International tax strategies adopted by UK MNEs: Differences between industry sector and firm size

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**We note with great sadness, the death of our colleague, friend and co-author, Keith, during the development of this paper.

ABSTRACT

The recent disclosures in the Panama, Paradise and Pandora Papers and allegations of tax avoidance levelled at multinational enterprises (MNEs) (e.g., Coca-Cola, Pfizer, Google, Amazon, Starbucks, Facebook, etc.) have attracted unprecedented public attention, especially in terms of profit-shifting to low tax jurisdictions/tax havens. Many different mechanisms are used to achieve this type of avoidance strategy, which may be covered by the 'umbrella' term of tax arbitrage. Following the proposed revision to tax standards, for example, the *BEPS Action Plan* from the OECD/G20 and the UK *Finance Act 2016*, this study was undertaken with the aim of understanding current multinational enterprises' (MNEs') international tax strategies, and their association with firm industrial characteristics. The literature review indicates that tax strategies are usually examined on the basis of aggregate country-level datasets, and treated as a single element, rather than categorical components, in the context of decision making. This means that the study of individual tax planning behaviours based on firm-level primary datasets is under-researched in the literature.

Based on a survey sample of 276 UK MNEs, this research provided valuable insights into the relationship of tax strategies with the industry sector and firm size of UK entities. The empirical evidence uncovers three provisional findings. First, perhaps unsurprisingly, UK MNEs are inclined to manipulate tax incentives in a synchronised and combined manner to lessen their tax burden. Second, despite the spotlight on the tax scandals surrounding large

sized MNEs, small and medium sized MNEs also play an active role in exploiting tax strategies to lower their taxable income. Third, empirical findings suggest that a variety of mechanisms are used alike by all sizes of firm, regardless of industry category and firm size.

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1. Introduction

Global tax systems are not harmonised as no standardised international tax regime yet exists, so countries are free to maximise their own interests (Graetz, 2001; Rosenbloom, 2000). UK multinational enterprises (MNEs) that are engaged in cross-border transactions can take advantage of the differentials of tax regimes, to eliminate or reduce their tax bills in the global business context (Eicke, 2009: 19). This is commonly referred to as tax arbitrage. The UK's tax authority, Her Majesty's Revenue & Customs (HMRC) in its *International Tax Manual*, specifically defines tax arbitrage as follows (HMRC, 2016a):

> In the context of cross-border finance, the term arbitrage is used to describe the exploitation by multinational groups of asymmetries between different tax regimes (tax regimes do not always match each other equally), to achieve a reduction in the overall level of tax payable by the group.

The *International Tax Manual* then continues:

> It is important to stress that arbitrage takes many forms. It may be a simple mismatch in terms of how a particular transaction is characterised in the parties' respective tax jurisdictions. Or it might involve differing perspectives on the characteristics (e.g. residence status) or identity of the proper person to be taxed or to whom reliefs are due (other corporate law regimes produce entities that we find difficult to recognise). And, just as arbitrage itself can take many forms, so the tax advantage sought may be different from case to case.

Tax arbitrage clearly is a form of tax planning/avoidance which involves exploiting differences between tax systems, tax treatments and tax rates in different jurisdictions (see Steuerle, 2010). It is an over-arching term which covers the many different exploitation mechanisms that may be used. Many MNEs have been accused of such exploitation, notably in the media, with allegations being made, for example, about Google, Amazon, Starbucks, Facebook, Apple, and more recently Coca-Cola and Pfizer (see, for example, Financial Times, 2013; Guardian, 2019a, 2019b; Mason and Saint-Amans, 2021; Radziewicz, 2021). In addition, there have been various leaks of various caches of documents, commonly referred to as the Panama, Paradise and Pandora Papers, which have added to the volume of allegations about international tax avoidance.

Opinions, of course, differ as to the acceptability of this type of behaviour. "One man's idea of acceptable tax planning is undoubtedly another man's idea of criminally subversive activity" (Gillett, 1999: 1), whereas others think that there is no problem at all, and that "tax avoidance is a conceptual anomaly that exists in the mind of those whose sense of morality is violated by certain effective tax practices" (Orow, 2004: 415), occurring "where legislative intention and policy miscarried and failed to anticipate and reach the transaction under consideration" (ibid). However, governments worldwide have long been concerned about the level of exploitation of tax differentials at an international level as it erodes their tax bases and various measures have been introduced to combat it. In the UK, for instance, the HMRC *International Tax Manual* (HMRC, 2016a) refers to legislation introduced in 2005, specifically targeted at arbitrage, and more recently, the Organisation for Economic Co-operation and Development (OECD) (2015) proposed the *Base Erosion and Profit Shifting (BEPS) Action*

Plan, following on from its 2013 report on this subject, which consists of 15 action items that are intended to facilitate multilateral co-operation among governments, with a focus on improving the three core principles of international taxation – coherence, substance, and transparency. In accordance with the 15 OECD actions, the UK *Finance Act 2016* requires companies operating in the UK to publish their tax strategies for each financial year (HMRC 2016b). Scholes et al. (2016: 10) note that tax strategy is how an organisation integrates taxation considerations within corporate strategy, often with a view to minimising the overall tax liabilities. The purpose of this enhanced disclosure requirement is to increase transparency and accountability in terms of tax compliance, tax management and the risk exposure of companies for their UK taxation. Following the proposed revision to the tax standards, Oats and Tuck's 2019 study is one of the few prior studies that raised concerns about the requirement of transparency, such as misinterpretation of the final tax position. A more recent development is the proposal for a global minimum tax rate of 15%, proposed at the World Economic Forum in Davros as a means to address tax avoidance on a worldwide basis, to which 136 countries have now signed up (Thomas, 2021).

It is common to find tax strategies examined based on aggregate country-level datasets and treated as a single element rather than categorical components in the decision making process (e.g., Barrios et al., 2012; Basile et al., 2008; Chen and Moore, 2010; Derashid and Zhang, 2003; Devereux and Griffith, 2002, 2003; Hebous and Johannesen, 2015). This means that a large proportion of tax strategy research has been undertaken using secondary data, with the study of tax planning behaviours based on firm-level primary datasets therefore being under-researched in the literature.[1] New evidence based on primary firm-level data would provide valuable insights regarding the relationship of tax strategies with industrial characteristics of the firms involved. This aligns with the view of Dharmapala (2014: 423), that a shift from aggregate country-level data to firm-level microdata would greatly enhance the credibility of more recent estimates of BEPS.

To develop an understanding of the implication of tax strategies, it is important to examine empirically how tax strategies correlate with the firm and industrial characteristics, such as sectoral composition and firm size. This is because different elements within business sectors are subject to different sets of tax treatment. In this paper we divide our sample into manufacturing and service firms. For example, capital allowances favour the manufacturing sector over services, as manufacturers generally require much larger investment in fixed assets, such as plant and equipment, than does the service sector. In comparison, service industries, such as banking, consulting, hotels, and advertising, might typically require fewer investments in plant and machinery. As a result, incentives related to capital allowances would be of less interest to service firms. Similarly, the choice of tax strategies can differ with the size of firms. Larger corporations, for instance, are reported to have easier access to external finance (Graham, 2000), thus they are more competent in manipulating the intra-firm debt allocation, compared with smaller enterprises.

This study therefore employs a primary and unique firm-level dataset, obtained from a total of 276 UK-based MNEs to investigate how the tax strategies adopted by the sample firms vary with firm characteristics. The study contributes to the literature in several respects. First, the findings shed light on the underlying mechanism of tax regimes with reference to the sectoral composition and firm size of MNEs. Second, the empirical findings extend the literature by conceptualising the association between tax incentives and the size of UK MNEs, an area where there is little prior evidence in the literature. Third, the study extends the prior

[1] An exception is the 2022 study by Dyreng et al., which uses firm level accounting data.

research of Dharmapala (2014), and Hanlon and Heitzman (2010), which reviewed BEPS and the strategies apparent in taxation research. However, these studies were unable to examine empirically the implications of tax strategies and the correlation with firm characteristics. Finally, the findings provide a useful guide for tax authorities, such as indicating an area of revenue leakage in relation to specific business attributes, highlighting the need for attention on particular sectors.

The remainder of the paper is organised as follows. Section 2 reviews the literature on international tax planning/arbitrage/strategies on size and sectoral decisions in the context of UK MNEs, and develops the hypotheses for the study. Section 3 presents the research methods, and Section 4 the empirical results and discussion. Concluding remarks are in the final section.

