



The determinants of tax haven FDI



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ABSTRACT

This paper examines the determinants of a multinational enterprise's (MNEs) decision to set up tax haven subsidiaries. We adapt the firm-specific advantage–country-specific advantage (FSA–CSA) framework and construct a number of empirically testable hypotheses. The analysis is based on a database covering 14,209 MNEs in twelve OECD countries. We find that the variety of capitalism of a MNEs home location and the level of technological intensity has a strong impact on this decision. We also find that the home country corporate tax rate has a minimal impact. This suggests that corporate tax liberalisation is unlikely to deter MNEs from undertaking this activity.

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1. Introduction

The issue of corporate tax avoidance is high on the political agenda, given the state of public finances in many countries, particularly in the aftermath of the recent global financial crisis of 2008. Recent media coverage concerning the tax affairs of some of the world's most notable multinational enterprises (MNEs) such as Amazon, Apple, Google and Starbucks have created much hostility from civil society, non-governmental organisations and the general public. The Tax Justice Network¹ has estimated that an accumulated 21–32 trillion US dollars has been invested virtually tax-free in the world's more than 80 offshore secrecy jurisdictions (Henry, 2012). This has increased pressure on policy makers to take action.

In June 2012 the G20 explicitly referred to 'the need to prevent base erosion and profit shifting' (OECD, 2013). At the same time, this concern was also voiced by US President Obama in the *President's Framework for Business Tax Reform*, which stated that 'empirical evidence suggests that the income-shifting behaviour by multinational corporations is a significant concern that should be addressed through tax reform'. At the G20 meeting in November 2012, George Osborne, the UK's Chancellor of the Exchequer and Wolfgang Schäuble, Germany's Finance Minister, issued a joint statement calling for co-ordinated action to strengthen international tax standards. In 2013, the leaders of the G8 met in Northern Ireland and

agreed new measures to deal with tax avoidance by allowing access to each other's information held on individual and company tax affairs. These events led to publication of the BEPS Report which was endorsed by the OECD council in May 2013 committing countries to a comprehensive action plan to address these issues. The objective of these policies is to create a system of global tax reform designed to have a significant impact upon MNE strategy in terms of taxation. However, the issue of offshore tax haven activity has been on the policy agenda for many decades and previous government initiatives have so far been limited in their impact.

Tax havens allow MNEs to shift profits out of high tax jurisdictions into low tax jurisdictions, most commonly via transfer pricing (Eden, 2009). They are characterised by a high degree of secrecy and exceptionally low (often zero) rates of corporate income taxation. Recently there has been increased awareness of the growing profit (or capital) share of GDP (Piketty, 2013). For the USA, the share of profits in GDP increased from 5% in 2001 to 11% in 2012.² Given this fact, it would appear that MNEs are becoming increasingly adept at shifting their profits to low tax jurisdictions and thus eroding the corporate tax base.

The focus of this paper is, therefore, about uncovering and measuring the firm and country-level factors that lead MNEs to undertake tax haven activity. We conceptualise tax haven use by amending the firm-specific advantage–country-specific advantage (FSA–CSA) framework developed by Rugman (1981). This framework is then linked to Oxelheim, Randøy, and Stonehill's (2001) concept of financial specific advantages and Hall and Soskice's (2001) varieties of capitalism (VOC). We also use a novel way of

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¹ The Tax Justice Network is an independent international network that undertakes high level research into issues surrounding international tax and financial regulation. A particular focus of their work is on tax competition and offshore tax havens.

² See St Louis Federal Reserve.

depicting firm-specific, home country-specific and host country-specific advantages in this context and derive a number of key hypotheses. We test our hypotheses by taking advantage of a large panel dataset which includes 14,209 MNEs from 12 OECD countries for the time period 2002–2010. The dataset allows us to locate MNE subsidiaries around the world, including ones located in tax havens, and this information is used to create a latent measure of a firm's likelihood to use tax havens.

Whereas past research has mainly focused on US firms (Desai, Foley, & Hines, 2006a, 2006b), we build on the existing literature by utilising an exhaustive and large-scale sample of MNEs. This is possible due to the disaggregated and novel nature of data records on subsidiary locations around the world, which has for a long time been restricted by data availability. The recent World Investment Report (UNCTAD, 2013) highlights the fact that investments into offshore financial centres are at historically high levels and that they account for an increasing share of global FDI flows. Moreover, recent work by Beugelsdijk, Hennart, Slangen, and Smeets (2010) has found that current measures of FDI stocks bias MNE affiliate activity. Our analysis generates a number of fascinating insights which we hope will kick-start a debate in the IB literature and develop further analysis in this area.

Our first, and arguably most important, result provides evidence that MNEs located in different countries display systematic differences in their strategies concerning tax haven use. Based on the institutional framework of the varieties of capitalism (VOC) (Hall & Soskice, 2001), which places the firm at the centre of the political economy, we find that MNEs classified as being located in liberal market economies (LMEs) are more likely to undertake tax haven activity compared with MNEs from coordinated market economies (CMEs). By investigating tax haven use through the VOC perspective, we are able to offer novel empirical support to the core VOC argument that corporate finance and governance in CMEs are likely to continue to exhibit substantial path-dependent institutional differences from those found in LMEs, even in the context of ongoing and rapid financial globalisation in the 21st Century. This suggests that international corporate tax reform is likely to be a slow and drawn-out process due to conflicting political interests across countries within different varieties of capitalism.

Our second result demonstrates that technology intensive manufacturing MNEs with significant levels of intangible assets have a higher likelihood of owning subsidiaries in tax havens. MNEs in service industries are, in general, also more likely to invest in tax havens. This suggests that there are strong incentives for high technology firms to transfer the ownership of their high value intellectual property to tax havens in order to minimise taxation at home, but also from abroad in non-tax haven subsidiaries.

Our third result shows that home country statutory corporate tax rates have a small impact on tax haven use. In general, corporate tax rates are an important factor in driving MNEs to set up tax haven subsidiaries. However, as long as there is a significant gap between tax rates in OECD countries and those in tax havens, our results suggest that reducing corporate tax rates will not substantially change the likelihood of MNEs setting up tax havens subsidiaries. MNEs will continue to take advantage of the host country specific advantages available in tax haven locations, which include minimal rates of corporate income tax, light-touch regulation and secrecy.

The rest of this paper is organised as follows. In the next section, we provide an overview of the relevant theoretical framework and develop hypotheses on the determinants of setting up tax haven subsidiaries. The subsequent section describes the data, variables and empirical model. The next section presents the results followed by a discussion with respect to our conceptual framework on FSA–CSA. We then conclude with avenues for future research in this area that may impact upon the field of IB.

2. Theoretical framework and hypotheses

A core part of an MNE's successful financial strategy is concerned with its tax affairs and in particular its transfer pricing activities (Eden, 2009). Transfer pricing allows an MNE to minimise its corporate tax liability by setting appropriate prices for intra-firm trade and offers the ability to defer taxation into the future. The use of tax havens can play a significant part in this process by allowing firms to use aggressive strategies for minimising tax liabilities. Moreover, MNEs can take advantage of the light touch regulation and secrecy that tax havens provide. Thus, tax haven locations can be used by MNEs to exploit and create a competitive advantage by arbitraging cross-country differences in the tax code in order to reduce corporate funding costs, or the cost of capital, in a manner not open to non-MNEs (Oxelheim et al., 1998).

