by locations that combine tax advantages with genuine market-seeking or production motives.

Our baseline classification relies on Gravelle (2022), which identifies 50 jurisdictions commonly characterized by preferential tax regimes. While comprehensive, this list may include locations that also host real economic activity. We therefore consider two alternative approaches.

First, we adopt the more conservative list proposed by Dharmapala and Hines (2009), widely used in earlier empirical work. This classification includes 40 jurisdictions and excludes several locations that host French affiliates but may not fit a strict tax-haven definition (Mauritius, Costa Rica, US Virgin Islands, Seychelles, Tonga, and Western Samoa). Applying this definition affects the tax-haven status of 142 French MNEs.[9] Using this narrower list ensures that our results are not driven by jurisdictions whose tax status is debated or context-dependent.

Second, we construct a restricted set of *pure tax havens*. The objective is to isolate jurisdictions

[9]The full list is reported in Appendix A.

that are unlikely to attract foreign direct investment for market-access or production-network reasons, and instead primarily serve tax-planning purposes. We identify the 25% of tax havens with the lowest Real Market Potential (RMP), computed following Head and Mayer (2004):

$$hmp_c = \sum_k \frac{GDPpc_k}{Dist_{c,k}}.$$

Low RMP jurisdictions are small, remote, and weakly integrated into global demand centers, making real economic activity less plausible as a primary motive for affiliate presence. The resulting threshold corresponds to an HMP below $12.5 million USD, compared to an average of $22 million (simple mean across countries in the panel) and $60 million (weighted mean by the frequency of French affiliates). This restriction therefore concentrates on jurisdictions most consistent with pure tax-driven location choices.

Together, these alternative classifications allow us to test whether the estimated post-BEPS adjustments reflect broad shifts in affiliate geography or are specifically concentrated in jurisdictions that plausibly function as tax-avoidance hubs.

Tables 12 and 13 report the results using the Dharmapala list, while Tables 14 and 15 present the estimates using the pure tax haven definition.

Tables 12 and 13 report the results obtained when using the more conservative tax-haven classification of Dharmapala and Hines (2009). The qualitative patterns are virtually identical to the baseline results.

On the entry margin (Table 12), the interaction term $Small_i \times Post2016_t$ remains positive and statistically significant. In the fully controlled specification, the magnitude (0.159) is almost unchanged relative to the baseline estimate (0.161). Small firms therefore continue to exhibit a substantially higher post-reform probability of opening tax-haven affiliates. The negative and significant coefficient on $Small_i$ confirms that, prior to BEPS, smaller firms were structurally less likely to enter tax havens, implying that the post-2016 effect reflects convergence rather than a level reversal.

On the exit margin (Table 13), the interaction term for large firms remains positive and highly significant, with magnitudes (0.157–0.163) closely aligned with the baseline estimates. This indicates that firms above the reporting threshold increase their probability of closing tax-haven affiliates after 2016, consistent with a retrenchment response among directly targeted multinationals.

Tables 14 and 15 further restrict the analysis to *pure* tax havens, defined as the jurisdictions with

Table 12: Robustness (Dharmapala list): Entry into Tax Haven

	(1) No controls	(2) With controls
Small MNE	-0.066***	-0.231***
	(6.85)	(5.25)
Small MNE#post2016	0.030*	0.159***
	(1.75)	(5.26)
Controls		
employees (World, log)		0.008
		(1.00)
Foreign Aff. (log)		0.063***
		(5.28)
Turnover (France, Log)		0.006
		(1.25)
Total Assets (France, log)		0.008**
		(2.18)
Global inclination		0.041
		(0.88)
_cons	0.083***	-0.171**
	(8.86)	(2.11)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	18,019	12,822
R^2	0.25	0.30

Notes: Linear probability model with firm and year fixed effects. Test statistics in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 13: Robustness (Dharmapala list): Exit from Tax Haven

	(1) No controls	(2) With controls
Large MNE	-0.049***	-0.105*
	(2.83)	(1.84)
Large MNE#post2016	0.157***	0.163***
	(6.25)	(4.55)
Controls		
employees (World, log)		-0.012
		(0.43)
Foreign Aff. (log)		-0.080***
		(2.72)
Turnover (France, Log)		0.016
		(0.94)
Total Assets (France, log)		-0.057***
		(6.32)
Global inclination		-0.075
		(0.63)
_cons	0.296***	1.033***
	(58.74)	(4.61)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	8,749	6,424
R^2	0.50	0.40

Notes: Linear probability model with firm and year fixed effects. Test statistics in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 14: Robustness (Pure tax havens): Entry into Pure Tax Haven

	(1) No controls	(2) With controls
Small MNE	-0.028***	-0.121***
	(4.41)	(3.77)
Small MNE#post2016	0.046***	0.131***
	(3.44)	(5.36)
Controls		
employees (World, log)		0.007
		(1.49)
Foreign Aff. (log)		0.029***
		(3.84)
Turnover (France, Log)		0.002
		(1.17)
Total Assets (France, log)		-0.000
		(0.04)
Global inclination		-0.015
		(0.50)
_cons	0.016***	-0.062
	(2.81)	(1.37)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	18,019	12,822
R^2	0.24	0.31

Notes: Linear probability model with firm and year fixed effects. Test statistics in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 15: Robustness (Pure Tax Havens): Exit from Pure Tax Havens (leaveP)

	(1) No controls	(2) With controls
Large MNE	-0.023	-0.044
	(1.60)	(0.82)
Large MNE#post2016	0.100***	0.119***
	(4.55)	(3.79)
Controls (lagged, $t-1$)		
Employment (log)		-0.012
		(0.47)
Nb. of affiliates (log)		-0.089***
		(3.03)
Exports (log)		0.017
		(1.04)
Assets (log)		-0.060***
		(7.45)
Global inclination (monde)		-0.069
		(0.58)
_cons	0.298***	1.074***
	(59.30)	(4.98)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	8,749	6,424
R^2	0.49	0.41

Notes: Linear probability model with firm and year fixed effects. Dependent variable equals 1 if firm i closes at least one affiliate in a *pure* tax haven in year t (leaveP). Robust standard errors clustered at the firm level in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

the lowest Home Market Potential. If anything, the entry results become sharper under this stricter definition. In Table 14, the interaction term is positive and highly significant even in the specification without controls, and remains large (0.131) and precisely estimated once controls are included. This suggests that the post-BEPS expansion among small firms is particularly concentrated in jurisdictions that are unlikely to host affiliates for market-seeking motives and are therefore more plausibly used for tax-planning purposes.