2. Review of prior literature

The literature on the various aspects of international tax planning/arbitrage/strategies is extensive. As the international tax arena is one where things change rapidly, much of the earlier literature (for example, that from the 1980s and 1990s) has been overtaken by more recent developments and is no longer as relevant as it once was. Moreover, the relevance of issues for planning purposes is dictated by how any country's tax system deals with specific issues. For example, there is a substantial literature on treaty and double taxation reliefs. While this is obviously highly relevant in terms of international taxation generally, in terms of tax planning, its relevance is governed by how any country's national tax system gives relief for tax paid overseas. The UK, for instance, has a large number of tax treaties in place, but, regardless, provides relief mechanisms where there is none, so this is not a significant planning issue for UK MNEs. In general, relevant literature falls into two broad categories, namely: (i) that examining location (that is, tax jurisdiction) and the legal structure adopted for business, which is determined by a given jurisdiction's laws; and (ii) that considering pricing/costing of transactions, activities and assets (involving transfer pricing, royalties, intangible fixed assets (IFAs, such as intellectual property (IP)), research and development (R&D), and inter-company loans) within the framework of tax jurisdictions and the legal form of business. In the case of (ii), the chief underlying problem (from a tax authority standpoint) is that income/profits can be shifted from one tax jurisdiction to another without moving actual real assets or value-creating activities. These two broad literature categories are considered below. As noted earlier, the various mechanisms used to implement tax arbitrage are numerous.

2.1 Location and structure

2.1.1 Location

The fundamental issue surrounding profit/income shifting strategies is location and possible manipulation thereof. Eicke (2009), for instance, claimed that US MNEs have a taxable presence in multiple offshore locations, and then utilise sophisticated financial transactions to minimise their tax burden. An example of such a kind of tax planning is the use of the 'Double Irish Dutch Sandwich' tax structure by which, say, a US high-tech company would hold Irish and Dutch subsidiaries, and would locate IP so as to relocate profits from high tax locations to low tax locations.[2] To achieve this, the US firm would sell its high-tech product, such as

[2] Many countries have now questioned these types of arrangements, if not banned them entirely.

software, to a wholly owned Bermuda-based company (say), which in turn would license it to its wholly owned Irish subsidiary, and then sell the software to consumers in Europe. The second Irish company would then be used to send its profits to the first Irish company through a Dutch company, an intermediary firm, as a means of avoiding paying tax normally due in the US and also charged on IP in Ireland. The Dutch and Irish subsidiaries would be formed as intermediate holding companies to obtain benefits conferred by tax treaties, with the purpose to reduce the taxes of the multinationals at source. Ng (2013: 29) reiterates that the intermediate holding companies are created with the primary objective of deriving tax benefits. Thus, the opportunities for profit shifting can shape the location choice for IP, such as patents and trademarks. Google, for example, reportedly transferred €19.9 billion through a Dutch shell company, which was then forwarded to an Irish company in Bermuda (Guardian, 2019a). Companies pay no taxes in Bermuda. Böhm et al. (2015: 5) state that in practice, MNEs can exploit various organisational structures to achieve relocation of patents to low tax countries. The empirical evidence concurs that the choice of location for holding IP is a major enabler of profit shifting (Dharmapala, 2014; Dischinger and Riedel, 2011; Grubert, 2003). It is plausible to anticipate that large MNEs with IP have incentives to reduce taxable income by creating intermediate holding firms and so locating the IP in a tax haven, thus rendering them tax free.

Prior studies have confirmed that the level of resource commitment is commonly different between service and manufacturing firms (Belderbos et al., 2001; Brouthers et al., 2002). Manufacturing companies generally require much larger investments in fixed assets than do service sectors, while service industries, such as banking, consulting, and advertising, typically use fewer natural resources. Noor et al. (2008: 12) found companies that have an extensive investment in capital assets are prone to low tax rates, which could be because of their entitlement to large capital allowances to reduce taxable profits. Salaudeen (2017: 83) also provided evidence on an inverse correlation between capital intensiveness and effective tax rate. Capital-intensive manufacturers are more responsive to change in corporation tax rates (Lawless et al., 2014), as opposed to the service sector, owing to the proportional investment in capital assets. Grubert (2003) ascertains that R&D-intensive firms are sensitive to local tax rates with respect to the US manufacturing MNEs. The result was reinforced by Desai et al. (2006), who suggest that intense R&D activities lead to operations in tax havens.[3] Substantive evidence demonstrates that transfer pricing (see later) is exploited by R&D-intensive firms to shift income to low tax countries (Dyreng and Lindsey, 2009; Heckemeyer and Overesch 2017; Klassen and Laplante, 2012). It is feasible to suggest that the UK MNEs engaged in manufacturing business are incentivised to manipulate their choice of business locations to lessen their tax bills. This gives rise to our first set of hypotheses:

H1a: Manipulation of locations will be more important to MNEs in the manufacturing sector than in the service sector.

H1b: Manipulation of locations will be more important for larger MNEs than for smaller MNEs.

2.1.2 Legal form

When an MNE sets up overseas operations (foreign direct investment (FDI)), an important strategic decision is to consider the legal form of any entity located in the chosen foreign

[3] A tax haven may be defined as a jurisdiction where taxes are levied a very low rate, or are not imposed at all, on income or profits.

market. An MNE may establish a branch or division, which are not separate legal entities, or it might seek to establish a subsidiary company (where it owns all, or a controlling proportion of, the share capital), or it might seek to form a partnership (joint venture (JV)) with another entity (see Harzing, 2002). As noted above, group structures can become complex, if they are spread across multiple jurisdictions, and involve, say, intermediate holding companies or companies set up to perform specific roles (for example, hold IP or other IFAs). Hong et al. (2018: 24) found empirical evidence of tax effects on the legal structure of FDI as the choice of form in the host country results in different tax liabilities for the UK parent firm. Plesko and Toder (2013: 861) likewise report that the tax system often influences the choice of organisational forms and business operations. Huizinga and Voget (2009: 1244) argue that international double taxation can affect the parent-subsidiary structure of MNEs created by cross-border mergers and acquisitions. In light of the finding from Desai et al. (2004a), MNEs trying to benefit from worldwide tax planning are more willing to establish their affiliates as wholly owned subsidiaries (WOS). This might be because the subsidiary will be taxed as a separate entity. In the case of UK-owned overseas subsidiaries, dividends flowing from the subsidiary to the UK parent are not taxable, though other income received in the UK from the subsidiary may be. Conversely, organising units as branches will result in the inclusion of all branch income in the worldwide income of the UK parent firm as a branch is merely an extension of the parent.

Previous research has shown that the ability to manipulate transfer prices (see later) is closely related to the ownership structure and intensity of R&D (Azémar and Corcos, 2009; Desai et al., 2004b; Grubert, 2003). For example, Azémar and Corcos (2009: 1315) suggest that R&D-intensive parent firms investing in wholly owned subsidiaries have a greater ability to manipulate transfer prices (see also Desai et al., 2004a; Cristea and Nguyen, 2016). Bernard et al. (2006) show that tax rate differentials across countries can affect the gap between arm's length and related party prices on differentiated goods. Further, the level of control and power of influence from the headquarters can differ between the legal forms and ownership structures. Where manufacturing takes places that involves cross-border movement of products with no intermediate market (for example, unique automotive parts made for vehicles assemble in another jurisdiction), it is plausible that UK manufacturers, as opposed to service providers, have more incentives to benefit from the choice of legal and ownership forms, with a view to reducing their tax bills.

Few studies in the literature have addressed the association between the choice of organisational structures and firm size. Large MNEs are more likely to utilise organisational structures to reduce their overall tax liabilities. This might be a result of the business activities in which the large MNEs are involved, such as cross-border investment, capital and innovation expenses, and ownership of IP, which may incentivise the large entities to exploit the legal and ownership forms in an overseas territory, with the purpose of managing the tax payable at the group level. Several media sources (BBC News, 2016; Financial Times, 2013; Guardian, 2019b) reported that a number of well-known multinationals, wealthy individuals, and small companies established wholly owned subsidiaries or offshore shell companies, in an attempt to lessen their tax payments. Crawford and Freedman's study (2010: 1074) is one of the few prior studies that has examined the reasons for the taxation system to favour small entities, arguing that small businesses are important to the economy in terms of creating wealth, stimulating competition, and also creating jobs, and that this in itself justifies tax favourable provisions. It is therefore arguable that a favourable tax system will incentivise smaller MNEs to exploit the tax benefits that might accrue from the use of different legal and ownership forms in terms of tax planning. For example, a JV might offer such opportunities. In international alliances, equity JVs have been used as part of strategies to share technology and transfer knowledge

between partners (see Sampson, 2007: 382), and from a financial perspective may be relatively inexpensive to establish (Stevenson et al., 1994). In the case of joint ownership of small companies, owner-managers can take advantage of tax saving by deciding whether to take income in the form of wages or salary, or in the form of distributed profits (Adam et al., 2017; Mirrlees et al., 2011). Smaller MNEs may thus be able to manipulate this ownership form to reduce their tax obligation. It is sensible to infer that small MNEs have more incentives to exploit the choice of legal and ownership forms in foreign territories, as opposed to medium and large sized MNEs, with the intention of minimising the global tax burden. This leads to the following hypotheses:

H2a: Choice of legal structure will be more important for MNEs in the manufacturing sector than in the service sector.

H2b: Choice of legal structure will be more important for smaller MNEs than for larger MNEs.