The globalisation of IB activity has run in parallel with the increasing growth in financial market integration. Despite this, however, the asymmetric incidence of accounting standards, regulations and taxation has had significant tactical and strategic financial implications for MNEs (Bowe, 2009). Dunning (1993) conceptualises this in the form of an MNE possessing a 'financial asset advantage' in which firms can possess 'superior knowledge of, and access to, foreign sources of capital'. Nevertheless, Dunning (2000) does not provide the specifics that need to be modelled into the 'financial asset advantage'. For this reason, Oxelheim et al. (2001) extend the Ownership–Location–Internalisation (OLI) paradigm (Dunning, 1977, 1988, 1995, 1998, 2000) by providing a theoretical bridge with the international cost of capital literature (Rajan & Zingales, 1998; Stulz, 1996). Their main proposition is that an MNE's financial strength affects its ability to engage in FDI.

Oxelheim et al. (2001) distinguish between two types of financial strategy. Firstly, a proactive financial strategy which is aimed at reducing a firm's cost of capital in order to maximise its availability of capital both at home and abroad. Examples given include the maintenance of a competitive credit rating, strategic preparatory cross-listings and the competitive sourcing of capital globally. The second type is a firm's reactive financial strategy in response to financial market imperfections. For example, firms may be able to exploit undervalued or overvalued exchange rates, react to capital controls that prevent the free movement of funds and attempt to minimise taxation via the use of tax havens.

In the context of tax haven FDI, we argue that the distinction made by Oxelheim et al. (2001) is not appropriate because it is based upon an arbitrary distinction between what is or is not considered to be a market imperfection. Particularly when extending the OLI framework, this distinction is at odds with the key idea of OLI which is that the existence of MNEs is as a response to imperfect markets (hence the need to internalise). One could argue that all of the resources that firms devote to strategies of financial optimisation are made to deal with one type of market imperfection or another. Indeed, if the financial markets were perfect, the financing of MNE activities would essentially take care of itself. For this reason by classifying the use of tax havens as a reactive strategy, Oxelheim et al. (2001) dilute the impact that tax minimisation may have.

Our view concerning FDI which is motivated for tax minimisation purposes differs from Oxelheim et al. (2001) re-active strategy view. We argue instead that tax strategy is designed to overcome market imperfections in the sense that MNEs can use experienced tax experts to take advantage of so called hybrid mismatch arrangements.³ These are opportunities available to firms to exploit differences in the tax treatment of instruments, entities or transfers between two or more countries. Very often these

³ We acknowledge that Hybrid Mismatch Arrangement can also be used between non-tax haven countries.

arrangements lead to ‘double non-taxation’ which allows MNEs to avoid corporate income tax across locations.

In order to conceptualise the role that tax havens play in IB activity one might be led to take a similar approach to that taken by Oxelheim et al. (2001). In this sense, international expansion (i.e. the use of tax haven subsidiaries) is based on the ability of MNEs to leverage their own finance-related ownership (O), locational (L) and internalisation (I) advantages. Nevertheless, as pointed out by Rugman (2010) there is a close link between all three advantages and thus the eclectic paradigm is arguably overdetermined. For example, the ownership advantage (O) of a financial blueprint to avoid corporate income tax is strongly linked with it being internalised (I) by the firm. In addition, the host country location advantage (L) of a tax haven, i.e. low corporate taxes and secrecy, can plausibly be transformed into an ownership advantage (O).

Rugman (2010) argues that the essence of the eclectic paradigm is that the O, L, and I advantages all interact to produce a “co-evolutionary” explanation of the patterns of overseas FDI at the industry level. In contrast, internalisation theory is set at the firm-level and focuses upon what Rugman (2010) terms the strategic decision-making of the MNE. For this reason, internalisation theory is useful in this context because it demonstrates the heterogeneity of firm-level behaviour. This leads to the argument that the two key determinants of FDI are firm-level factors, called firm-specific advantages (FSAs) and country based factors, called country specific advantages (CSAs). For this reason we adopt Rugman’s (1981) FSA–CSA framework in order to model a firm’s strategy in relation to setting up subsidiaries in tax havens. Not only is this approach useful in highlighting the firm and country-specific factors that determine tax haven FDI but it also lends itself to the firm level data we utilise. Furthermore, in order to provide even greater clarity to this framework, we use a novel way of distinguishing between home country specific advantages and host country specific advantages.

2.1. Applying the FSA–CSA framework to tax haven use

Fig. 1 illustrates a 3-dimensional cube of Rugman’s (1981) FSA–CSA matrix. There are now three axes: (1) the x axis shows FSAs manifested in terms of high technology MNEs with large levels of intangible assets; (2) the z axis shows home country-specific advantages in terms of market orientation; and (3) the y axis shows host country-specific advantages in terms of tax haven attractiveness. Most expositions of this model subsume home and host country-specific advantages and thus the model is akin to a 2-dimensional plane that labels CSAs on the vertical (y) axis and FSAs on the horizontal (x) axis. Furthermore, Rugman (1981) distinguishes between ‘weak’ and ‘strong’ advantages but implicitly the

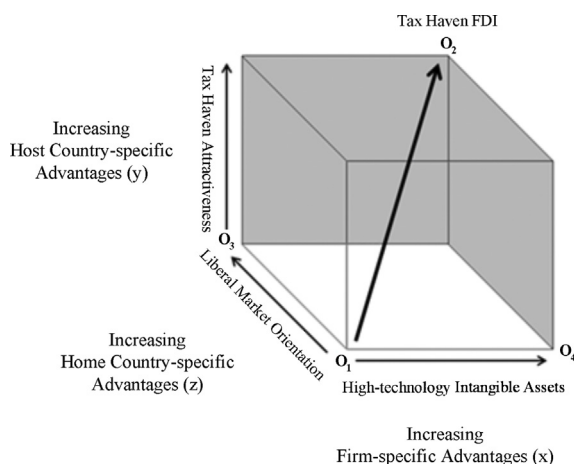


Fig. 1. FSA–CSA tax havens matrix.

advantages can be thought of on a continuous scale. Therefore, the arrows extending out from the origin O_1 in Fig. 1 represent increasing advantage at the firm-specific, home country-specific and the host country-specific levels. It is conceptually useful to envisage firms positioned at various places in the cube and over time MNEs evolving within it, due to changes in FSA/CSA advantages.

Firms that are positioned or are moving towards the origin O_2 are more likely to be developing dynamic organisational capabilities (Teece, Pisano, & Shuen, 1997), and maintaining effective strategy. They are likely to be international in nature and taking advantage of complex financial structures, such as tax haven FDI, in order to maintain competitive advantage. We now discuss each set of the advantages in turn, within the context of tax haven FDI, and develop a number of testable hypotheses. In the discussion section, we comment on the strategic options available to MNEs in reference to their positioning in the cube and how this position may change over time.

2.2. FSAs

The mainstream resource based view (Barney, 1991) focuses on FSAs which are commonly non-financial in nature. The sources of FSAs are usually embodied in proprietary knowledge in advanced technology, patents and trademarks, advanced production techniques, entrepreneurial skills or economies of scale and scope. In contrast, our focus here is on FSAs that give rise to financial ownership advantages.

In order to illustrate a financial ownership advantage that gives an MNE the ability to reap the rewards of making an investment in a tax haven, it is useful to take advantage of what Oxelheim et al. (2001) term a ‘financial blueprint’. As in the case of patents, which allow copyright protection for a period of time, an aggressive tax avoidance strategy, which is unique to the firm, is likely to provide advantages to the firm over its domestic and foreign rivals who do not use tax havens. This could be obtained by hiring in-house tax specialists and lawyers to create complex tax arrangements across a firm’s global operations. The use of internal specialists, which might be contracted via the leading accountancy firms, would internalise this knowledge and help the MNE to efficiently escape the exogenous market imperfections (Rugman, 1980) caused by regulation – in this case corporate tax.