On the exit margin (Table 15), the post-2016 increase in exit probabilities among large firms remains positive and strongly significant, although the magnitude is somewhat smaller than under the broader definitions. This attenuation is expected given the narrower set of jurisdictions, but the qualitative pattern remains intact: large firms are more likely to withdraw from pure tax havens after BEPS, while smaller firms do not display a comparable retrenchment.

Taken together, these robustness exercises confirm that the divergence in post-BEPS dynamics across firm size is not sensitive to the choice of tax-haven classification. Whether using a conservative list or restricting the analysis to the most clearly tax-driven jurisdictions, the same asymmetric adjustment emerges: large firms retrench, while small firms expand their tax-haven engagement.

8 Further Analysis

8.1 Industry heterogeneity

We next explore whether the post-BEPS adjustment documented in the aggregate sample varies across industries. We focus on the five 2-digit industries hosting the largest number of French multinational enterprises: Manufacturing (C), Wholesale & Retail (G), Information & Communication (J), Finance & Insurance (K), and Scientific & Technical Activities (M). For each industry, we estimate the same baseline DiD specification described above (entry and exit equations separately), including firm and year fixed effects as well as lagged controls.

The industry-level estimates should be interpreted in light of the underlying sectoral exposure to tax havens documented in Table 6. That table shows that tax-haven affiliates are heavily concentrated in a few industries and that large firms exhibit systematically higher tax-haven shares than small firms within each sector. For instance, in Information & Communication (J), 78.7% of large MNE affiliates are located in tax havens compared with 40.6% for small MNEs; in Finance &

Table 16: Industry-level DiD Estimates: Entry into Tax Havens

	C	G	J	K	M
Small MNE	-0.249***	-0.123*	-0.318**	0.294	-0.224
	(3.55)	(1.67)	(2.09)	(1.48)	(1.42)
Small MNE×post2016	0.195***	0.063	0.337***	-0.255	0.201
	(3.73)	(0.86)	(3.08)	(1.33)	(1.37)
employees (World, log)	0.017	0.013	0.019	0.154	0.012
	(0.81)	(0.88)	(0.47)	(1.04)	(0.50)
Foreign Aff. (log)	0.086***	0.087***	0.102**	0.129	0.070*
	(4.09)	(3.65)	(2.15)	(1.15)	(1.69)
Turnover (France, Log)	0.005	-0.022	0.041**	-0.010	0.021
	(0.49)	(1.41)	(2.22)	(0.62)	(1.55)
Total Assets (France, log)	0.009	-0.001	-0.017	0.163*	0.002
	(1.45)	(0.20)	(0.85)	(1.67)	(0.53)
Global inclination	-0.010	-0.115	-0.141	0.349	0.130
	(0.12)	(1.20)	(1.03)	(1.15)	(0.74)
_cons	-0.289	0.216	-0.338	-3.105**	-0.236
	(1.54)	(1.08)	(1.05)	(2.15)	(1.22)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.29	0.31	0.34	0.33	0.33
Observations	4,365	2,160	1,414	254	1,289

Notes: Linear probability model. Dependent variable equals 1 if the firm opens at least one tax-haven affiliate. (C) Manufacturing, (G) Wholesale & Retail, (J) Information & Communication, (K) Finance & Insurance, (M) Scientific & Technical Activities. Test statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 17: Industry-level DiD Estimates: Exit from Tax Havens

	C	G	J	K	M
Large MNE	-0.003	-0.007	-0.153	0.462	-0.123
	(0.04)	(0.03)	(1.25)	(1.41)	(0.83)
Large MNE×post2016	0.146**	0.060	0.063	-0.272	0.218*
	(2.49)	(0.61)	(0.55)	(1.11)	(1.90)
employees (World, log)	-0.055	-0.039	0.155*	-0.178	-0.007
	(0.94)	(0.71)	(1.70)	(1.05)	(0.08)
Foreign Aff. (log)	-0.099*	-0.084	-0.129	-0.290	-0.111
	(1.77)	(1.08)	(1.59)	(1.35)	(1.06)
Turnover (France, Log)	-0.003	0.041	-0.088***	-0.365***	0.022
	(0.06)	(0.99)	(2.99)	(2.86)	(0.71)
Total Assets (France, log)	-0.041***	-0.055***	0.063	-0.133	-0.090***
	(2.59)	(3.19)	(0.92)	(0.63)	(8.94)
Global inclination	0.014	-0.331	0.301	2.538**	-0.592
	(0.07)	(1.17)	(1.01)	(2.53)	(1.61)
_cons	1.352**	0.960**	-0.440	6.803**	1.614***
	(2.53)	(2.05)	(0.56)	(2.17)	(2.74)
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
R^2	0.38	0.40	0.38	0.54	0.50
Observations	1,979	1,136	770	183	624

Notes: Linear probability model. Dependent variable equals 1 if the firm closes at least one tax-haven affiliate. Test statistics in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Insurance (K), the corresponding figures are 72.7% and 45.9%; and in Manufacturing (C), 65.6% versus 28.9%. These baseline differences imply substantial scope for heterogeneous post-BEPS adjustments across industries and firm sizes.

The results in Tables 16 and 17 reveal precisely such heterogeneity.

In Manufacturing (C), the interaction term $Small \times post2016$ is positive and statistically significant in the entry regression (0.195***), while the interaction term in the exit regression for large firms is also positive and significant (0.146**). Combined with the large baseline exposure of manufacturing MNEs to tax havens (Table 6), this pattern indicates a clear post-reform divergence: large manufacturing firms increase their probability of closing tax-haven affiliates, whereas smaller manufacturing firms increase their probability of entry. Given that manufacturing accounts for nearly one quarter of all MNEs and exhibits substantial tax-haven presence, this sector largely drives the aggregate results.

Wholesale & Retail (G) shows a weaker pattern. Although this sector has a high overall tax-haven share (42.9%), and large firms display substantially higher exposure than small firms (63.0% vs. 38.4%), the post-2016 interaction effects are not statistically significant. This suggests that, despite high baseline exposure, behavioral adjustments are more muted or more dispersed within this sector.