2.2 Pricing/costing of transactions, activities and assets

2.2.1 Transfer pricing

As part of the BEPS strategies, the OECD (2013) confirmed that transfer pricing and debt shifting have been utilised as the two main strategies for shifting income/profit from high tax to low/zero tax countries. The reasons that this may be done are various, such as to 'engineer' a loss in a particular one jurisdiction, where that may be used to reduce or eliminate other profits (see Gramlich et al., 2004; Onji and Vera, 2010). A transfer price is an internal value placed on the transfer of goods, technology, raw materials or services between related entities within a corporate group (Yancey and Cravens, 1998: 266), for which there is no external market from which an independent, provable price can be obtained. Many studies have investigated the degree to which national tax rate differentials have led to transfer pricing manipulation (Flaaen, 2017; Gupta and Mills, 2002; Hines, 2005; Liu et al., 2017). To minimise the transfer pricing manipulation where the transactions at issue are not mediated by an open market price, the OECD (2017) requires that all transactions must be valued using a proxy for an arm's length price, thus the opportunities for tax strategy and planning associated with transfer pricing have been considerably minimised.

Recently, transfer pricing manipulation, however, has been reported as associated with R&D and intangible assets (Heckemeyer and Overesch, 2017; Hopland et al., 2018; Klassen et al., 2017; Liu et al., 2017). Consistent evidence is reported on transfer pricing having taken place in the form of royalty and licensing payments on IP held abroad (Bőhm et al., 2015; Dischinger and Riedel, 2011; Griffith et al., 2014; Hopland et al., 2018; Karkinsky and Riedel, 2012). For example, Starbucks was reported as paying little tax in the UK owing to pre-tax losses resulting from its treatment of royalty payments for the use of IP. The loss was made through the transfer price placed on its brand and business processes, and also the royalties on IP paid to Starbucks Europe, Middle Eastern and Asian Business (EMEA) from 38 countries across the world (Guardian 2019b). Brajcich et al. (2016: 9) have also reported that IP shifting is an international resource-shifting strategy in the pharmaceutical industry. The intangible nature of R&D and the licensing of IP has made the assessment of the arm's length price even more difficult compared with tangible products, owing to a greater degree of uncertainty and their more nebulous character (see Grubert, 2003: 226; Liu et al., 2017). Bernard et al. (2006) stress that their sample of US-based MNEs set an above-market transfer price on differentiated

products that were transferred to the international affiliates, while the difference between arm's length and related party prices is reported as smaller for undifferentiated commodity products. Given that R&D investment increases with the degree of product differentiation (Lin and Saggi, 2002), and also underlies technological development for creation of intangibles, it is arguable that R&D are particularly important to the manufacturing sector (Becker and Dietz, 2004; Sharma, 2003). This leads to the expectation that the manufacturing businesses would gain greater benefits from manipulation of their transfer pricing strategy rather than service providers.

Small and medium sized enterprises (SMEs) are largely exempt from transfer pricing legislation in the UK,[4] hence smaller MNEs may be incentivised to manipulate transfer pricing to shift profits out of the countries where they operate and into tax havens by charging an artificially high price on the goods and services transferred between related parties. Comparatively, large corporations face the transfer pricing compliance regulation (OECD 2017), and requirements of publishing tax strategies for each financial year (HMRC 2016b). Richardson et al. (2013) declared that company size has a positive effect on the application of transfer pricing, because large companies tend to use transfer pricing for tax reduction. Consistently, Nazihah et al. (2019: 14) reported that firm size has a significant positive effect on transfer pricing in manufacturing companies. Griliches (1990) suggests that large firms with strong financial resources have the incentive to exploit the transfer pricing of R&D intangible assets. Liu et al. (2017: 18) suggest that R&D intensity may be highly associated with firm size as large corporations are more likely to invest in R&D. Hall (2002: 36) notes that undertaking R&D is generally expensive and subject to a high level of uncertainty. Where such investment is internally financed by large MNEs (Hall and Lerner, 2010), then there is an incentive to take advantage of the transfer pricing of intangible assets, such as IP, patents, and trademarks, with the objective of shifting profits to affiliates/subsidiaries in low tax countries to minimise tax liabilities. It is conceivable to expect that large MNEs are more likely to make use of the transfer pricing strategy, in order to lessen their tax burden and often to a considerable extent (see also Dharmapala, 2014), rather than smaller MNEs. This gives rise to our third set of hypotheses:

H3a: Transfer pricing strategy will be more important for MNEs in the manufacturing sector than in the service sector.

H3b: Transfer pricing strategy will be more important for larger MNEs than for smaller MNEs.

2.2.2 Royalties and licensing

Transfer pricing manipulation uses product/service pricing as a particular means of locating income or profits in one tax jurisdiction as opposed to another. It was noted above that R&D activities are open to exploitation by means of transfer pricing,[5] but a significant amount of income can also be shifted in respect of R&D, by manipulation of intra-firm royalty and licence fee payments for the use of IP (Griffith et al., 2014; Hebous and Johannesen, 2015; Karkinsky and Riedel, 2012;). Grubert (2003) ascertains that R&D intensive firms are sensitive to local

[4] See the *International Tax Manual* at https://www.gov.uk/hmrc-internal-manuals/international-manual/intm412070 (HMRC, 2016a).

[5] One might argue that many income/profit shifting devices are simply a variation of the basic principle underlying transfer pricing.

tax rates with respect to the US manufacturing MNEs. According to Dharmapala (2014: 437), it may be easier to transfer intangible assets, such as patents and licensing agreements, to a foreign low tax affiliate providing an incentive for large entities to exploit tax-motivated income shifting. With reference to their strong financial capacity and easier access to resources, large companies are reported to have a greater likelihood of investing in R&D (Liu et al., 2017), leading to creation of intangible assets. This is because obtaining a patent, registering a trademark, and maintaining those protections can be extremely costly. For example, costs associated with IP inventions comprise of labour, materials and equipment, R&D, testing and trials, and the regulatory approval and certification (Gov.UK, 2022), while costs associated with protecting the IP rights include solicitors' fees, filing fees, settlement fees, and registration fees. Consistent with prior studies of the large costs of capital and high degree of uncertainty associated with R&D investment (Hall, 2002), the size of large entities and their financial options can enable them to fund the costs of investment, and also manage the risks associated with IP assets. It is credible to argue that large MNEs are inclined to exploit royalty and licensing, as a means to reduce their tax liabilities.

Another 'charge' for the use of resources, akin to royalties or licencing, might appear in the form of 'management charges'. Often staff in one location, typically a head office, will provide services to subsidiaries, perhaps in terms of oversight of projects or human resources, so a cost for their time or the service provided is charged to the subsidiary. It is often very difficult to ascertain the value of such time or services. Hopland et al. (2018: 164) found that MNEs can adjust income shifting via transfer pricing, particularly related to user fees and intangible assets when an affiliate incurs a loss. This leads to our fourth set of hypotheses:

H4a: Royalty/licensing manipulation will be more important for MNEs in the manufacturing sector than in the service sector.

H4b: Royalty/licensing manipulation will be more important for larger MNEs than for smaller MNEs.

2.2.3 Inter-company loans and financing

Manipulation of inter-company debt is often considered to be a major device for income shifting, as interest is deductible for corporate tax purposes (Graham, 2000; Hanlon and Heitzman, 2010; Huizinga et al., 2008). Desai et al. (2004b) and Huizinga et al. (2008), however, dispute the use of the financial structure (debt or equity finance) by MNEs to exploit the national tax rate differentials. Møen et al. (2011) stressed that MNEs can exploit the tax advantage of debt more aggressively than national firms because they can shift debt from affiliates in low tax countries to affiliates in high tax countries. MNEs are predicted to balance external debts across affiliates by considering the tax rates in all the countries where they are present. If large debts are raised from subsidiaries in high tax countries, it can lead more profits being made by these affiliates located in the high tax countries. To mitigate the risk of bankruptcy due to large borrowing, MNEs will lower the use of debt in all other countries. This way, MNEs can manipulate the debt tax shield whilst holding the overall insolvency risk in check (Møen et al., 2011). Egger et al. (2010) also report evidence of a higher debt-to-asset ratio from the use of internal debt in MNEs than in non-MNE firms, and that the difference is larger in high tax countries. Similarly, Buettner et al. (2012) confirmed the impact of tax rates on the use of inter-affiliate debt. Heckemeyer and Overesch (2017: 967) further provided consistent evidence on the use of both internal and external debt to lower the corporate tax

burden of MNEs. However, the extent to which firms use interest to reduce taxable corporate profits is now restricted by 'thin capitalisation' rules.

According to Hanlon and Heitzman (2010: 152), firms with high depreciation costs and investment tax credits are likely to have more assets in place, and hence are more likely to finance with debt. For example, mining businesses are reported for the use of debt financing (OECD, 2018a). The argument implies that manufacturers which have a large proportion of tangible assets, inventories, and capital-intensive investment are more likely to finance with debt. Firms with valuable assets can often borrow on relatively favourable terms, such as at low costs (Graham 2000: 1911). It is plausible to argue that the manufacturing sector is more likely to correlate with the intra-firm debt allocation instead of the service sector.