Such measures would come naturally to technologically intensive firms which possess large levels of intangible assets. It is well known that MNEs prefer to transfer rights, patents, trademarks, licences and sub-licences to low tax jurisdictions and thereby receive payments for these ‘intangible assets’ from related companies in non-tax haven countries (OECD, 2013). Fig. 2 demonstrates this using a simplistic tax structure involving a parent company and two overseas subsidiaries, one of which is located in a tax haven. The parent firm sub-licenses its intellectual property to the tax haven subsidiary in a location with negligible levels of corporate income tax. The tax haven subsidiary then sells the intellectual property to the subsidiary located in the non-tax haven location at a high price, allowing the firm to avoid corporate tax in that location by declaring lower profits due to higher costs. Not only therefore, does the MNE avoid taxation at home but it is also able to avoid taxation abroad. Clearly this simplistic structure has to be adapted in order to escape the internal revenue services across the globe (see Mutti & Grubert, 2009). News reports of notable tax avoidance schemes such as the ‘Double Irish Arrangement’ and the ‘Dutch Sandwich’ are commonplace but are facing increasing scrutiny. At the same time, there is no doubt that the financial resources and expertise available to tax specialists are far greater than the ability of treasuries to minimise tax avoidance.

The existent literature in this area is certainly not silent. Sikka and Willmott (2010) identify a number of interesting cases from across

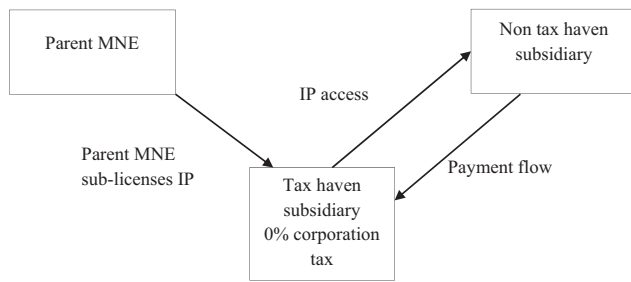


Fig. 2. Tax haven and IP structure.

different types of industries where firms have taken advantage of transfer pricing via the use of tax havens. Notable examples from their study include the Enron affair of 2001, the collapse of WorldCom in 2002 and other firms are identified in the pharmaceutical industry and the motor industry. Dyreng, Hanlon, and Maydew (2008) construct measures of long run tax avoidance and using univariate analysis find that firms who spend more on R&D are more likely to be high tax avoiders. Furthermore, Seabrooke and Wigan (2014) highlight the unique way in which firms may value intangible assets. They argue that this challenges the effectiveness of the arms-length principle in transfer pricing. They go on to say that firms can just redistribute intangible assets to holding companies domiciled offshore in what they term “wealth chains”. Therefore, profits can be shifted to jurisdictions where they are subject to little or no tax. Interestingly, they argue that this problem may be especially severe in digital distribution where firms from this sector have significant economic presence but pay little, if not zero, tax on profits.

In terms of the econometric evidence, Desai et al. (2006a) find that US companies with high R&D to sales ratios are more likely to have tax haven subsidiaries. They conclude that the rising intensity of MNEs and the growing volume of world trade between related parties imply that the demand for tax haven operations is likely to grow over time. Dischinger and Riedel (2011) using panel data on European MNEs, find that the lower the corporate tax rate in a subsidiaries location, the higher the level of intangible assets. Furthermore, Taylor, Richardson, and Taplin (2014) using data on Australian firms find that the level of intangible assets is a strong determinant of tax haven utilisation. And lastly, Taylor, Richardson, and Lanis (2015) find that tax havens and the use of intangible assets are important factors that assist firms in obtaining tax benefits via transfer pricing aggressiveness. We build on these single country studies by exploiting a sample of MNEs from across the OECD. This allows us to generate our first hypothesis which links FSAs to tax haven FDI:

H1. Technologically intensive manufacturing and services MNEs, with high valued intangible assets, are more likely to own a tax haven subsidiary compared with less-technologically intensive MNEs.

2.3. Home country-specific advantages

It is not sufficient for firms to have only FSAs if they are to make use of tax haven subsidiaries. Country-specific advantages are also of importance, particularly at the home country institutional level. Many studies have already shown that ‘institutions matter’ in many different settings (Gaur, Kumar, & Singh, 2014; Meyer & Thein, 2014). However, the main focus according to Jackson and Deeg (2008) has been to relate certain institutional variables to particular facets of business activity such as: how diverse regulatory rules and legal norms affect MNEs (Brouthers, 2002); how politically related hazards (conflict zones) impact on MNEs (Driffield, Jones, & Crotty, 2013; Henisz, Mansfield, & Von Glinow, 2010); the role of property rights (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998); and the

role of distance between home and host economies (Beugelsdijk, Slangen, & Hennart, 2011; Hofstede, 1980).

The above literature has tended to see MNEs as having to adapt strategy to the institutional environment. In contrast, the literature concerned with the VOC (Hall & Soskice, 2001; and later Hancke, 2009), whilst still adopting a firm-centric approach, views firms as being socially embedded alongside other economic agents such as individuals, producer groups and the government. Thus, firms are seen as relational, seeking to create and exploit ‘core competencies’ (Prahalad & Hamel, 1990) or ‘dynamic capabilities’ (Teece, 2009) for distributing goods and services in return for profit. From this perspective, differences in the institutional framework across countries generate systematic differences in corporate strategy. Indeed, this variation across countries is seen as giving firms a distinct comparative institutional advantage. This is manifested in terms of the key institutional complementarities – industrial relations, vocational training and education, inter-firm relations, corporate governance and agency relationships vis-à-vis employees. The relationship of these complementarities determines the extent to which a political economy is, or is not, ‘coordinated’ (Hancke, 2009).

Hall and Soskice (2001) distinguish between LMEs and CMEs. In LMEs such as Australia, Canada, New Zealand, the United Kingdom and the US, firms operate in hierarchies and competitive markets (Williamson, 1985). They are characterised by arms-length trading in the context of competition and formal contracting and are essentially centred on mobile ‘switchable assets’ whose value can be realised when diverted to multiple activities. In contrast, in CMEs such as Austria, Germany, Japan and the Nordic countries, firms rely on non-market relationships that can be encapsulated through informal and incomplete contracting, network collaboration and strategic interaction. The logic of a CME derives from what Hall and Soskice (2001) and Hall and Gingerich (2009) define as ‘co-specific assets’.

VOC provides a flexible framework for analysis and it seems natural to adopt this institutional perspective when analysing the home country-specific advantages of an MNE’s strategy to invest in a tax haven. Indeed, Jackson and Deeg (2008) argue that this type of approach is useful as it allows scholars to compare how firms in different countries adjust to similar pressures in order to explore to what extent institutional differences affect strategy.

As far as we know, there is no existent literature that integrates the issue of tax haven FDI in to the VOC approach, presenting a significant conceptual gap which this paper fills. For example, Weichenrieder and Mintz (2006) find that in the case of German outbound investment, holding companies in offshore tax havens play a limited role in terms of third country conduit structures. However, for US MNEs Lewellen and Robinson (2013) identify the complexity of the foreign ownership structures in US subsidiaries and find significant evidence of distinct tax motives that highlight the divergence between financial and real cross-border investments.