Information & Communication (J) displays one of the strongest entry responses among small firms (0.337***). This is consistent with its very high baseline tax-haven intensity—particularly among large firms (78.7%)—which reflects the importance of intangible assets and intellectual property structures. The post-BEPS pattern suggests that while large firms in this sector were already heavily engaged in tax-haven activity, smaller firms increased their relative probability of entry after 2016, consistent with a diffusion mechanism.

In Finance & Insurance (K), which exhibits the highest overall tax-haven share (53.8%), the interaction terms are not statistically significant in either equation. Given the structural centrality of cross-border financial structures in this industry, adjustments appear to occur at the sector level rather than along the firm-size margin. The absence of a strong size-differentiated response is consistent with the idea that tax-haven engagement in finance is deeply embedded in business models and less sensitive to the reporting threshold.

Scientific & Technical Activities (M) presents intermediate dynamics. Although baseline tax-haven shares are substantial (40.9% overall; 66.5% among large firms), the post-reform divergence

is weaker and only marginally significant in the exit regression. This heterogeneity may reflect variation in the use of intellectual property structures and differences in organizational complexity within the sector.

Overall, combining Tables 6, 16, and 17 reveals that the asymmetric post-BEPS adjustment is strongest in sectors with both high baseline tax-haven intensity and substantial size asymmetries—particularly manufacturing and information-intensive activities. The industry breakdown therefore reinforces the aggregate interpretation: the reform is associated with retrenchment among large firms and relative expansion among smaller firms, but the strength of this divergence depends critically on sectoral structure and pre-existing tax-haven exposure.

8.2 Firm heterogeneity within small MNEs: Ownership and Accounting Structure

The sectoral evidence reported above suggests that the post-BEPS adjustment was not uniform even among firms below the €750 million threshold. This naturally raises the question of whether heterogeneity also exists *within* small MNEs, depending on their internal organization. We therefore refine the analysis by focusing exclusively on small firms that had no prior affiliate in a tax haven before 2016, and we examine whether post-reform entry behavior differs according to their financial and accounting structure.

We distinguish between *non financially structured* small MNEs (neither financial ownership nor consolidated accounts) and *structured* small MNEs (reporting at least one of these two characteristics). Financial ownership and consolidated accounts proxy for organizational sophistication and the ability to manage complex cross-border fiscal structures.

Descriptive statistics such as figure 2 are sufficient to show that this relationship deserves to be further studied.

Information on firms' financial ownership structure and accounting consolidation status is obtained from the Orbis / DIANE database compiled by Bureau van Dijk. These variables are merged to our OFATS–FARE sample using firm identifiers. The matching procedure is imperfect, as not all French parent companies can be uniquely identified in Orbis. This limitation reflects both coverage issues and differences in reporting structures: some groups are organized through complex holding chains, some parent entities are not separately reported in Orbis, and identifier harmonization

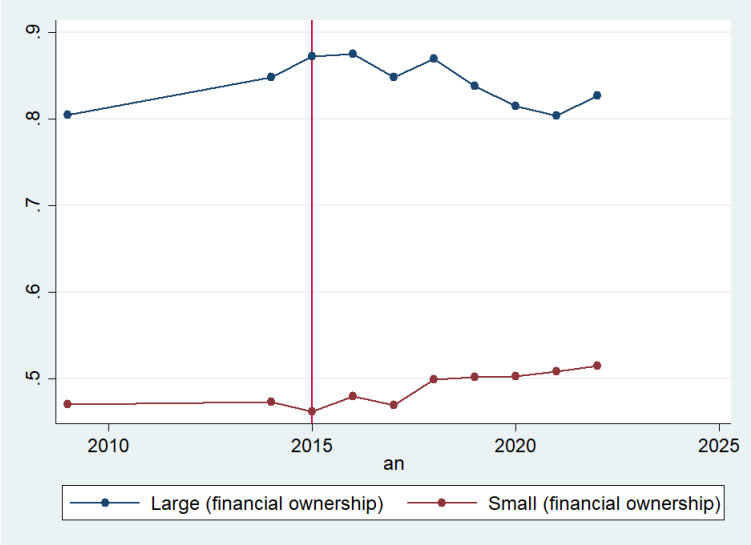


Figure 2: Trends in Tax Havens according to financial ownership status

across administrative and commercial datasets is not always exact.[10] As a result, the matched sample is smaller and potentially non-random relative to the full population of French MNEs.

Moreover, the financial structure indicators are observed only in 2021, which prevents us from identifying the temporal ordering between organizational structuring and tax-haven entry. We cannot establish whether firms became financially structured prior to expanding into tax havens or whether tax-haven engagement itself induced greater consolidation and ownership reorganization. Accordingly, the estimates should not be interpreted as causal.

This limitation is not central to our objective. Organizational design and tax planning are plausibly jointly determined as part of a broader internationalization strategy, making strict causal sequencing conceptually and empirically difficult to isolate. Our aim is instead to document whether cross-sectional differences in financial structuring are associated with heterogeneous post-BEPS adjustments among small MNEs.

Because the structural indicators are time-invariant, including firm fixed effects would absorb the relevant variation. We therefore rely on between-firm heterogeneity interacted with the post-2016 period. The resulting coefficients should be interpreted as reduced-form associations: financially structured firms are disproportionately those that expand into tax havens after BEPS. The magnitude and precision of the estimates suggest that this relationship is systematic rather than incidental.

[10] Details on the matching procedure and coverage rates are discussed in Appendix D.

We estimate the same TWFE/LPM entry specification as before, restricting the sample to small firms without pre-existing tax-haven affiliates. This restriction serves two purposes.

First, it isolates the extensive margin of expansion. Firms already operating in tax havens face different adjustment costs and may expand at the intensive margin rather than through new entry. Including them would conflate heterogeneous dynamics, as post-2016 changes could reflect network deepening rather than first-time adoption.

Second, focusing on firms without prior tax-haven presence sharpens the analysis of strategy heterogeneity among small MNEs. These firms share a common initial condition—no pre-existing tax-haven structure—so post-reform differences in entry behavior can be more cleanly attributed to organizational characteristics rather than inherited international architectures. In other words, we compare firms that were ex ante similar along the tax-haven dimension, which reduces path-dependence concerns and limits mechanical persistence effects.