Few prior studies have examined the relationship between the firm size and debt shifting. Graham (2000: 1932) notes that large firms tend to use debt conservatively. Because large corporations are more diversified, their size allows them to survive difficulties (Graham 2000: 1911). Gordon and Lee (2000: 198) emphasise that financial options available to a small local auto dealership, for example, may differ substantially from those available to large auto manufacturing firms, in that small firms may have limited access to external finance compared with large entities. According to OECD (2018a: 10), large and diversified miners usually have better access to a range of loan sources relative to small and medium sized firms, and usually borrow on relatively better terms due to their better credit rating. Large firms are known for easier access to credit as they tend to be more diversified and less prone to bankruptcy (Rajan and Zingales, 1995). Owing to the difference in tax rates or the differentials in currency rates across different nations, large corporations are enabled to take advantage of shifting debt internationally to benefit from the deduction of tax savings. It is reasonable to expect that the large-sized UK MNEs will exploit the benefits from the intra-firm debt allocation to lower their tax payments. This gives rise to our fifth set of hypotheses:

H5a: Intra-firm debt allocation will be more important for MNEs in the manufacturing sector, than in the service sector.

H5b: Intra-firm debt allocation will be more important for larger MNEs than for smaller MNEs.

3. Research methods

3.1 Sample and data collection

The sampling frame for UK MNEs[6] was drawn from the company database (www.data.gov.uk) published by Companies House, which contains basic company data of live companies on the register in 2018. The Hemscott Company Guru database was also used to search for detailed information on directors, organisational management, and the activity status of firms. With reference to OECD (2018b), small and medium sized MNEs are classified as those with 10 to 249 employees, and large MNEs are categorised as more than 250 employees, hence, micro enterprises with fewer than 10 employees were excluded from this study.[7] This was not viewed as a serious threat to the study as it would filter out very small businesses which may not be engaged in FDI. Through a random sampling selection procedure, a total of 2,273 firms was

[6] For the purpose of this research, we define a UK MNE as a company that has one or more overseas activities.
[7] In terms of tax, it is not the number of employees which matters, but the amount of taxable profits and/or the fixed asset base. However, in this case, employee numbers have been used as a (more easily obtainable) proxy for firm size.

generated and constituted the sampling frame for this study. After initial contact with a request to participate in the survey, 778 firms declined to participate. A total of 1,495 online questionnaires was distributed between 2018 and 2019 to the UK MNEs, along with a covering letter requesting that the questionnaire be completed by either the finance manager, tax adviser or company accountant. Several rounds of reminders were sent to non-respondents to encourage participation. Out of the total of 1,495 questionnaires distributed, 276 usable replies were obtained, an effective response rate of 18.5 per cent. Considering the well-documented difficulties of obtaining questionnaire responses from executives (Harzing, 1997), organisations are particularly reluctant to cooperate where the topic of the research is relatively sensitive, such as taxation (Saunders et al., 2019), and the generally decreasing rate of response from executives (Cycyota and Harrison, 2006), the study's response rate can be considered as satisfactory, given the topic of the questionnaire and the type of potential respondent. Some published studies have reported lower response rates than that reported in this study. For example, studies by Antoncic and Antoncic (2011), and Lepak et al., (2003) were successful in obtaining only 6.5 per cent response rates. The characteristics of the respondent firms are summarised in Table 1.

Table 1: Characteristics of the sample

Industry sectors	**Total**	**%**
Manufacturing sector		
Food, beverage and tobacco	15	5.4
Metal and minerals	11	4.0
Energy	23	8.3
Construction	9	3.2
Chemicals	2	0.7
Pharmaceuticals	5	1.8
Computers	13	4.7
Telecommunications	4	1.4
Other electrical	9	2.4
Automobiles	4	1.4
Aerospace	4	1.4
Other manufacturing	41	14.8
	133	48.0
Service sector		
Transportation and storage	17	6.1
Distribution and wholesale	7	2.5
Financial services	28	10.1
Administrative and support services	11	4.0
Computer and technical services	13	4.7
Information and communication	22	7.9
Leisure and entertainment	4	1.4
Legal and professional services	17	6.1
Other services	25	9.0
	143	51.6
Grand total	276	100
Size of the MNEs (number of employees)		
10 – 49	33	12.0
50 - 249	46	16.7
>250	197	71.3
Grand total	276	100

The distribution of the sample of UK MNEs by industry type can be categorised into two sub-groups, according to the business sectors where the MNEs operate, namely, manufacturing and services sectors. The size of parent firm is classified by reference to the number of employees in the company. As noted, according to OECD (2018b), small enterprises are classified as 10 to 49 employees, whereas medium sized enterprises are defined as 50 to 249 employees, and large sized firms employ 250 or more people.

3.2 Variables for analysis

For analysis purposes, the sample characteristics of industry sector and size are represented as categorical independent variables, and dummy variables (0/1). A value of '1' was assigned for UK MNEs engaged in the service sector, while '0' was assigned for MNEs engaged in the manufacturing sector. To compare the behaviour of the three different firm sizes on international tax strategies, two dummy variables were used. We used the largest category (large firms) as the base, and set up dummies to represent small and medium sized. The international tax strategies, as dependent variables, were measured in terms of five components of tax planning strategy (Eicke 2009; Hanlon and Heizman 2010). Tax strategy-specific questions were posed to respondents in a way to measure the relative importance of tax planning behaviours in reference to FDI. Participants were asked the question 'How important are the following strategies in seeking to minimise the tax payment as a result of the FDI?'. Responses were assessed by using a five-point Likert scale (where 1 = 'of no importance', and 5 = 'of great importance').

3.3 Model specification

The hypotheses were examined by evaluating the relationship between the components of international tax strategy and the sample characteristics in terms of the industry type and firm size of UK MNEs. Using linear regressions can test the theoretical arguments, as identified in the review of prior literature (section two), that tax strategy will vary with sectoral of operation and firm size.

The multiple regression testing model applied for this study can be expressed as following.

$$Y_i = \beta_0 + \beta_1 SEC_i + \beta_2 SIZ1_i + \beta_3 SIZ2_i + \varepsilon$$

Where Y_i is the one of the dependent variables representing each component of international tax strategy, SEC_i is a dummy variable set to 1 when the firm is in a service sector, and $SIZ1_i$ is a dummy variable indicating that the firm is small, and $SIZ2_i$ is a dummy variable indicating that the firm is medium sized.

4. Findings and Discussion

4.1 Tax strategies and industry sector of MNEs

The hypotheses were tested by conducting multiple regressions on the relationships between tax strategies and the industry sector and size of the FDI, using the regression described in section 3.3 above. The descriptive statistics and correlation matrices of the variables employed in analyses are illustrated in Table 2. The findings extend the literature by examining the

association between the components of tax planning behaviours and industry characteristics. The statistical results indicate that the relative importance of international tax strategies varies with the industry sector in which UK MNEs operate. The coefficients of regressions show an effect significant at 1% level for *manipulation of locations, transfer pricing strategies*, and *royalty and licensing manipulation*. C*hoice of legal forms* and *inter-company loans and financing* are not found statistically significantly associated with the sectoral composition of UK entities.

Table 2: Descriptive statistics and correlation of tax strategies within UK MNEs

Variables	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Transfer pricing strategy	3.11	1.30	1.00							
Choice of legal forms	2.84	1.23	0.28 **	1.00						
Manipulation of locations	2.26	1.19	0.15 *	0.16 *	1.00					
Inter-company loans and financing	2.02	1.27	0.07	0.02	0.16 *	1.00				
Royalty and licensing	1.56	1.34	-0.06	-0.20	0.35 **	0.40 **	1.00			
Sector of the MNEs	0.52	0.50	-0.13 *	-0.05	0.17 **	0.04	-0.04	1.00		
Size 1 of the MNEs	0.12	0.33	0.09	0.20 **	0.05	0.14 *	-0.18 **	-0.19	1.00	
Size 2 of the MNEs	0.17	0.37	0.14 *	0.03	-0.11	-0.08	-0.17 **	-0.17	-0.08	1.00

Notes:
N = 276; SD = standard deviation
**p* < 0.05; ***p* < 0.01 (two-tailed)

Table 3: Multiple regressions of tax strategies for the industry sector and size of the MNEs