Much of the previous literature that has investigated tax haven FDI has looked at it from an emerging markets perspective and indicates that it is premised on institutional strength (Sharman, 2012; Stal & Cuervo-Cazurra, 2011). For example, Sutherland and Matthews (2009) examine Chinese outward FDI into the Caribbean tax havens and argue that firms engage in a form of ‘institutional arbitrage’ whereby they exploit the superior institutions of foreign markets. In this emerging market context, so called ‘round-tripping’ by Chinese MNEs is motivated by the weak domestic regulatory framework that creates ‘barriers to trade, high taxes and a lack of property rights protection’ (Xiao, 2004). Clearly, institutional capacity in OECD countries exceeds that of emerging markets, which means that this paper is concerned more with institutional variation as opposed to institutional strength. Indeed,

it is this institutional difference between countries where the adoption of the VOC framework really illustrates its merits.

There are a number of potential reasons as to why MNEs located in the LMEs are likely to have a greater propensity to utilise tax haven subsidiaries compared with their CME counterparts. Many of these factors are in many ways path-dependent and have evolved over time. Indeed, our analysis will allow us to comment on the future evolution of tax haven use in the context of ongoing financial integration. However, we must be clear at the outset that our analysis does not seek to show that all LME MNEs use tax havens or that all CME MNEs decide not to use tax havens. Instead, we emphasise that LME MNEs have a greater likelihood of setting up tax haven subsidiaries compared with their CME counterparts.

The first factor that motivates why LME MNEs may be more likely to use tax havens is linked to financial risk. On the face of it, one might be inclined to invoke the argument that MNEs from LMEs are more likely to take a 'short-termism' approach in order to maximise shareholder value. In this sense, MNEs would significantly increase their debt levels in order to mitigate corporate tax at home via deducting interest payments. At the same time, profits would be registered to the tax haven subsidiaries across the MNE group therefore enhancing the value of the firm and potentially creating a temporary boost in share price and creating a lucrative impact on employee stock options. In contrast, MNEs from CMEs are more likely to rely on long-term finance or what Deeg (2009) terms 'patient capital'. This means that MNEs from CMEs are more likely to take a long run product-market strategy (Deeg, 2009) and are thus less likely to want to take advantage of short-term tax-avoidance schemes that might divert the attention of stakeholders away from the firm's core competencies (Dore, 2000). This will still be the case even if the owners or shareholders are actually located in LMEs. As the theory of VOC argues, firms choose locations based on their own institutional comparative advantage so that any FDI into either a LME or a CME is expected to adopt the so-called 'norms' associated with that firm's institutional environment.

However, it is certainly feasible that LME firms may also adopt a longer run perspective. LME MNEs are likely to be highly innovative with potentially ground-breaking R&D projects. The tax haven subsidiary may allow firms to build a vast financial stock of wealth in order to be able to shift capital rapidly across its network. For example, many American high-technology firms tend to be heavily insider-dominated (often by company founders) and are managed with a very long term strategic perspective. Due to this, there is some ambiguity concerning the short term versus the long term nature of tax haven use. However, we argue this distinction is worth mentioning, but to what extent this explanation is more relevant to the following factors is still an open question.

The second factor, which is strongly linked to the first factor, is that of corporate governance and in particular co-determination. CMEs, notably Germany, have for decades enshrined the rights of workers to be represented at the supervisory board level. This suggests that instead of maximising shareholder value (as is the fiduciary duty of LME MNEs) firms from CMEs are seen as maximising the interests of a wider group of stakeholders. This rests on the notion that the suppliers of equity capital and the suppliers of labour manage the firm cooperatively (Gorton & Schmid, 2004). For this reason, labour representation at the board level may be ideologically opposed to tax haven use by firm management. Moreover, large multi-industry unions would presumably act more in the national interest rather than taking a firm-level perspective. In this sense, tax havens may be seen to be undermining industrial relations and the funding of collectivist vocational training. Nevertheless, as Thelen and Busemeyer (2008) argue, the German system of vocational training is currently undergoing a 'subtle but significant change from a mainly

collectivist system to a more segmentalist one'. This suggests that as collective wage bargaining is eroded, MNEs may incrementally become more like their LME counterparts and thus they may become more open minded to the use of tax havens in the future.

The third factor is linked to economic geography (Buckley, Sutherland, Voss, & El-Gohari, 2015; Haberly & Wójcik, 2014). Haberly and Wójcik (2014) which shows that offshore FDI is notably strong between current and former colonies. Not surprisingly studies cite the United Kingdom as playing a significant role here. According to Palan, Murphy, and Chavagneux (2010) seven out of the UK's fourteen overseas territories can be regarded as tax havens: Bermuda, Cayman Islands, British Virgin Islands, Gibraltar, Turks and Caicos, Anguilla and Montserrat. But in addition to these locations, it is also important to consider the Crown Dependencies of Jersey, Guernsey and the Isle of Man and the former colony of Hong Kong. Palan et al. (2010) identify a number of factors that led to this development. These include the size of the British Empire and its central role in the industrial revolution; the dominance of commercial and financial elites positioned in the City of London; the development of the Euromarket in the 1950s; and finally the widespread use of common versus civil law in the United Kingdom and across its colonial outposts. Indeed, as Palan et al. (2010) remark, 'the English common law proved extremely useful in generating loopholes that were used to develop tax havens'. Nevertheless, as with the other factors described above there are also counter arguments. Switzerland and the Netherlands, both CMEs, have a civil law system and are arguably tax havens themselves. It is well known that the latter is an attractive destination for some German MNEs.

Overall therefore, it is not our contention that MNEs from CMEs do not use tax havens. Clearly our data demonstrates that a proportion of them certainly do undertake this activity. However, for the reasons outlined above it is our view that that they are likely to use them to a lesser extent than their LME counterparts. This leads to our second hypothesis:

H2. MNEs incorporated in Coordinated Market Economies have a lower likelihood of investing in tax havens in contrast to MNEs from Liberal Market Economies.

2.4. Host country-specific advantages

The host country specific advantages are perhaps the most obvious from the point of view of MNEs investing in a tax haven. One must assume that a major reason why an MNE would want to set up a tax haven subsidiary is to mitigate taxation⁴ from their country of origin and from other high-tax subsidiary locations, and take advantage of the light touch regulation and secrecy that tax havens provide. It is also conceivable that the use of tax haven subsidiaries act as capital providers for the rest of the MNE group (Altshuler & Grubert, 2003; Hines & Hubbard, 1990) or as captive insurance companies to provide cover for risks not normally insurable on-shore (Hampton & Christensen, 2002). The most well-known tax havens, such as the Cayman Islands, Bermuda, British Virgin Islands are all small island economies with low populations and land masses below 23,000 km² (see footnote 6). These locations offer little in terms of natural resources and thus must be viewed as advantageous because of their significantly lower rates of taxation and light-touch regulation on foreign income. In addition, the locations of tax havens are often characterised as having strong institutions and good governance to protect investors (see Dharmapala & Hines, 2009).

⁴ We acknowledge that some MNEs will set-up operations in tax havens to provide legitimate economic activities as opposed to tax avoidance.