This restriction therefore provides a more transparent setting to study whether financially structured small firms were better positioned to seize post-BEPS opportunities in tax-haven jurisdictions.

Instead of interacting size with the post-reform dummy, we interact the structural dummies—financial ownership and consolidated accounts—with $Post2016_t$. This allows us to test whether firms that are organizationally more structured display stronger post-reform expansion into tax-haven jurisdictions.

The results are presented in Tables 18, 19, and 20.

Tables 18, 19, and 20 examine whether the post-BEPS increase in tax-haven entry among small MNEs varies with firms' organizational and financial structure. The sample is restricted to small firms without pre-existing tax-haven affiliates, so the estimates isolate expansion at the extensive margin.

Across all specifications, the coefficient on $Post2016_t$ is positive and statistically significant. This confirms that, even within the subset of small MNEs, the post-2016 period is associated with a higher baseline probability of opening a tax-haven affiliate. The magnitude (around 1.7–1.9 percentage points in the controlled models) is economically meaningful given the low unconditional entry rate.

More importantly, the interaction terms are consistently positive and statistically significant. In Table 18, firms with financial ownership structures exhibit an additional 2.7 percentage point increase in entry probability after 2016 relative to other small firms. Similarly, Table 19 shows

Table 18: Entry into Tax Havens – Heterogeneity by Financial Ownership (Small MNEs)

	(1) No controls	(2) With controls
Post2016_t	0.014^{***}	0.019^{***}
	(3.98)	(4.72)
Financial $\text{Ownership}_i \times \text{Post2016}_t$	0.021^{**}	0.027^{***}
	(2.34)	(3.02)
Employment (log, $t-1$)		0.008^{***}
		(6.71)
Nb. of affiliates (log, $t-1$)		0.044^{***}
		(14.38)
Exports (log, $t-1$)		0.005^{***}
		(4.21)
Age (log, $t-1$)		0.002^{**}
		(2.11)
Global inclination (monde, $t-1$)		0.018^{***}
		(5.63)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	18,420	18,420
R^2	0.09	0.24

Notes: Linear probability model. Sample restricted to small MNEs without prior tax-haven affiliates. Dependent variable equals 1 if firm i opens at least one tax-haven affiliate in year t. Robust standard errors clustered at the firm level in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 19: Entry into Tax Havens – Heterogeneity by Consolidated Accounts (Small MNEs)

	(1) No controls	(2) With controls
Post2016_t	0.013^{***}	0.018^{***}
	(3.74)	(4.51)
$\text{Consolidated Accounts}_i \times \text{Post2016}_t$	0.024^{**}	0.031^{***}
	(2.41)	(3.29)
Employment (log, $t-1$)		0.008^{***}
		(6.65)
Nb. of affiliates (log, $t-1$)		0.045^{***}
		(14.51)
Exports (log, $t-1$)		0.005^{***}
		(4.34)
Age (log, $t-1$)		0.003^{**}
		(2.27)
Global inclination (monde, $t-1$)		0.019^{***}
		(5.78)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	18,420	18,420
R^2	0.09	0.25

Notes: Linear probability model. Sample restricted to small MNEs without prior tax-haven affiliates. Dependent variable equals 1 if firm i opens at least one tax-haven affiliate in year t. Robust standard errors clustered at the firm level in parentheses.

Table 20: Entry into Tax Havens – Structured vs Non-Structured Small MNEs

	(1) No controls	(2) With controls
Post2016_t	0.012^{***}	0.017^{***}
	(3.61)	(4.37)
$\text{Structured}_i \times \text{Post2016}_t$	0.026^{**}	0.034^{***}
	(2.58)	(3.71)
Employment (log, $t-1$)		0.009^{***}
		(7.03)
Nb. of affiliates (log, $t-1$)		0.046^{***}
		(15.02)
Exports (log, $t-1$)		0.006^{***}
		(4.62)
Age (log, $t-1$)		0.003^{**}
		(2.39)
Global inclination (monde, $t-1$)		0.020^{***}
		(5.94)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	18,420	18,420
R^2	0.10	0.26

Notes: Structured firms are those reporting financial ownership and/or consolidated accounts. Sample restricted to small MNEs without prior tax-haven affiliates. Dependent variable equals 1 if firm i opens at least one tax-haven affiliate in year t. Robust standard errors clustered at the firm level in parentheses.

that firms reporting consolidated accounts display an additional 3.1 percentage point post-reform increase. When combining both dimensions into a broader indicator of organizational structure (Table 20), the differential effect rises to 3.4 percentage points in the fully controlled specification.

These magnitudes are substantial relative to the baseline $Post2016_t$ effect, indicating that the post-BEPS expansion among small firms is not uniform but concentrated among those with greater organizational sophistication. Structured small MNEs—those already equipped with formal financial ownership chains or consolidated reporting practices—appear better positioned to adjust their international structure and adopt tax-haven affiliates.

The control variables behave consistently across specifications. Larger firms (in employment), firms with more foreign affiliates, more export-oriented firms, older firms, and firms with stronger global inclination all display higher entry probabilities. This pattern reinforces the interpretation that tax-haven entry requires organizational capacity and international embeddedness.

Taken together, these results support the interpretation that the post-BEPS adjustment among small MNEs reflects more than a mechanical threshold effect. Rather, it appears to be mediated by firms' internal structure and administrative capacity. The reform did not generate a uniform expansion across all small firms; instead, it primarily affected those already possessing the organizational features necessary to implement more sophisticated international tax strategies.

9 Concluding remarks

In this paper, we developed an empirical set-up in order to test for the research hypothesis that CTA practices have been spreading towards smaller firms over the recent period, and that anti tax avoidance policies, and more specifically the BEPS action plan implemented in 2015, have unintentionally favored this trend.

Our findings support this research hypothesis. We first showed that before the implementation of the BEPS regulation, large and small MNEs had very different propensity different propensities to establish affiliates in tax havens. We next showed that the BEPS action plan increased the probability that large MNEs withdraw affiliates from tax-haven jurisdictions while smaller MNEs became relatively more likely to establish such affiliates. The "Manufacturing" industry is the one that exhibits the strongest convergence of CTA practices between small and large MNEs after the BEPS reform while for services, firm dynamics are more heterogeneous across different industries. The convergence pattern prevails in the large "Wholesale & Retail" industry, but a diverging trend

in CTA practices between small and large MNEs prevails in both the "Information & Communication" and the "Finance & Insurance" industries. These results are clear indication that operational constraints, fiscal opportunities, and organizational flexibility have a strong industry specific component and that exploring further industry specificity in the dynamics of CTA practices would be worthwhile.