	Location and structure		**Pricing/costing of transactions, activities and assets**		
Variables	**Manipulation of locations**	**Choice of legal forms**	**Transfer pricing strategy**	**Royalty and licensing manipulation**	**Inter-company loans and financing**
	Co-efficient (t-value)	Co-efficient (t-value)	Co-efficient (t-value)	Co-efficient (t-value)	Co-efficient (t-value)
Intercept	2.09 (17.074) ***	2.791 (24.101) ***	3.191(26.283) ***	1.317 (5.772) ***	2.278 (19.803) ***
MNE is in a service sector	0.39 (2.545) ***	-0.096 (-0.662)	-0.411 (-2.702) ***	0.889 (3.104) ***	-0.196 (-1.362)
Size of the MNEs:					
Small MNE	0.126 (0.527)	0.74 (3.250) ***	0.415 (1.750) *	-0.916 (-2.050) **	-0.723 (-3.217) ***
Medium MNE	-0.28 (-1.341)	0.157 (0.791)	0.423(2.043) **	-0.653 (-1.676)	-0.672 (-3.423) ***
R square	0.032	0.024	0.050	0.189	0.069
Adjusted R^2	0.023	0.017	0.040	0.155	0.059
F value	3.793**	3.321**	4.818***	5.524***	6.720***
p value	0.02	0.03	0.003	0.002	0.000
N	276				

Note:
*$p < 0.1$; **$p < 0.05$; *** $p < 0.01$ (two-tailed)

Manipulation of locations (β = 0.39, t = 2.545, ρ < 0.01) has a positive and significant coefficient for this tax strategy, suggesting the use of location strategy is more important for service companies, than for manufacturing companies to reduce the tax payable at the group level. The result is at odds with the expectation in H1a. The empirical result implies that service MNEs have played an active role in exploiting investment locations to benefit from the differences in tax policies and schemes across countries, such as BEPS mechanisms, in order to minimise the multinational's tax liabilities. The finding also provides empirical evidence to support the anecdotal evidence about devices such as the 'Double Irish Dutch Sandwich' structure profits to be manipulated by service MNEs, such as Amazon, Facebook, Google, and Starbucks. It may be because the large US hi-tech and life sciences firms were under the spotlight for the BEPS issues, thus service MNEs have been neglected by the authorities in terms of continuing to exploit gaps and mismatches in tax rules artificially to shift profits to low or no-tax locations. This is perhaps due to the intangible nature of services offered by the MNEs, which incentivised the entities to erode the tax bases through deductible payments, such as interest and royalties, to shift profits to low-tax jurisdictions. Intuitively, the difference in tax treatments across countries are more attractive to the service sector, as it suits the intangible nature of transactions undertaken by the service providers. This view resonates with the finding of Dischinger and Riedel (2011), which suggests that MNEs with patent holding are attracted to locations with low tax rates to save on their tax bills.

The empirical results show no support for H2a, as the coefficient on *choice of legal forms* (β = -0.096, t = -0.662, ρ > 0.1) is not statistically significant, which suggests that choice of legal structures does not vary with this tax incentive. Lack of support for H2a is a puzzle because it is against the logic of the proposed theoretical framework and prior empirical evidence. With reference to the mean scores ($\overline{X}$ = 2.84), as shown in Table 2, being greater than the median point (2.5) on the scale, it indicates that legal form is one of the highest ranked tax components, compared with other tax planning strategies. This could be interpreted that the choice of legal structure has been utilised widely in the business context, regardless of the industrial sectors where MNEs are specialised, hence it does not vary with the specific business sector. Consistent with prior studies of legal structures being associated with the manipulation of transfer pricing (Azémar and Corcos, 2009; Desai et al., 2004b; Grubert, 2003), there is increasing evidence on shifting of profits and intangible assets in service categories, such as allocation of patents (Dieschinger and Riedel, 2011; Karkinsky and Riedel, 2012), the flows of royalties and licensing payments (Heckemeyer and Overesch, 2017), and management or service charges (Hebous and Johannesen, 2015). This means that UK service providers may actively participate in exploiting the organisational structure, as a vehicle, in order to lessen the tax burden of UK MNEs. The finding suggests that choice of legal forms could be attractive to both manufacturing and service MNEs as the use of legal forms to lessen the tax payable is considered as an important tax planning strategy for UK MNEs. This finding reinforced the view of Böhm et al. (2015), that in practice, MNEs can capitalise on various organisational structures to achieve relocation of patents to low tax countries.

Consistent with the expectation, H3a is supported by the empirical result with a negative and significant coefficient on *transfer pricing strategy* (β = -0.411, t = -2.702, ρ < 0.01), suggesting that transfer pricing is more attractive to the manufacturing sector rather than service firms. This study provides empirical evidence to confirm the association between strategic transfer pricing and the manufacturing business, which supports the findings of prior studies of transfer pricing on the intangible products in manufacturing (Brajcich et al., 2016; Dischinger and Riedel, 2011; Grubert, 2003; Hopland et al., 2018). The finding implies that UK manufacturers are incentivised to capitalise on transfer pricing, with a view to reducing their tax expenses. A possible explanation is that manufacturers which have made substantial

investments in property, plant and equipment, and in R&D are inclined to leverage cross-border tax arbitrage by exploiting the differences in tax policies and regimes across different tax jurisdictions. Intuitively, the differentials in tax treatment on capital income taxation, such as interest income and capital gains/losses being taxed differently across countries are more appealing to the manufacturing industry, as opposed to service sector. This might be due to the nature of business undertaken by the manufacturing firms, such as capital-intensive investments and creation of intangibles from R&D. The intangible nature of R&D and IP licensing have imposed a degree of uncertainty on the arm's length price, compared with tangible assets (Grubert, 2003), which provide fertile ground for UK manufacturers to minimise their effective global tax burden. This argument aligns with the view of Liu et al. (2017), that there is a scope for MNEs to benefit from the manipulation of transfer pricing, in spite of enhanced measures on the arm's length principles.

The empirical result shows that *royalty and licensing manipulation* (β = 0.889, t = -3.104, $\rho < 0.01$) has a positive and significant coefficient, which indicates that this tax strategy is particularly important for the service sector, as opposed to manufacturing sector. The finding is at odds with the expectation in H4a. The result implies that service MNEs have actively engaged in manipulation of royalties and licensing, with a review to reducing their taxable income. This could be interpreted intuitively, namely that given the intangible nature of the service business, service MNEs hold an advantageous position for capitalising on royalties and licensing, as means to reduce the firm's global tax bills. Service firms, by nature, provide highly specialised products and services, for example, banking and insurance services in the financial sector, and transport and information in the service sector. When the parent firms 'charge' royalties on IP and license fees from affiliates, the charges are often recognised in the form of management, administration, or advertising fees (Hebous and Johannesen, 2015). The value of the transactions, however, is generally difficult to determine as there is no comparable transaction available for such services. In the view of Hebous and Johannesen (2015: 2), service industries are exposed to institutional features, such as low tax rates, secrecy, and low regulatory standards. While the US tech giants having reported to leverage their tax relief on the IP intangibles in tax havens, service MNEs are empowered by the nature of the business to continue taking advantage of manipulating royalties and licensing, in an effort to reduce their taxable income. This result provided empirical evidence to resonate the report on royalty and licensing manipulation surrounding Amazon, Facebook, Google, and Starbucks.

No support is found for the industry categories being associated with *inter-company loans and financing* (β = -0.196, t = -1.362, $\rho > 0.1$). The result differs from the expectation in H5a, and the empirical result runs against the logic of prior empirical evidence. A possible explanation on this is that inter-company loans and financing have been used in a wide range of context for both manufacturing and service sectors, hence it does not vary with particular industry. This argument is corroborated by the view of Heckemeyer and Overesch (2017), that debt shifting has been reported as dominant channel to shift profits across affiliates. This is because interest expenses are tax deductible, which can incentivise the arrangement of financial structures to re-allocate corporate income to a lower tax jurisdiction. On the other hand, with reference to the mean scores ($\bar{X}$= 2.02) being lower than the median point (2.5) on the scale, as presented in Table 2, this suggests that this tax incentive is relatively less important to the UK MNEs, compared with transfer pricing, legal forms, and location choice. This finding could be due to the proposed countermeasure from the tax authority, which has reduced the importance of debt financing for the reduction of corporate tax burden for MNEs. For example, the *BEPS Action Plan 4* introduced a limitation on interest deduction to 10% to 30% of an entity's earnings before taxes (OECD, 2015). Thus, the UK companies have been subsequently

constrained from making use of intra-firm debt allocation to relocate debts to high tax countries, as a means to lessen the tax burden of the MNEs.

4.2 Tax strategies and firm size of UK MNEs

Table 3 shows no support for H1b, as the coefficients of regression on *manipulation of locations* (Small MNE, β = 0.126, t = 0.527, ρ > 0.1; Medium MNE, β = -0.28, t = -1.341, ρ > 0.1) were not statistically significant. The empirical result suggests that this tax incentive does not vary with the different sizes of UK MNEs, which is at odds with the expectation in H1b. The finding contradicts the argument from Dharmapala (2014: 445) that the fixed costs incurred in large firms lead them to be highly responsive to tax differentials across countries. The mean score of the location strategy ($\bar{X}$ = 2.26), as shown in Table 2, indicates that the tax planning component is ranked as the third highest importance in the list of tax strategies. It is sensible to infer that all UK MNEs are incentivised to reduce taxable income by manipulating investment locations, regardless of the company size. For example, a MNE may choose to locate operations in tax haven country, with the intention of shifting profits from high tax locations to low tax locations, such as the 'Double Irish Dutch Sandwich' tax structure, to lower the firm's tax liabilities. Thus, any entities that are engaged in cross-border businesses may be stimulated to explore tax reliefs through the location choice. It is important to note that, owing to their size and special tax provisions, small MNEs generally attract less attention and criticism from the public media. There is a strong assumption in government and business communities that small businesses should be provided with tax incentives and reliefs (Crawford and Freedman, 2010). Hence, small firms have greater flexibility to exploit investment locations, whilst large multinationals are facing the enhanced measures from the national and international tax authorities, such as the *BEPS Action Plan* from the OECD/G20 and the UK *Finance Act 2016*. In essence, the finding suggests that all sized MNEs are driven to minimise the tax payable by locating operations in low tax countries, if the choice of decisions is available.