There is a large literature concerning the impact of taxation on FDI (de Mooij & Ederveen, 2008; Hines, 1999). Indeed, the consensus view is that the tax elasticity with respect to inward FDI is approximately 0.6 (see Hines, 1999). Thus, a 1% cut in the tax rate leads to an increase in the FDI stock of roughly 0.6%. In contrast, our analysis is focused on outward FDI and the effect of home country tax rates (or effective tax rates) on tax haven propensity. Top statutory tax rates across the OECD all exceed 25% (see Fig. A1 in Appendix) – significantly higher than the near-zero corporate tax rates levied by tax havens on corporate earnings. Given this fact, tax haven locations must be incredibly appealing to MNEs. Standard neo-classical economic theory would posit that MNEs would evaluate the costs and benefits of this type of activity. Surely the tax differential between the home and host economy (the tax haven) would weigh heavily? And presumably, as home country corporate tax rates fall (as can be seen in Figs. A1 and A2 in Appendix) tax haven activity should diminish. But the stylised facts suggest that the use of tax havens is becoming increasingly more frequent even as countries become more competitive over their corporate tax rates (OECD, 2013). This indicates that the impact of home country corporate tax rates seems small; implying that MNEs are likely to use tax havens regardless of the home country statutory rate and take significant advantage of the strong host country-specific advantages that tax havens can provide. This leads to our final testable hypothesis:

H3. The host country-specific advantages accessible in tax haven locations minimises the impact of OECD corporate tax liberalisation on the likelihood of an MNE owning a subsidiary in a tax haven.

3. Data, variables, and empirical model

This paper uses *ORBIS* which is a firm-level dataset provided by Bureau van Dijk, a leading electronic publisher of annual accounts information for firms across the whole globe. We use financial data for every MNE available in 12 OECD countries. We use the conventional way of defining an MNE, namely as a firm that owns at least 10% in at least one subsidiary located abroad (OECD, 2013; UNCTAD, 2013). However, it is important to mention that we do not include firms as MNEs if their only subsidiary located abroad is in a tax haven. The reason for excluding such firms from the analysis is that establishing a tax haven presence is most likely an activity that MNEs would embark on once they have achieved their MNE status having undertaken FDI in non-tax havens subsidiaries.

One of the key advantages of using *ORBIS* is that it allows us to identify the location of every MNE's foreign subsidiaries, including tax haven locations, which we use to construct our dependent variable. The other advantage is that ownership of the MNE itself is recorded in *ORBIS* and thus we are able to identify and track that each MNE is ultimately owned by a majority shareholder that is of the same nationality as the MNE home country (*ORBIS* terms these as global ultimate owners). We use earlier releases of the dataset to check that the ownership of the MNE is valid throughout the sample period and no ownership change in terms of nationality has taken place. Indeed the ownership detail in *ORBIS* is one area that can address other fascinating questions, some of which we mention in the discussion section. In total, we have 14,209 MNEs over the time period 2002–2010, which results in an unbalanced panel dataset of 64,476 observations.

A breakdown of the MNE's country of origin is shown in Table 1. In total there are 4512 MNEs from LMEs identified as Australia, Canada, New Zealand, United Kingdom and United States. Of the 2229 MNEs from the UK, 20.86% have a subsidiary in a 'dot tax haven' (as defined in the next sub-section). This compares with 56.56% in the US and 51.95% in Australia. It is clear from Table 1 that MNEs incorporated in the CMEs identified as Austria, Germany,

Table 1
MNE parent country of origin.

Country	Number of MNEs	% of sample	Number of MNEs with dot tax havens	Number of MNEs with dot tax havens (% of country sample)
Liberal market economies				
Australia	333	2.34	173	51.95
Canada	63	0.44	18	28.57
New Zealand	34	0.24	10	29.41
United kingdom	2229	15.69	465	20.86
United states	1853	13.04	1048	56.56
Coordinated market economies				
Austria	979	6.89	81	8.27
Germany	3824	26.91	367	9.60
Japan	1079	7.59	214	19.83
Denmark	452	3.18	91	20.13
Finland	1221	8.59	84	6.88
Norway	578	4.07	75	12.98
Sweden	1564	11.01	276	17.65
Total	14,209	100	2902	20.42

Japan, Denmark, Finland, Norway and Sweden utilise tax haven subsidiaries at significantly lower rates. Of the 3824 German MNEs, only 9.6% of them had a subsidiary in a 'dot tax haven'. Indeed, out of the CMEs, only Denmark has a 'dot tax haven' intensity above 20%.

3.1. Dependent variable: classifying tax havens

The dependent variable $TaxHavenFDI_i$ is a binary variable which equals 1 if an MNE has a subsidiary in a tax haven, and zero otherwise. We acknowledge that in many ways the use of a dummy variable is a limitation. Ideally it would be desirable to have a variable that specifically measures the total assets invested in tax haven subsidiaries. Although for some MNEs it is possible to obtain this information in *ORBIS*, many of the tax haven subsidiaries identified do not present information on total assets. This is most likely due to the secrecy offered by tax haven locations.

Moreover, identifying the countries that can be considered tax havens is not a trivial task. Palan et al. (2010: 8) devote a whole chapter of their book *Tax Havens: How Globalisation Really Works* to defining them. They state that tax havens are:

“places or countries that have sufficient autonomy to write their own tax, finance, and other laws and regulations. They all take advantage of this autonomy to create legislation designed to assist non-resident persons or corporations to avoid the regulatory obligations imposed on them in the places where those non-resident people or corporations undertake the substance of their economic transaction.”

Hence, the key characteristic is that tax havens have zero or close to zero rates of taxation to non-resident companies. There are a number of different lists available that classify countries as tax havens. Hines and Rice (1994) and Desai et al. (2006b) distinguish between what are known as 'dot tax havens' and the Big 7 (Hong Kong, Ireland, Lebanon, Liberia, Panama, Singapore and Switzerland). Dot tax havens are notably small island economies, whilst the Big 7 had populations in 2013 exceeding 2 million. We, therefore, take a conservative approach and adopt only the “dots” definition in order to construct our tax haven dummy variable. The main reason is that many MNEs in our sample may have subsidiaries in Switzerland and Hong Kong, which poses the problem of distinguishing whether these subsidiaries add to real economic activity or were created only for tax purposes. Our list, therefore, includes the following countries: Andorra, Anguilla,

Table 2
Descriptive statistics.

Variable	Obs	Mean	Std. dev.	Min	Max
Dot tax havens	64,476	0.2534	0.4350	0	1
Ln turnover	64,476	12.1574	2.2119	-0.1057	19.7278
Ln intangible fixed assets	64,476	8.4826	3.4179	-0.3687	18.9177
Ln cash flow	64,476	9.4828	2.4077	-0.3687	18.3566
Ln long term debt	64,476	9.6234	2.9614	-0.3159	19.5263
Age	64,476	38.1881	38.235	1	740
Number of foreign subsidiaries	64,476	53.3301	133.999	1	2471
Top corporate tax rate	64,476	33.6411	5.8943	25	40.9156
Effective average tax	64,476	29.1328	4.7522	21.2146	36.0387
High technology manufacturing	64,476	0.0781	0.2683	0	1
Medium/high technology manufacturing	64,476	0.1617	0.3682	0	1
Medium/low technology manufacturing	64,476	0.0842	0.2778	0	1
Low technology manufacturing (base)	64,476	0.1778	0.3086	0	1
Knowledge intensive services	64,476	0.2793	0.4487	0	1
Less knowledge intensive services	64,476	0.2189	0.4135	0	1
VOC	64,476	0.3445	0.4752	0	1
VOC (Excl. Nordic)	49,172	0.4517	0.4977	0	1

Antigua, Barbados, Bahrain, Bermuda, Bahamas, Belize, British Virgin Islands, Cayman Islands, Cook Islands, Cyprus, Isle of Man, Jersey, Gibraltar, Grenada, Guernsey, Liechtenstein, Luxembourg, Macao, Malta, Monaco, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent, Seychelles and the Turks and Caicos Islands.