We also explored different channels through which the implementation of the BEPS action plan could have unintentionally favored more tax-aggressive practices among small MNEs. In particular, we examined whether post-BEPS adjustments differed according to firms' financial and organizational structure. Our results suggest that the expansion of tax-haven activity among small MNEs is not uniform across firms but is primarily driven by those displaying stronger financial and organizational capabilities. In particular, firms with financial shareholders or consolidated accounts appear more likely to expand their presence in tax-haven jurisdictions after the reform. These characteristics can be interpreted as proxies for organizational sophistication and the capacity to design and manage complex cross-border fiscal structures.

Another channel through which the implementation of the BEPS action plan could have favored more tax-aggressive practices by small MNEs, is through the reduction of the uncertainty about tax audit risk. Again, our data could not allow to test directly for this hypothesis. However, we used information on consolidated accounts as a proxy of the firm ability to face tax audit risk. Among firms without consolidated accounts, small ones should the most reluctant ones to engage into CTA practices because they would bear the highest burden in terms of the fixed costs of complying to tax authorities requirements in case of tax audit. Testing our research hypothesis separately over the sub-samples of firms with and without consolidated accounts, we found that the reduction in the propensity of small and large MNEs to settle in tax havens only hold for firms without consolidated accounts. We interpret this finding as indirect evidence that among small MNES, the less sophisticated ones in terms of organizational structure, are the ones that benefited the most from the BEPS reform to improve their fiscal organization.

All in all, these findings highlight how large the gap was between large and small French MNEs in terms of CTA practices and how anti-tax avoidance policies could have changed the competitive environment for both categories of firms, containing the tax optimization strategies of large MNEs while smaller firms became relatively more likely to expand their presence in tax-haven jurisdictions. In terms of policy implications, our findings highlight not only the increasing involvement of small

MNEs in tax-planning strategies but also the fact that this expansion appears to be primarily driven by firms displaying stronger financial and organizational structures. These results suggest the need for regulatory tools and frameworks tailored to this segment, focusing on improving compliance through incentives and effective monitoring.

We identify several avenues for future research. First, we could go beyond tax havens, and investigate how sensitive MNEs are to tax difference across countries when they decide about the location of their affiliates. The earlier contribution by Lawless et al. (2015) identified a strong negative correlation between tax rates and the probability of location choice by small MNEs, indicating that lower-tax jurisdictions attract a disproportionate share of the foreign direct investment (FDI) by this category of firms.

Another avenue would consist in examining more in depth the sectoral differences in the tax sensitivity of small MNEs. Our preliminary results showed a strong industry specific component in the dynamics of CTA practices. We also know from practitioners and business scientists that both the competition environment and the institutional context including social norms that are likely to form within industries, are important in shaping firm behavior in contexts of high uncertainty. Those determinants of the decision of firms to engage in CTA practices could be investigated further both theoretically and empirically.

Finally, the BEPS regulation has recently been augmented through was is used to be called the BEPS 2.0 initiative, developed by OECD and the G20 in 2021[11]. As soon as data will be available, it will be worthwhile to investigate further the potential asymmetric impact of this new round of the BEPS regulation on the categories of large and small French MNEs.

[11]This new round of regulation introduces significant reforms to international taxation through two main components: first, the reallocation of taxing rights to ensure that market jurisdictions (countries where consumers are located) receive a fair share of profits from multinational enterprises, particularly digital companies; and second, the establishment of a global minimum corporate tax rate of 15% for MNEs with annual revenues exceeding €750 million. While the implementation of the first pillar is still under development, many jurisdictions have already committed to implementing the global minimum tax. In particular, the European Union required member states to incorporate these rules into domestic law by December 31, 2023, with the rules taking effect immediately thereafter.

A Lists of Tax Havens

We list below the jurisdictions identified as tax havens by Gravelle (2022):

Andorra, Anguilla, Antigua & Barbuda, ***Aruba***, Bahamas, Bahrain, Barbados^P, Belize, Bermuda, British Virgin Islands, Cayman Islands, Hong-Kong, Macao, *Cook Islands*, **Costa Rica**^{P}, Cyprus, Dominica, Gibraltar, Grenada, *Guernsey*, Ireland, *Isle of Man*, *Jersey*, Jordan, Lebanon, Liberia^P, Liechtenstein, Luxembourg, Maldives^P, Malta, Marshall Islands^P, **Mauritius**^{P}, Monaco, Montserrat, **Nauru**, Netherland Antilles, ***Niue***, Panama^P, Saint Kitts and Nevis, Sant Lucia, Saint Vincent and the Grenadines^P, **Samoa**, **San Marino**, **Seychelles**^{P}, Singapore, Switzerland, **Tonga**^{P}, Turks and Caicos Islands, **U.S. Virgin Islands**, Vanuatu^P.

Bold identifies jurisdictions that are listed by Gravelle (2022) but absent from the Dharmapala and Hines (2009) list. *Emphasised* identifies jurisdictions listed by Gravelle (2022) but excluded from our analysis because they lack an independent identification code in the OFATS database (e.g. Aruba has the same code as Netherlands, and Jersey and Guernesey as the U.K, so it was not possible to identify an affiliate in those tax havens.). Finally, the P uperscript identifies the jurisdictions that we consider as "Pure tax havens" according to the methodology we implement in section 7.

B Large versus Small MNEs

In this Appendix, we provide yearly comparative statistics between small versus large MNEs over our period of investigation. We first provide the yearly detailed information about the numbers of large and small MNEs in the full OFATS-FARE sample.