In reference to the *choice of legal forms* (Small MNE, β = 0.74, t = 3.250, ρ < 0.01; Medium MNE, β = -0.197, t = -0.910, ρ > 0.1), Table 3 shows a strong support for H2b, with a positive and significant coefficient for the small MNEs. The finding suggests that the choice of legal forms is more important for small entities than for medium and large enterprises, with respect to alleviating the level of tax payments. It provides evidence to argue that small MNEs have a greater motive to exploit the different forms of organisational structure, in comparison with larger companies. This can be explained on the grounds that small firms hold an advantageous position to take a strategic approach towards the choice of legal and ownership forms for the consequent tax implications, given that the tax system favours small enterprises (Crawford and Feedman, 2010). This view is resonated with Mirrlees et al. (2011: 456), who claimed that significant tax advantages for small businesses remain within the UK tax system. It is reasonable to argue that the current taxation system stimulates small MNEs to exploit legal and ownership forms, in the interest of improving their tax position. For example, small MNEs holding a subsidiary in tax havens may not only be able to benefit from the low tax rates and profit shifting, but also take advantage of arranging the dividend and remuneration payments in the most tax-efficient way, leading to a substantial tax saving for the owner-managers and partners of small companies (Adam et al., 2017; Mirrlees et al., 2011). Conversely, large MNEs have been under scrutiny, following the prominent reports in the media of a number of large sized enterprises which were paying little corporate income tax in countries where they

were deriving significant sales revenue.[8] The *BEPS Action Plan 3* was subsequently developed to counter offshore corporate structures, so as to prevent harmful tax practices (OECD, 2015).

Surprisingly, *transfer pricing strategy* (Small MNE, β = 0.415, t = 1.750, ρ < 0.1; Medium MNE, β = 0.423, t = 2.043, ρ < 0.05) was found not to offer any support for H3b, as the positive coefficients of regressions show statistically significant for small and medium enterprises. The finding suggests that transfer pricing strategy, as a means of tax reduction, is more important to SMEs, which is at odds with our expectation. Our result contradicts that of Nazihah et al. (2019) and Richardson et al. (2013), who advocate that large firms tend to use transfer pricing in this way. Intuitively, this is perhaps because small and medium sized enterprises have been largely exempted from the transfer pricing legislation in the UK (HMRC, 2016a). Hence, SMEs may be empowered to exploit the transfer pricing of R&D intangibles, such as IP, patents, and trademarks, with the intention to lessen the tax burden at the group level. By contrast, large enterprises are required to comply with the arm's length principle for pricing intra-firm transactions under the OECD transfer pricing guidelines (OECD, 2017). SMEs are therefore incentivised to explore the loophole existing in the current UK tax system, and thus leverage the transfer pricing strategy by shifting profits out of high tax countries to low tax countries, in order to reduce the overall level of tax payable. The finding indirectly provides evidence on the effects of *BEPS Action Plan 8* (OECD, 2015) – an increasing measure proposed to the arm's length standards in cases involving intangible assets – implying that the opportunities of capitalising on transfer pricing has been mitigated within larger MNEs. It sheds light, however, on the issue of transfer pricing having been manipulated by SMEs in the UK, calling for attention from the tax authority to tighten the rules and regulations to negate the effects of transfer pricing for SMEs.

In prospect of *royalty and licensing* (Small MNE, β = -0.916, t = -2.050, ρ < 0.05; Medium MNE, β = -0.653, t = -1.676, ρ > 0.1), Table 3 shows that the coefficient of regression on this tax strategy is negative and significant for small MNEs. The finding implies that as royalty and licensing manipulation increases, large MNEs will be more in favour of this tax incentive over SMEs, which provides strong support for H4b. The finding can be considered with respect to the association of royalties and licensing with IP assets undertaken by large corporations, such as patents and trademarks. To protect IP inventions, however, firms must pay tens of thousands of dollars to obtain or maintain licensed patents or other IP rights. Also, patent holders are responsible for maintaining patents, and paying the appropriate periodic government renewal fees (Gov.UK, 2022). Therefore, large companies with strong financial capacity and easier access to resources can afford to fund the investments and expenditures on IP inventions and protection. This argument corroborates the view of Liu et al. (2017), suggesting that large companies have a greater likelihood of investing in R&D. The finding implies that large MNEs with IP assets have more incentives to leverage the tax credit granted by the intangible assets, in order to lower the overall tax bills. Transfer pricing and profit shifting have been reported as devices to implement the royalty and licensing manipulation to mitigate tax payable (Brajcich et al., 2016; Hebous and Johannesen, 2015; Heckemeyer and Overesch, 2017; Hopland et al., 2018; Klassen et al., 2017; Liu et al. 2017). Thus, the result provides empirical evidence to acknowledge that the use of such tax vehicle is more important to larger UK MNEs than to smaller entities.

The negative and significant coefficients for *inter-company loans and financing* (Small MNE, β = -0.723, t = -3.217, ρ < 0.01; Medium MNE, β = -0.672, t = -3.423, ρ < 0.01) indicate a strong support for H5b. The result suggests that while the use of inter-company loans and

[8] Although a caveat must be entered that thigh value sales do not automatically generate high profits.

financing increased, large sized UK MNEs are more likely to respond to this tax motive, compared with small and medium sized MNEs. The empirical finding provides primary evidence on the correlation of tax-motivated debt shifting with large MNEs, suggesting the prevalence of debt-based profit-shifting mechanisms within the multinationals, which complies with the findings of Buettner et al. (2012). A reasonable explanation for this is that large firms have easier access to external finance (Graham 2000), and also have the capacity to manipulate debt allocation and inter-company loan interest across territories. Debt-based profit-shifting mechanisms are particularly known for being used by mining and resource extraction companies, which have little or no IP, but which use high levels of leverage and asset financing, due to the capital-intensive nature of the sector (OECD, 2018a). The allocation of loans and interest financing are commonly adapted to exploit the use of tax havens in a synchronised manner. If an MNE is located in the Netherlands, for example, Dutch tax law enables the firm to 'overcharge' its subsidiaries for asset financing, which is treated as tax-free in the Netherlands. From a tax perspective, borrowing is more likely to occur in countries with higher tax rates relative to the lender, since this can facilitate international profit shifting, and also reduces the overall taxation of the group by deducting interest expenses against taxable income for corporate income tax across the group's operations (OECD, 2018a). Therefore, it is sensible to infer that large firms have a motive to capitalise on the inter-company loan and loan interest, in an effort to reduce their taxable income. The empirical finding implies that there is room for tax reliefs accruing from debt manipulation, despite the OECD enhancement of tax standards, *Action Plan 4* on the BEPS, to cap the amount of interest deduction for MNEs.

5. Conclusion

This paper is a first attempt to use firm-level primary data to examine the components of international tax strategy and their association with firm characteristics in terms of the sectoral composition and size of UK MNEs. The findings provide valuable insights regarding the underlying mechanism that could explain the correlation between industry categories, firm size, and the choice of tax planning behaviours of UK enterprises. The new evidence on the international tax strategies varying with firm characteristics has several implications for policy and future research.