It is important to note that the identification of subsidiaries is undertaken on the basis of when the *ORBIS* data are downloaded (2012). This does not pose a problem because *ORBIS* identifies the whole history of subsidiary ownership for each MNE. There are very few circumstances where an MNE opens or shuts a tax haven subsidiary during the period of investigation. Nevertheless, this means that our dependent variable is contemporaneous for each MNE throughout the sample. In our context, the dependent variable offers a proxy for the overall likelihood of MNEs to conduct this activity. It is rare that MNEs shut tax haven subsidiaries and for MNEs that are operating in multiple tax haven locations, our dummy variable is still valid as long as MNEs consistently have at least one subsidiary located in a tax haven. We are therefore confident, that for the purposes of this paper, our methodology adequately justifies the measure of tax havens we use.⁵

3.2. Explanatory variables

We use annual accounts data for each MNE comprising of turnover⁶ to capture MNE size, cash flow, intangible fixed assets, long term debt, the number of foreign subsidiaries and firm age. For detailed descriptions of each of our variables see [Table A1](#) (see Appendix). All monetary values are deflated using GDP deflators to take account of inflation. No financial information about the subsidiaries is utilised in our analysis (apart from location), as these data are often unavailable. Thus, we only focus on the parent firm's financial data and the location of each MNE's foreign subsidiaries, which are sufficient for testing our hypotheses.

We obtain data on the top rate of corporation tax and the effective tax rate at the country level from the Oxford Centre for Business Taxation. [Figs. A1 and A2](#) plot each of these tax rate variables for the OECD countries in our sample (see Appendix). It is not surprising that the effective tax rate (for the calculation of this variable see [Bilicka & Devereux, 2012](#)) is lower than the top

corporate tax rate. The US has the highest statutory rate at approximately 40% and this does not change throughout the period of investigation (likewise the rate for Austria, Japan and Norway). Nevertheless, upon close inspection of the data, it is clear that countries are becoming more competitive over tax rates. For all of the countries, excluding the US and Japan, the effective tax rates fell over the period of investigation.

We distinguish between different sectors by using NACE two-digit industry codes. We use broad categories as defined by Eurostat: high technology manufacturing, medium high-technology manufacturing, medium low-technology manufacturing, low technology manufacturing, knowledge-intensive services, and less-knowledge intensive services.

[Table 2](#) offers descriptive statistics for each of the variables used in the following analysis. Included are the mean, standard deviation and the maximum and minimum values for each variable. In terms of observations, 25.3% of the sample consists of MNEs that have at least one subsidiary in a 'dot tax haven'. The average age of an MNE in our sample is around 38 years with a similar standard deviation which suggests that there is a wide variation in firm age. The top corporate tax rate faced by MNEs at home is on average 33.6%, with an average effective tax rate of 29.1%. The sample is almost split evenly between manufacturing and services MNEs. [Table A2](#) (see Appendix) contains the correlation matrix for each variable and as can be seen suggests no multicollinearity issues.

3.3. Defining market orientation

The choice as to whether a country is classified as a LME versus a CME has some arbitrariness to it. Is Italy a coordinated market economy? What about Switzerland? Indeed, Switzerland may be considered a tax haven. In order to overcome this difficulty we adopt the empirical analysis of [Hall and Gingerich \(2009\)](#) who construct two indices based on labour relations and corporate governance and then estimate a regression model between the two. On their plot, the upward sloping regression line reflects the degree to which countries can be classified as coordinated. They argue that there is a clear clustering pattern between nations, such that LMEs can be found in the southwest quadrant and CMEs can be found in the northeast quadrant. Among the nations included, the US and the UK appear as 'pure' LMEs, whilst Canada, New Zealand, Ireland and Australia diverge "by virtue of systems of corporate governance in which market co-ordination is not fully developed" ([Hall & Gingerich, 2009, p. 459](#)). In contrast, Austria, Germany, Japan, Denmark, Finland and Norway lie above the line of best fit (Sweden lies just slightly below), indicating "high levels

⁵ This means it is not feasible to estimate a meaningful random effects probit model as only a handful of MNEs would experience a change over time in the tax haven dummy independent variable. We have estimated cross section models separately for each year and the results do not alter. This again justifies our use of a pooled panel. By pooling we increase the precision of the estimates.

⁶ We exclude profitability as it is highly correlated with sales and endogenous.

of strategic co-ordination in both their labour and financial markets” (Hall & Gingerich, 2009, p. 459). The authors identify four nations (Spain, Portugal, France and Italy) as interesting cases because they lie below the regression line. Indeed, they point out that there is much controversy as to whether these southern European nations really can be classified as coordinated in the VOC sense.

Due to the ambiguity outlined above, we take a conservative approach when defining which countries to include in our sample. It seems quite clear that Australia, Canada, New Zealand, United Kingdom and the United States can be classified as LMEs. Thus, MNEs that are incorporated in these countries are coded with a 1 in our data. We do not include MNEs from Ireland as many analysts regard it as a tax haven in itself. In order to define CMEs, we start by including only Germany, Austria and Japan and code MNEs incorporated in these countries with a zero. This means our first dummy variable measures the extreme cases and results in a sample consisting of 49,172 observations. As a robustness check, we subsequently re-define the dummy variable to include Nordic MNEs (Denmark, Finland, Norway and Sweden) as being from CMEs and this increases the size of the data set to 64,476 observations.

3.4. Empirical model

We estimate a probit model that is developed from the standard firm-level FDI literature that seeks to construct a specification from IB theory. This is discussed at length in a number of review articles, in economics and regional science, as well as IB and strategy (see e.g. Bhaumik, Driffield, & Pal, 2010; Driffield & Munday, 2000; Girma, 2002; Wiersema & Bowen, 2008). The models we estimate are variants of the following specification:

$$\begin{aligned} TaxHavenFDI_i = & \beta_0 + \sum_{k=1}^6 \beta_k FSA_{kit} + \sum_{s=1}^5 \phi_s Sector_{si} + \lambda_0 VOC_i \\ & + \delta_0 Tax_{it} + \lambda_t + \varepsilon_{it} \end{aligned} \quad (1)$$

where the dependent variable $TaxHavenFDI_i$ equals 1 if a MNE has a subsidiary located in a dot tax haven and equals zero otherwise. The vector FSA_{kit} captures a number of firm-specific characteristics which are seen as important in previous research, such as firm size measured by turnover (e.g. Graham & Tucker, 2006), cash flow, intangible fixed assets, long term debt, firm age and the number of foreign subsidiaries as a measure of the extent of an MNE's internationalisation activities and experience. The vector $Sector_{si}$ includes sector specific dummy variables at the two-digit NACE level, based on the Eurostat definitions as discussed above and the base category is set as low technology manufacturing. The variable VOC is a dummy variable that equals 1 if an MNE is incorporated in a LME and zero if an MNE is incorporated in a CME. Again we have two measures for this variable with one of them excluding the Nordic countries. The variable Tax is a measure of the corporate tax rate levied in an MNE's country of origin. Here we use two measures: (1) the top corporate rate and (2) the country effective tax rate. Finally, λ_t are time dummies to account for business cycle effects and ε_{it} is the error term.

4. Empirical results

We estimate 3 specifications of Eq. (1) and the results are presented in Table 3. To summarise: specification (1) includes the VOC dummy (excluding the Nordic countries) and the top corporate tax rate, specification (2) includes the VOC dummy (including the Nordic countries) and the top corporate tax rate, and specification (3) includes the VOC dummy (including the Nordic countries) and the effective country rate of corporate tax. The results reported are the marginal effects and we also include the Pseudo R^2 and the number of correct predictions as measures of fit.

Table 3
Dot tax haven results (marginal effects).