Table 21: Numbers of Large versus Small MNEs, Full Sample, by Year

Year	Total	Small (N)	Small (%)	Large (N)	Large (%)
2007	1,636	1,112	68.0	524	32.0
2009	1,483	1,256	84.7	227	15.3
2014	2,191	1,906	87.0	285	13.0
2015	1,995	1,745	87.5	250	12.5
2016	1,586	1,349	85.1	237	14.9
2017	1,794	1,556	86.7	238	13.3
2018	1,743	1,508	86.5	235	13.5
2019	1,741	1,498	86.0	243	14.0
2020	1,832	1,590	86.8	242	13.2
2021	1,920	1,658	86.4	262	13.6
2022	1,844	1,560	84.6	284	15.4

Notes: Small (large) MNEs are defined as firms with consolidated worldwide turnover below (above) 750 million euros (indicator `Large MNE`). Totals correspond to distinct parent firms (`distinct siren`) by year in the full OFATS–FARE sample.

We next provide the yearly detailed information about Total Value Added and Total Taxes paid of small versus large MNEs in our restricted sample (Table 22).

Table 22: Total Value Added and Total Taxes by Large versus Small MNEs, Restricted Sample, by Year

	Value Added (k€)					Total taxes paid (k€)				
Year	Total	Small	Small (%)	Large	Large (%)	Total	Small	Small (%)	Large	Large (%)
2014	83,300,000	13,000,000	15,6	70,300,000	84,4	8,430,154	859,002	10,2	7,571,152	89,8
2015	79,000,000	12,300,000	15,6	66,700,000	84,4	8,157,208	801,326	9,8	7,355,883	90,2
2016	58,800,000	7,358,774	12,5	51,500,000	87,6	6,777,998	446,726	6,6	6,331,273	93,4
2017	58,700,000	8,138,315	13,9	50,500,000	86,0	6,768,242	471,254	7,0	6,296,987	93,0
2018	62,200,000	8,566,013	13,8	53,700,000	86,3	6,982,519	516,518	7,4	6,466,001	92,6
2019	64,100,000	9,206,253	14,4	54,900,000	85,6	7,926,908	534,336	6,7	7,392,572	93,3
2020	54,800,000	8,668,705	15,8	46,100,000	84,1	7,713,791	526,800	6,8	7,186,992	93,2
2021	56,200,000	9,011,647	16,0	47,200,000	84,0	6,241,541	399,153	6,4	5,842,388	93,6

Notes: "Large" MNEs are defined by `Large MNE`=1 (consolidated worldwide turnover above 750 million euros); "Small" MNEs correspond to `Large MNE`=0. Group totals are obtained from `totVA_categ` and `totTaxes_categ`. Shares are computed as group total divided by the yearly total.

Finally, we provide in Table 23 the yearly detailed information about average characteristics of small versus large MNEs in our restricted sample.

Table 23: Average characteristics of small versus large MNEs, restricted sample, by year

	Employment		Value Added		Assets		Profits		Total Tax Paid		Tax Rate (%)	
	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large
2012	629.3	18,027.0	3,874.3	586,794.0	182,772	7,504,021	6,090.5	384,112.0	286.7	63,066.0	16.42	10.45
2013	594.6	16,410.0	3,252.6	617,969.1	177,492	7,056,409	10,402.9	345,192.9	273.4	67,683.4	15.84	9.47
2014	494.5	17,298.0	3,033.9	780,483.0	155,291	9,327,993	17,068.7	439,642.4	250.9	87,393.2	14.70	9.33
2015	520.8	20,501.9	3,133.6	820,323.0	168,289	11,805,160	24,146.6	544,940.6	236.3	99,400.9	13.83	11.17
2016	489.1	22,546.7	2,929.7	814,711.8	168,998	12,235,490	15,794.5	452,902.3	230.7	105,391.4	13.76	12.10
2017	488.4	21,179.9	2,879.2	775,431.0	167,294	12,030,140	8,985.9	642,404.0	208.1	122,731.5	13.39	10.87
2018	463.3	19,681.3	2,739.1	681,522.7	171,399	10,873,930	12,594.7	386,921.2	201.5	97,955.1	12.44	9.15
2019	448.7	19,898.0	2,645.0	723,606.0	179,889	10,808,130	9,411.1	597,207.0	191.3	98,848.6	12.54	12.09
2020	412.2	17,678.0	2,169.4	545,597.7	180,164	12,478,520	-11,756.4	180,640.0	176.4	94,816.0	12.48	9.42
2021	415.4	20,137.5	2,346.6	608,908.0	180,758	11,931,310	16,825.3	367,920.9	152.0	80,575.9	12.07	12.28

Notes: Monetary values are expressed in thousands of euros. Tax rates are computed on observations with strictly positive tax payments.

C Detailed industry breakdown

Table 24: Detailed industry breakdown

			OFATS-LIFI-FARE sample		Restricted Sample	
Classification	Section	Label	Nb. of MNEs	Share (%)	Nb. of MNEs	Share (%)
Others	A	Agriculture, forestry, and fishing	297	1.94	19	0.44
Broad Manuf.	B	Mining and quarrying	30	0.20	12	0.28
Broad Manuf.	C	Manufacturing	3,775	24.70	1,214	27.88
Broad Manuf.	D	Electricity, gas and air	45	0.29	18	0.41
Broad Manuf.	E	Water production and distribution	56	0.37	21	0.48
Broad Manuf.	F	Construction	644	4.21	157	3.61
Services	G	Wholesale and retail	3,018	19.75	822	18.87
Others	H	Transportation and warehousing	465	3.04	129	2.96
Services	I	Accommodation and food services	316	2.07	77	1.77
Services	J	Information and communication	1,787	11.69	610	14.01
Services	K	Financial and insurance activities	1,069	7.00	242	5.56
Others	L	Real estate activities	448	2.93	91	2.09
Services	M	Scientific and technical activities	2,215	14.49	654	15.02
Services	N	Administrative and support activities	646	4.23	175	4.02
Others	O	Public administration	16	0.10	1	0.02
Others	P	Education	112	0.73	21	0.48
Others	Q	Human health and social work	79	0.52	25	0.57
Others	R	Arts, entertainment, and recreation	133	0.87	39	0.90
Services	S	Other service activities	129	0.84	28	0.64
Others	U	Extraterritorial activities	2	0.01	0	0.00
		Total	15,282	100.00	4,355	100.00

D Merging with Orbis Data

While merge the OFATS–FARE dataset with the DIANE database to obtain information on financial ownership and consolidated accounts, the matching process was less precise. On the one hand, a substantial number of firms recorded in DIANE do not correspond to parent companies of multinational groups. On the other hand, approximately 20% of the firms identified in OFATS cannot be matched to DIANE, as they probably were not active anymore in 2021. As a result, information on ownership structure and consolidation status is available only for a subset of multinational enterprises (the one active in 2021).