From tax policy and political perspectives, the finding of this study can make a number of contributions. First, our research documented compelling evidence that industry sectors and different sizes of UK MNEs are inclined to utilise particular tax credits and incentives to minimise their global tax burden. This result calls for tax authorities to pay attention to specific tax avoidance activities with reference to firm characteristics, such as the exploitation of organisational structures, use of transfer pricing in the SMEs, and allocation of loans and interest financing undertaken by large entities, when proposing countermeasures to mitigate the tax avoidance behaviours. Second, tax strategy is not an aggregate variable, but is better considered in its various component parts. The findings shed light on the tax sophistication of the multinationals where tax planning strategies can be used in a synchronised and combined manner to reduce the overall tax payable. This means that firms are still eligible to exercise intra-firm debt shifting and/or tax-motivated loss shifting after manipulating the investment locations with intermediate holding firms. They fail to examine tax planning activities as disaggregate activities. It reinforces the prominent reports of well-known multinationals paying little corporation income tax in countries where they were generating notable profits. Third, the results confirm that the size of MNEs plays a factor in the choice of international tax strategies undertaken by UK MNEs, which contributes to the gaps in the literature by providing empirical evidence of firm size on the application of tax planning behaviours. Fourth, in

contrast to the anecdotal evidence of large firms engaged in a high level of tax avoidance and planning behaviours, surprisingly SMEs are also found to be actively engaged with such behaviours to lower their level of tax payments. The finding indicates an area of revenue leakage in the current taxation system, which requires authorities to tighten the regulations applicable to SMEs in the UK. In respect of the manipulation of investment locations, intermediate holding companies are reported to be used as a vehicle for profit shifting strategies. This calls for attention to the actual nature of business nature to the substance of commercialisation, to the purpose of establishing the business entity and also the choice of organisational forms, with the intention of avoiding shell companies being manipulated for tax avoidance, rather than mainly relying on the enhanced disclosure of tax strategies. Finally, the findings indicate no variation of sectoral composition with the choice of legal forms, and inter-company loans and financing. Firm size was found to not vary with the tax strategy, manipulation of locations. This can be explained in that legal forms, inter-company loans and financing, and location choice have been utilised widely in the context of UK MNEs, regardless of the industry category and firm size. There is indirect evidence that suggests that the level of importance of the allocation of inter-company loans has been eliminated, owing to increasingly stringent tax rules.

Opportunities for future research include the examination of the association between specific tax strategies with factors not considered in this study, such as transfer pricing with the choice of ownership and market entry mode for the FDI.

References

Adam, S., Miller, H. and Pope, T. (2017). *Tax, Legal Form and the Gig Economy*. Available at:https://ifs.org.uk/uploads/publications/comms/R124_Green%20Budget_7.%20Tax%2C%20legal%20form%20and%20gig%20economy (accessed 9 August 2022).

Antoncic, J.A. and Antoncic, B. (2011). employee satisfaction, intrapreneurship and firm growth: A model, *Industrial Management and Data Systems*, 111(4): 589–607.

Azémar, C. and Corcos, G. (2009). Multinational firms' heterogeneity in tax responsiveness: The role of transfer pricing, *World Economy*, 32(9): 1291–1318.

Barrios, S., Huizinga, H.P., Laeven, L. and Nicodème, G.J. (2012). International taxation and multinational firm location decisions, *Journal of Public Economics*, 96(11): 946–958.

Basile, R., Castellani, D. and Zanfei, A. (2008). Location choices of multinational firms in Europe: The role of EU cohesion policy, *Journal of International Economics*, 74(2): 328–340.

BBC News (2016). Panama Papers Q&A: What is the scandal about? Available at: https://www.bbc.co.uk/news/world-35954224 (accessed 23 August 2019).

Becker, W. and Dietz, J. (2004). R&D cooperation and innovation activities of firms – evidence for the German manufacturing industry, *Research Policy*, 33(2): 209–223.

Belderbos, R., Capannelli, G. and Fukao, K. (2001). Backward vertical linkages of foreign manufacturing affiliates: Evidence from Japanese multinationals, *World Development*, 29(1): 189–208.

Bernard, A.B., Jensen, J.B. and Schott, P.K. (2006). Transfer pricing by US-based multinational firms, *NBER Working Paper* No. 1249. Available at: https://www.nber.org/papers/w12493 (accessed 14 July 2022).

Bőhm, T., Karkinsky, T., Knoll, B. and Riedel, N. (2015). Corporate taxes and strategic patent location within multinational firms, April, in *CESIfo Area Conference on Public Economics*.

Brajcich, A.M., Friesner, D L. and Schibik, T.J. (2016). Do US pharmaceutical companies strategically shift income to international affiliates? *Multinational Business Review*, 24(1): 8–24.

Brouthers, K.D., Brouthers, L.E. and Werner, S. (2002). Industrial sector, perceived environmental uncertainty and entry mode strategy, *Journal of Business Research*, 55(6): 495–507.

Buettner, T., Overesch, M., Schreiber, U. and Wamser, G. (2012). The impact of thin capitalisation rules on the capital structure of multinational firms, *Journal of Public Economics*, 96(11): 930–938.

Chen, M. and Moore, M.O. (2010). Location decision of heterogeneous multinational firms, *Journal of International Economics*, 80(2): 188–199.

Crawford, C. and Freedman, J. (2010). *Small business taxation*, in Adam, S., Bond, S., Chote, R., Johnson, R. and Myles, G. (eds.), *Dimensions of Tax Design: The Mirrlees Review*, (pp. 1028–1099), Oxford: Oxford University Press.

Cristea, A.D. and Nguyen, D.X. (2016). Transfer pricing by multinational firms: New evidence from foreign firm ownerships, *American Economic Journal: Economic Policy*, 8(3): 170–202.

Cycyota, C.S. and Harrison, D. . (2006). What (not) to expect when surveying executives: A meta-analysis of top managers' response rates and techniques over time, *Organisational Research Methods*, 9(2): 133–160.

Derashid, C. and Zhang, H. (2003). Effective tax rates and the "industrial policy" hypothesis: Evidence from Malaysia, *Journal of International Accounting*, 12(1): 45–62.

Desai, M.A., Foley, C.F. and Hines, J.R. (2004a). The costs of shared ownership: Evidence from international joint ventures, *Journal of Financial Economics*, 73(2): 323–374.

Desai, M.A., Foley, C.F. and Hines, J.R. (2004b). A multinational perspective on capital structure choice and internal capital markets, *Journal of Finance*, 59(6): 2451–2487.

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

Devereux, M.P. and Griffith, R. (2003). Evaluating tax policy for location decisions, *International Tax and Public Finance*, 10(2): 107–126.

Devereux, M.P. and Griffith, R. (2002). The impact of corporate taxation on the location of capital: A review, *Economic Analysis and Policy*, 33(2): 275–292.

Dharmapala, D. (2014). What do we know about base erosion and profit shifting? A review of the empirical literature, *Fiscal Studies*, 35(4): 421–448.

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

Dyreng, S., Hills, R. and Markle, K. (2022). Tax deficits and the income shifting of u.s. multinationals. Available at SSRN: https://ssrn.com/abstract=4007595 or http://dx.doi.org/10.2139/ssrn.4007595 (accessed 4 May 2022).

Dyreng, S.D. and Lindsey, B.P. (2009). Using financial accounting data to examine the effects of foreign operations located in tax havens and other countries on US multinational firms' tax rates, *Journal of Accounting Research*, 47(5): 1283–1316.

Egger, P., Eggert, W., Keuschnigg, C. and Winner, H. (2010). Corporate taxation, debt financing and foreign plant ownership, *European Economic Review*, 54(1): 96–107.

Eicke, R. (2009). *Tax Planning with Holding Companies – Repatriation of US Profits from Europe: Concepts, Strategies and Structures*, Netherland: Kluwer Law International.

Financial Times (2013). 'Dutch sandwich' grows as Google shifts €8.8bn to Bermuda. Available at: https://www.ft.com/content/89acc832-31cc-11e3-a16d-00144feab7de (accessed 12 August 2019).

Flaaen. A. (2017). The role of transfer pricing in profit-shifting by U.S. multinational firms: evidence from the 2004 Homeland Investment Act. *Oxford University Centre for Business Taxation Working Paper* 2017: 11.

Gillett, P. (1999). The consultative document on a general anti avoidance rule for direct taxes: A view from business, *British Tax Review*, 1: 1–5.

Gordon, R. and Lee, Y. (2001). Do taxes affect corporate debt policy? Evidence from U.S. corporate tax return data, *Journal of Public Economics*, 82(2): 195–224.

Gov.UK (2022). *Valuing Your Intellectual Property*. Available at: https://www.gov.uk/guidance/valuing-your-intellectual-property (accessed 10 August 2022)

Graetz, M.J. (2001). Tax international income: Inadequate principles, outdated concepts, and unsatisfactory policies, *Brooklyn Journal of International Law*, 26(4):1357–1448.

Graham, J.R. (2000). How big are the tax benefits of debt? *Journal of Finance*, 55(5): 1901–1941.

Gramlich, J.D., Limpaphayom, P. and Rhee, SG. (2004). Taxes, keiretsu affiliation, and income shifting, *Journal of Accounting and Economics*, 37(2): 203–228.

Griffith, R., Miller, H. and O'Connell, M. (2014). Ownership of intellectual property and corporate taxation, *Journal of Public Economics*, 112(1): 12–23.

Griliches, Z. (1990). Patent statistics as economic indicators: A survey, *Journal of Economic Literature*, 18(4): 1661–1707.

Grubert, H. (2003). Intangible income, intercompany transactions, income shifting, and the choice of location, *National Tax Journal*, 56(1): 221–242.

Guardian (2019a). Google shifted $23bn to tax haven Bermuda in 2017. Available at: https://www.theguardian.com/technology/2019/jan/03/google-tax-haven-bermuda-netherlands (accessed 15 July 2020).

Guardian (2019b). Starbucks pays £18.3m tax but £348m in dividends. Available at: www.theguardian.com/business/2019/jun/27/starbucks-emea-pays (accessed 17 February 2021).