Variables/specification	(1) Dot tax havens	(2) Dot tax havens	(3) Dot tax havens
Ln turnover	−0.00498 (0.00608)	−0.00614 (0.00486)	−0.00616 (0.00485)
Ln intangible fixed assets	0.0280*** (0.00298)	0.0271*** (0.00234)	0.0271*** (0.00234)
Ln cash flow	0.0300*** (0.00463)	0.0270*** (0.00371)	0.0271*** (0.00371)
Ln long term debt	−0.00496** (0.00243)	−0.00117 (0.00204)	−0.00117 (0.00204)
Age	0.000444*** (0.000164)	0.000254 (0.000139)	0.000254 (0.000139)
Number of foreign subsidiaries	0.00180*** (0.000247)	0.00183*** (0.000234)	0.00182*** (0.000234)
Top corporate tax rate	0.00617*** (0.00125)	−0.00106 (0.000958)	
Country effective average tax rate			−0.00136 (0.00118)
VOC		0.149*** (0.0113)	0.150*** (0.0113)
VOC (Excl. Nordic)	0.223*** (0.0138)		
High technology manufacturing dummy	0.189*** (0.0271)	0.188*** (0.0240)	0.188*** (0.0240)
Medium/high technology manufacturing dummy	0.0999** (0.0219)	0.0854*** (0.0184)	0.0854*** (0.0184)
Medium/low technology manufacturing dummy	0.0318 (0.0264)	0.0333 (0.0222)	0.0332 (0.0222)
Knowledge intensive services dummy	0.0618*** (0.0203)	0.0591*** (0.0164)	0.0588*** (0.0164)
Less knowledge intensive services dummy	0.0280 (0.0209)	0.0163 (0.0169)	0.0163 (0.0169)
Year dummies	Yes	Yes	Yes
Observations	49,172	64,476	64,476
Pseudo R^2	0.3498	0.3353	0.3353
Correct predictions	82.97%	83.97%	83.97%

Note: Industries are grouped into technology intensive sectors as classified by Eurostat. The low technology manufacturing sector is used as the reference category with which the other industry dummies are compared with. All monetary values are in thousands of US dollars and are deflated using GDP deflators. Clustered standard errors at the MNE level.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Overall, the results show conclusive support for each of our hypotheses. Hypothesis 1 states that technologically intensive manufacturing services MNEs with high valued intangible assets are more likely to own tax haven subsidiaries compared with low-technology MNEs. This is essentially a hypothesis that investigates FSAs. As can be seen in specifications (1)–(3) intangible assets has a positive and significant impact on the likelihood of tax haven presence. The coefficient across each specification is in the range of 0.027–0.028 which as an elasticity means that a 10% increase in intangible assets increases the likelihood of tax haven presence by around 2.7–2.8%. In addition, the sector specific dummy variable coefficients rank in order of technological intensity. The reference category here is low technology manufacturing. As can clearly be seen across all three specifications, the variables “high technology manufacturing firms” and “knowledge intensive services firms” both have positive and significant coefficient estimates compared with the other low technology categories. Indeed the “medium technology manufacturing firms” and the “less knowledge intensive services firms” have insignificant estimates. These results offer support to the fact that high technology firms have a higher likelihood to transfer the ownership of their high value-added intellectual property to these locations in order to minimise taxation at home and from abroad in non-tax haven subsidiaries.

We now turn to the results that investigate home country specific advantage as motivated by the VOC framework. There is clear support for the second hypothesis that MNEs incorporated in CMEs have a lower likelihood of investing in tax havens in contrast to MNEs from LME. The coefficient estimate for the VOC dummy that excludes Nordic MNEs (column 1) suggests that MNEs from the liberal markets of Australia, Canada, New Zealand, United Kingdom and United States have approximately a 22.3% higher likelihood of a tax haven subsidiary compared with their CME counterparts in Austria, Japan and Germany. This estimate reduces to approximately 15% when the Nordic countries are included in the data as can be seen in columns (2) and (3). The results justify the use of the VOC approach (Hall & Soskice, 2001; Hancke, 2009) to explain why firms from particular countries vary in terms of tax haven presence. It is clear that home country CSAs are thus incredibly important, even more so when we only include the extreme countries identified in the VOC approach.

Finally, we analyse host country specific advantage and find support for Hypothesis 3. The host country-specific advantages offered by tax havens appear to minimise the impact that corporate income tax rates (levied at home) have on the likelihood of an MNE owning a subsidiary in a tax haven. The coefficient estimate for the top rate of corporate tax in specification (1) is positive and significant. This gives the impression that higher tax rates at home drive MNEs abroad. But the size of the estimate is notably small and in reality MNEs are concerned more with the effective corporate tax rate they actually have to pay. As can be seen, when the Nordic countries are included in the sample, the coefficient for the top rate is negative and insignificant in specification (2) and likewise for the effective country corporate tax rate in specification (3). It would appear therefore, that the impact of corporate tax rates, holding everything else constant, has a minimal impact on the tax haven decision. Regardless of the corporate tax rate, MNEs will do this activity as the host country specific advantage of zero tax rates and high degrees of secrecy in tax havens prove incredibly attractive. Clearly this has a number of policy ramifications which we will discuss in more detail in the conclusion.

Notwithstanding the variables that give evidence to our hypotheses it is also important to discuss the control variables. The estimates for MNE size are not as expected. The literature

consistently finds evidence that larger US firms are more likely to have a propensity to use tax haven subsidiaries (see Graham & Tucker, 2006) but our results provide statistically insignificant estimates. This in itself is very interesting, as it suggests that smaller MNEs may be as adept as larger MNEs at minimising corporate tax. Nevertheless, by including a variable that measures the number of foreign subsidiaries, as a measure of the extent of an MNE's internationalisation activities and experience, the results indicate that the more international the MNE is, the greater the likelihood of utilising tax haven subsidiaries. Additional insights also suggest that MNEs with larger cash flow and lower long term debt are also more likely to undertake this type of activity.

5. Discussion

5.1. Strategic options open to the MNE: positioning within the cube

Our portrayal of Rugman's (1981) FSA-CSA matrix in the form of a cube allows us to provide a useful insight into which types of firms are more likely to invest in tax haven subsidiaries (Fig. 3).

MNEs positioned on the diagonal arrow close to the origin O_2 will be utilising tax haven subsidiaries. These MNEs are combining their FSAs (e.g. intangible assets, patents, R&D, etc.) with home and host country-specific advantages. Our results confirm that these MNEs are from countries with a strong LME orientation such as Australia, Canada, New Zealand, United Kingdom and the United States. They will be transferring (or registering) the ownership of their patents and trademarks to tax haven subsidiaries located in countries with negligible corporate tax rates, high levels of secrecy and significant institutional strength that favour the protection of private property rights (i.e. strong host country-specific advantages). Classic examples of these types of firms include Amazon, Google and Starbucks.