To assess the representativeness of this matched sample, we examine whether the distribution of small and large multinational enterprises remains comparable to that observed in the full OFATS–FARE population. In particular, we analyze differences in firm counts, foreign affiliates, and international destinations across size categories. This comparison is reported in Table 25.

Table 25: Large versus Small Multinational Enterprises, Pooled Years

	Full Sample	Restricted Sample
Firm–year observations	19,765	15,820
Small MNEs	16,276	13,020
Large MNEs	3,489	2,800
Distinct firms	6,281	5,020
Small MNEs	5,746	4,600
Large MNEs	1,422	1,140
Host countries	160	155
Small MNEs	137	132
Large MNEs	143	139
Mean number of affiliates per firm	38.70	37.95
Small MNEs	15.26	14.90
Large MNEs	148.85	146.20

Notes: Large (small) MNEs are defined as firms with consolidated worldwide turnover above (below) 750 million euros. Firm size status is highly persistent over time: only 80 firms change status from small to large MNEs over the sample period. As a result, pooled statistics may involve repeated observations of the same firms, which can generate proportions exceeding 100%.

Table 25 shows that, according to our classification based on consolidated worldwide turnover, the vast majority of French multinational enterprises are categorized as small. Small MNEs account for more than four-fifths of firm–year observations in both the full OFATS sample and the restricted sample, indicating that the size structure is largely preserved after merging with the

DIANE database.[12]

In terms of foreign affiliates, large MNEs are disproportionately represented, reflecting their greater international footprint. Although they constitute a minority of firms, they account for a substantial share of total affiliates in both samples. Importantly, this concentration pattern is very similar in the full and restricted samples, suggesting that the matching procedure does not distort the relative importance of large groups in international activity.

A comparable conclusion emerges for geographical coverage. Small MNEs, taken together, operate in a broader set of host countries than large MNEs, and this feature holds in both samples. The distribution of international destinations therefore remains stable after sample restriction.

We further assess the representativeness of the restricted sample by comparing the main host countries of foreign affiliates with those observed in the full OFATS sample. Table 26 reports the distribution of affiliates across the five largest destination countries. Both the ranking of host countries and the corresponding shares of affiliates are remarkably similar across samples, indicating that the restricted sample accurately reflects the geographical structure of French multinational activity.

Table 26: Share of Affiliates (in %) by Main Destination, Reference Year 2021

	Sample	
Main host country	OFATS	Restricted
USA	8.65	8.70
Spain	8.22	7.99
Germany	7.75	7.61
Belgium	7.34	7.71
UK	5.96	5.68

Notes: This table reports the percentage distribution of foreign affiliates by main host country in the OFATS sample and the restricted sample.

Finally, we check the representativeness of our sample in terms of the sectoral distribution of French MNEs. We broke down the French nomenclature of industrial activities (NAF) in three main sectors: *Broad Manufacturing*, *Services* and *Others*[13].

[12]Appendix B provides detailed yearly information on the distribution of small and large MNEs in the OFATS–FARE sample and in the restricted sample.

[13]see Appendix C for more details on our industry coverage and sectoral breakdown.

Table 27: Sectoral Composition of French Multinational Enterprises, OFATS Database

	Full Sample			Restricted Sample		
Year	Broad manufacturing (%)	Other (%)	Services (%)	Broad manufacturing (%)	Other (%)	Services (%)
2007	34.96	3.12	61.92	35.40	3.05	61.55
2009	38.17	3.57	58.26	38.60	3.50	57.90
2014	35.78	3.33	60.89	36.10	3.25	60.65
2015	44.21	2.76	53.03	43.80	2.85	53.35
2016	40.67	2.71	56.62	40.30	2.75	56.95
2017	41.53	2.29	56.19	41.10	2.35	56.55
2018	37.98	2.47	59.55	38.20	2.40	59.40
2019	36.99	2.35	60.65	37.30	2.30	60.40
2020	41.16	2.73	56.11	40.90	2.80	56.30
2021	37.45	2.50	60.05	37.70	2.45	59.85
2022	40.08	2.82	57.10	39.90	2.85	57.25

Notes: This table reports the sectoral composition of French multinational enterprises by year for the full OFATS sample and for the restricted sample. Firms are classified into Broad manufacturing, Services, and Other activities. Percentages are computed from firm–year observations after retaining one observation per firm and year.

Table 27 documents the evolution of the sectoral composition of French multinational enterprises over the observation period. The share of MNEs operating in broad manufacturing exhibits noticeable fluctuations across years, but does not display a monotonic declining trend. Instead, manufacturing remains a substantial component of French multinational activity throughout the period, with its share generally ranging between 35% and 45%. This pattern reflects both structural change in the French economy and cyclical adjustments in firms' international activities.

Importantly, the comparison between the full OFATS sample and the restricted sample indicates that sectoral composition is very similar across the two datasets. Differences in the share of broad manufacturing, services, and other activities are small and remain stable over time, typically below one percentage point. This suggests that the matching procedure does not generate systematic sectoral selection.

Overall, the restricted sample closely mirrors the sectoral structure of the full OFATS population. This reinforces our confidence that subsequent analyses of the differential responses of small and large MNEs to anti–tax avoidance policies are not driven by sectoral composition effects.

References

Al-Karablieh, Y., Koumanakos, E., and Stantcheva, S. (2021). Clearing the bar: Improving tax compliance for small firms through target setting. *Journal of International Economics*, 130(C).

Almunia, M. and Lopez-Rodriguez, D. (2018). Under the radar: The effects of monitoring firms on tax compliance. *American Economic Journal: Economic Policy*, 10(1):1–38.

Antràs, P. and Yeaple, S. R. (2014). Multinational firms and the structure of international trade. *Handbook of international economics*, 4:55–130.

Beer, S., De Mooij, R., and Liu, L. (2020). International corporate tax avoidance: A review of the channels, magnitudes, and blind spots. *Journal of economic surveys*, 34(3):660–688.

Biondo, A. E., Burgio, G., Pluchino, A., and Puglisi, D. (2022). Taxation and evasion: a dynamic model. *Journal of Evolutionary Economics*, 32(3):797–826.