Gupta, S. and Mills, L.F. (2002). Corporate multistate tax planning: Benefits of multiple jurisdictions, *Journal of Accounting and Economics*, 33(1): 117–139.

Hall, B.H. (2002). The financing of Research and Development, *Oxford Review of Economic Policy*, 18(1): 35–51.

Hall, B.H. and Lerner, J. (2010). The financing of R&D and innovation, *Handbook of the Economics of Innovation*, 1(1): 609–639.

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

Harzing, A.W. (2002). Acquisition versus greenfield investment: International strategy and management of entry modes, *Strategic Management Journal*, 23(3): 211–227.

Harzing, A.W. (1997). Response rates in international mail surveys: Results of a 22 country study, *International Business Review*, 6(6): 641–665.

Hebous, S. and Johannesen, N. (2015). At your service! The role of tax havens in international trade with services, CESifo Working Paper Series 5414, CESifo Group Munich.

Heckemeyer, J.H. and Overesch, M. (2017). Multinationals' profit response to tax differentials: Effect size and shifting channels, *Canadian Journal of Economics*, 50(4): 965–994.

Hines, J.R. (2005). Do tax havens flourish? *Tax Policy and the Economy*, 19(1): 65–99.

HMRC (2016a). *International Tax Manual INTM412070 – Transfer pricing: legislation: rules: exemptions*: *small and medium sized enterprises.* Available at: https://www.gov.uk/hmrc-internal-manuals/international-manual/intm412070 (accessed 12 July 2022).

HMRC (2016b). *Publish Your Large Business Tax Strategy.* Available at: https://www.gov.uk/guidance/large-businesses-publish-your-tax-strategy (accessed 1 April 2021).

Hong, J., Glaister, K.W. and Frecknall-Hughes, J. (2018). Mapping tax strategies in the FDI decision process, *Global Review for Accounting and Finance*, 9(1): 15–34.

Hopland, A., Lisowsky, P., Mardan, M. and Schindler, D. (2018). Flexibility in income shifting under losses, *Accounting Review*, 93(3): 163–183.

Huizinga, H., Laeven, L. and Nicodème, G. (2008). Capital structure and international debt shifting, *Journal of Financial Economics*, 88(1): 80–118.

Huzinga, H.P. and Voget. J. (2009). International taxation and the direction and volume of cross-border M&As, *Journal of Finance*, 64(3): 1217–1249.

Karkinsky, T. and Riedel, N. (2012). Corporate taxation and the choice of patent location within multinational firms, *Journal of International Economics*, 88(1): 176–185.

Klassen, K.J. and Laplante, S. (2012). The effect of foreign reinvestment and financial reporting incentives on cross-jurisdictional income shifting, *Contemporary Accounting Research*, 29(3): 928–955.

Klassen, K.J., Lisowsky, P. and Mescall, D. (2017). Transfer pricing: strategies, practices, and tax minimisation, *Contemporary Accounting Research*, 34(1): 455–493.

Lawless, M., McCoy, D., Morgenroth, E. and O'Toole, C. (2014). *The Importance of Corporation Tax Policy in the Location Choice of Multinational Firms.* Available at: https://www.esri.ie/system/files?file=media/file-uploads/2015-07/BKMNEXT279.pdf (accessed 10 June 2020).

Lepak, D.P., Takeuchi, R. and Snell, S.A. (2003). Employment flexibility and firm performance: Examining the interaction effects of employment mode, environmental dynamism and technological intensity, *Journal of Management*, 29(5): 681–703.

Lin, P. and Saggi, K. (2002). Production differentiation, process R&D, and the nature of market competition, *European Economic Review*, 46(1), 201–211.

Liu, L., Eisenlohr, T.S., and Guo, D. (2017). International transfer pricing and tax avoidance: Evidence from linked traded-tax statistics in the UK, *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, 110 (2017): 1–31, i–vii.

Mason, R. and Saint-Amans, P. (2021). Has cross-border arbitrage met its match? *Virginia Tax Review*, Vol. 41, 2021, Virginia Law and Economics Research Paper No. 2021-19. Available at SSRN: https://ssrn.com/abstract=3915033 (accessed 14 June 2022).

Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G., and Poterba, J. (2011). *Tax by Design: Small Business Taxation*. Available at: https://ifs.org.uk/uploads/mirrleesreview/design/ch19.pdf (accessed 9 August 2022)

Møen, J., Schindler, D., Schjelderup, G. and Tropina, J. (2011). International debt shifting: Do multinationals shift internal or external debt? *CESifo Working Paper Series No. 3519*, Munich.

Nazihah, A., Azwardi., Fuadah, L.L. (2019). The effect of tax, tunnelling incentive, bonus mechanisms, and firm size on transfer pricing. *Journal of Accounting, Finance and Auditing Studies*, 5(1), 1–17.

Ng, C.Y.M. (2013). International tax planning considerations and strategies – investing into and out of China, *International Tax Journal*, 39(1): 23–34.

Noor, R. M., Mastuki, N. and Bardai, B. (2008). Corporate effective tax rates: A study of Malaysian public listed companies, *Malaysian Accounting Review*, 7(1): 1–20.

Oats, L. and Tuck, P. (2019). Corporate tax avoidance: Is tax transparency the solution*? Accounting and Business Research*, 49(5): 565–583.

OECD (2013). *Addressing Base Erosion and Profit Shifting*. Available at: http://dx.doi.org/10.1787/9789264192744-en (accessed 10 June 2020).

OECD (2015). *BEPS Action Plan*. Available at: https://www.oecd.org/ctp/beps-2015-final-reports.htm (accessed 18 March 2021).

OECD (2017). *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administration*. Available at: https://www.oecd.org/tax/transfer-pricing/transfer-pricing-guidelines.htm (accessed 21 April 2020).

OECD (2018a). *Limiting the Impact of Excessive Interest Deductions on Mining Revenue*. Available at: https://www.oecd.org/tax/beps/limiting-the-impact-of-excessive-interest-deductions-on-mining-revenue-oecd-igf.pdf (accessed 10 August 2022).

OECD (2018b). *Enterprises by Business Size*. Available at: https://data.oecd.org/entrepreneur/enterprises-by-business-size.htm (accessed 10 June 2020).

Onji, K. and Vera, D. (2010). Tax law asymmetries and income shifting: Evidence from Japanese capital keiretsu, *Journal of Economic Analysis and Policy*, 10(1): 1–35.

Orow, N. (2004). Structured finance and the operation of general anti-avoidance rules, *British Tax Review*, 4: 410–435.

Plesko, G.A, and Toder, E. (2013). Changes in the organization of business activity and implications for tax reform, *National Tax Journal*, 66 (4): 855–870.

Radziewicz, J. (2021). Coca-Cola tax ruling offers 5 lessons for multinationals, *Transfer Pricing Insights*, 3 March. Available at: https://www.kroll.com/en/insights/publications/transfer-pricing/coca-cola-tax-ruling-offers-5-lessons-for-multinationals (accessed 12 July 2022).

Rajan, R. and Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50(5): 1421–1460.

Richardson, G., Taylor, G., Lanis, R. (2013). Determinants of transfer pricing aggressiveness: empirical evidence from Australian firms. *Journal of Contemporary Accounting and Economics*, 9(2), 136–150.

Rosenbloom, H.D. (2000). International tax arbitrage and the "international tax system", *Tax Law Review*, 53(2), 137–175.

Salaudeen, Y.M. (2017). Corporate effective tax rates in the financial services sector: Evidence from Nigeria, *International Journal of Accounting and Taxation*, 5(1): 68–88.

Sampson, R. . (2007). R&D alliances and firm performance: The impact of technological diversity and alliance organisation on innovation, *Academy of Management Journal*, 50(2): 364–386.

Saunders, M., Lewis, P. and Thornhill, A. (2019). *Research Methods for Business Students*, 8th ed., Harlow: Financial Times/Prentice Hall.

Scholes, M.S., Wolfson, M.A., Erickson, M., Maydew, E.L. and Shevlin, T. (2016). *Taxes and Business Strategy: A Planning Approach*, 5th ed., USA: Pearson/Prentice Hall.

Sharma, B. (2003). R&D Strategy and Australian manufacturing industry: An empirical investigation of emphasis and effectiveness, *Technovation*, 23(12): 929–937.

Steuerle, C.E. (2010). *Taxes, Loans, and Inflation: How the Nation's Wealth Becomes Misallocated*, Washington, DC: Brookings.

Stevenson, R., Potts, K. and Houlton, L. (1994). Joint venture vehicles in property development, *Property Management*, 12(2): 16–21.

Thomas, L. (2021). 136 countries have agreed to a global minimum tax rate. Here's what it means, 1 November, World Economic Forum. Available at: https://www.weforum.org/agenda/2021/11/global-minimum-tax-rate-deal-signed-countries/ (accessed 14 July 2022).

Yancey, W.F. and Cravens, K S. (1998). A framework for international tax planning for managers, *Journal of International Accounting, Auditing and Taxation*, 7(2): 251–272.