Bloom, N., Manova, K., Van Reenen, J., Sun, S. T., and Yu, Z. (2021). Trade and management. *The Review of Economics and Statistics*, 103(3):443–460.

Bolwijn, R., Casella, B., and Rigo, D. (2018). An FDI-driven approach to measuring the scale and economic impact of BEPS. MPRA Paper 95189, University Library of Munich, Germany.

Bosco, L. and Mittone, L. (1994). Tax evasion and moral constraints: some experimental evidence. Department of Economics Working Papers 9402, Department of Economics, University of Trento, Italia.

Chaney, T. (2014). The network structure of international trade. *American Economic Review*, 104(11):3600–3634.

Clausing, K. A. (2016). The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond. *National Tax Journal*, 69(4):905–934.

Clifford, S., Miethe, J., and Semelet, C. (2025). The distribution of profit shifting. Working Paper 11975, CESifo.

Cobham, A. and Janskỳ, P. (2017). Global distribution of revenue loss from tax avoidance. *Cit*, pages 09–20.

CPO (2023). Les différences d'imposition sur les bénéfices entre pme et grandes entreprises. Report, Conseil des Prélevements Obligatoires.

Crivelli, E., De Mooij, R., and Keen, M. (2016). Base erosion, profit shifting and developing countries. *FinanzArchiv/Public Finance Analysis*, pages 268–301.

Davies, R. B., Martin, J., Parenti, M., and Toubal, F. (2018). Knocking on tax haven's door: Multinational firms and transfer pricing. *Review of Economics and Statistics*, 100(1):120–134.

Desai, M. A., Foley, C. F., and Hines, J. J. (2006). The demand for tax haven operations. *Journal of Public Economics*, 90(3):513–531.

Dharmapala, D. and Hines, J. R. (2009). Which countries become tax havens? *Journal of Public Economics*, 93(9):1058–1068.

Dischinger, M. and Riedel, N. (2011). Corporate taxes and the location of intangible assets within multinational firms. *Journal of Public Economics*, 95(7-8):691–707.

Doeleman, R., Langenmayr, D., and Schindler, D. (2024). Could country-by-country reporting increase profit shifting? Working Paper 11464, CESifo.

Dupuy, J. P. and Scubla, L. (1992). *Introduction aux sciences sociales : logique des phénomènes collectifs*. Ellipses. Edition Marketing.

Fuest, C., Parenti, M., and Toubal, F. (2019). International corporate taxation: What reforms? what impact? *Notes du conseil danalyse economique*, 54(6):1–12.

Gravelle, J. (2022). Tax havens: International tax avoidance and evasion. CRS Report No. RL40623.

Gumpert, A., Hines Jr, J. R., and Schnitzer, M. (2016). Multinational firms and tax havens. *Review of Economics and Statistics*, 98(4):713–727.

Hanlon, M. and Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2-3):127–178.

Head, K. and Mayer, T. (2004). Market potential and the location of japanese investment in the european union. *Review of Economics and Statistics*, 86(4):959–972.

Helpman, E., Melitz, M. J., and Yeaple, S. R. (2004). Export versus fdi with heterogeneous firms. *American Economic Review*, 94(1):300–316.

Hines Jr, J. R. and Rice, E. M. (1994). Fiscal paradise: Foreign tax havens and american business. *The Quarterly Journal of Economics*, 109(1):149–182.

Holzner, M., Jovanović, B., and Vukšić, G. (2021). How do Corporate Taxes affect International Trade? wiiw Working Papers 212, The Vienna Institute for International Economic Studies, wiiw.

Huesecken, B. and Overesch, M. (2019). Tax Avoidance through Advance Tax Rulings - Evidence from the LuxLeaks Firms. *FinanzArchiv: Public Finance Analysis*, 75(4):380–412.

Joyez, C. (2017). On the topological structure of multinationals network. *Physica A: Statistical Mechanics and its Applications*, 473:578–588.

Krautheim, S. and Schmidt-Eisenlohr, T. (2011). Heterogeneous firms, 'profit shifting' FDI and international tax competition. *Journal of Public Economics*, 95(1-2):122–133.

Kubick, T. R., Lynch, D. P., Mayberry, M. A., and Omer, T. C. (2015). Product market power and tax avoidance: Market leaders, mimicking strategies, and stock returns. *The Accounting Review*, 90(2):675–702.

Laffitte, S., Parenti, M., Souillard, B., and Toubal, F. (2019). Profit shifting in france: Evidence from firm-level administrative databases. *Focus du Conseil d'analyse économique*, (036-2019).

Lawless, M., McCoy, D., Morgenroth, E., and O'Toole, C. (2015). Corporate tax and location choice for multinational firms. Mpra paper, University Library of Munich, Germany.

Martin, J., Parenti, M., and Toubal, F. (2023). Corporate Tax Avoidance and Sales: Micro Evidence and Aggregate Implications. working paper or preprint.

Melitz, M. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71(6):1695–1725.

Prettl, A. and von Hagen, D. (2018). Multinational ownership structures and anti tax avoidance legislation. *Available at SSRN 3070357*.

Ramirez, K. P. and Vicard, V. (2025). The instruments of profit shifting. Working papers, CEPII research center.

Rugman, A. M. and Verbeke, A. (2004). A perspective on regional and global strategies of multinational enterprises. *Journal of international business studies*, 35:3–18.

Simone, L. D. and Olbert, M. (2022). Real effects of private country-by-country disclosure. *The Accounting Review*, 97(6):201–232.

Swenson, D. L. (2001). Tax reforms and evidence of transfer pricing. *National Tax Journal*, 54(1):7–25.

Tørsløv, T., Wier, L., and Zucman, G. (2023). The missing profits of nations. *The Review of Economic Studies*, 90(3):1499–1534.

Vicard, V. (2015). Profit shifting through transfer pricing: evidence from french firm level trade data. Technical report, Banque de France Working Paper.

Vicard, V. (2019). *The exorbitant privilege of high tax countries*. CEPII.

Vicard, V. (2023). Profit shifting, returns on foreign direct investments and investment income imbalances. *IMF Economic Review*, 71(2):369–415.

Wier, L. S. and Zucman, G. (2022). Global profit shifting, 1975-2019. Technical report, National Bureau of Economic Research.

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