MNEs located or moving towards the origin O_4 are generally firms with strong FSAs in customisation and marketing and are basically following some sort of differentiation strategy. These firms, although having the potential to utilise tax haven subsidiaries, are less likely to do so because their country of incorporation is located in a CME. Our results confirm this – MNEs from Austria, Germany, Japan and the Nordic countries are less likely to utilise tax haven

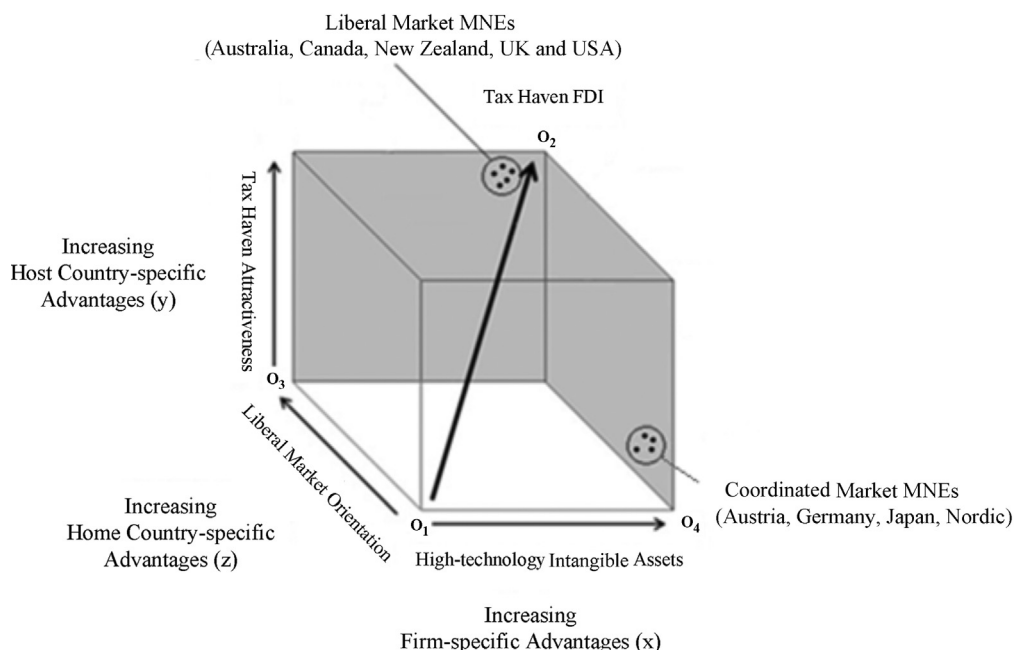


Fig. 3. FSA-CSA matrix results summary.

subsidiaries. Thus, the home country institutional context is of increasing importance and may deter firms from utilising complex financial structures linked to tax avoidance.

MNEs located close to or at origin O_3 will be globally orientated, producing commodity type products. They may well be entering the later stage of the product life cycle and although they may be from LMEs they will have less reliance on utilising complex financial structures. Interestingly, for those MNEs moving away from this origin towards O_2 (i.e. those firms that are improving their FSAs), we predict that they will begin to use tax haven subsidiaries with increasing frequency. This is consistent with the finding that technologically intensive manufacturing and services firms are prone to this type of investment. Indeed, if world GDP is to be driven by these types of firms we predict that tax haven use will become even more pronounced in the future unless policy makers take action.

Finally, MNEs located near the origin O_1 will be domestically based small and medium-sized enterprises with limited global exposure. Although they may be close to engaging in international markets (via exports), firms in this segment may be less efficient and possess neither a consistent strategy, nor any intrinsic CSAs or FSAs. If firms positioned at this part of the cube are not able to transform their corporate strategy to escape this segment they are likely to lose competitive advantage over time, notably to MNEs with tax haven presence. From a strategy perspective, it is not surprising that firms in this segment would shy away from focusing on complex tax structures. Instead they should focus their activities on their core competencies – building FSA to create sustainable competitive advantage. Nevertheless, if these advantages can be built, firms may begin to consider creating more complex financial structures that take advantage of tax minimisation in order to compete at a global level

Consequently, our results support our conjecture that the combination of strong and increasing home and host CSAs in addition to strong and increasing FSAs leads to sustainable competitive advantage, compelling firms to have an international presence and to take advantage of complex financial structures in tax haven locations.

6. Conclusion

There is no doubt that globalisation has increased the spread and mobility of MNEs (Eden, 2009). This paper is the first that investigates the determinants of MNEs investing in tax havens, using a large scale firm-level dataset that covers 12 OECD economies. It is clear that governments across the OECD fear the role that tax havens may play in eroding the corporate tax base. Given this, it is perhaps not surprising that tax rates have fallen significantly in OECD countries over the last decade (Figs. A1 and A2, see Appendix). Tax competition across countries and the lowering of domestic tax rates has certainly had a competitive effect in attracting foreign inward investment, *ceteris paribus*. However, our results suggest that tax competition between states is unlikely to deter MNEs from using tax haven subsidiaries so long as a large gap in corporate tax rates persists. Consequently, it is perhaps not surprising to find that international policy coordination across the OECD has focused more on sharing information via Tax Information Exchange Agreements compared with broader tax liberalisation measures (see Braun & Weichenrieder, 2015).

Furthermore, our results indicate that the utilisation of tax haven subsidiaries is likely to become even more widespread in the future. We find that MNEs from the high technology manufacturing and services sectors with high levels of intangible assets are more likely to have tax haven presence. This has significant implications for the OECD corporate tax base if future growth in the world economy is to be driven by high technology MNEs. Policy

makers, assuming they are not captured by political interests, are likely to become even more sceptical of this type of activity. This may lead to some kind of reform in the international system of corporate taxation. However, it remains to be seen whether reform will be shaped by governments in favour of MNEs or by imposing taxation on less mobile income.

Finally, our results are suggestive of significant heterogeneity across countries. MNEs from LMEs are significantly more likely to undertake tax haven FDI compared with MNEs from CMEs. This result is the first of its kind to link tax haven use to the theoretical perspective of the VOC. This finding lends novel empirical support to the core VOC argument that corporate finance and governance in CMEs exhibit substantial path-dependent institutional differences even in the context of ongoing financial integration. This suggests that international policy reform may come under increasing strain as politicians seek to represent the comparative institutional advantage of the polity they represent. In this sense, LME policy makers may take a more liberal attitude to the use of tax havens by MNEs compared with their CME counterparts.

Whilst the focus of this paper is on the determinants of tax haven use, it also has important implications in terms of the measurement of FDI. In this regard, our firm-level evidence of divergent tax haven use across countries and MNEs adds a further dimension to the argument made by Beugelsdijk et al. (2010) and Sutherland and Matthews (2009) with respect to biases in the measurement of aggregate FDI. Currently, FDI stock and flow statistics include the first destination, not the ultimate destination. Thus, cases of outward FDI returning back home, aka “round-tripping” and FDI that passes through tax havens to another foreign country is not uncommon, but still regarded as “genuine” FDI. This is an important problem in knowing where the investment has actually come from and where it is finally put to productive use. This inevitably leads to biased results in any future studies using FDI data to analyse any empirical FDI issue, unless it controls for tax haven activity. Therefore, the reliability in using FDI data becomes potentially a greater problem for countries where the incidence of tax haven use is more pronounced. A similar argument can be made for firms in countries that have a higher share of intangible assets/high technology firms. Indeed, recent work by UNCTAD (2013) shows the distorting impact of FDI to tax havens when measuring MNE activity using aggregate FDI data. Moreover, there are efforts by the OECD and IMF to exclude FDI flows that are either destined or pass through tax havens, in order to capture “conventional” FDI.

Although our paper is the first of its kind to investigate tax haven use by MNEs across OECD countries using a large firm level data set, our analysis has three general limitations which future research may be able to address in order to shed additional light on the use of tax havens subsidiaries. First of all, our dependent variable is fairly restrictive in the sense that it does not specifically measure the financial extent to which MNEs have a presence in tax havens. Although Orbis data does provide some limited financial information on the value of assets located in tax havens its coverage is inadequate. Future studies could address this weakness by obtaining more detailed data across OECD countries. Secondly, more information on subsidiary activity is needed in order to isolate whether tax haven activity is actually used for productive economic activity or just tax minimisation, especially in countries such as Switzerland and Ireland. This would allow broader measures of tax haven use to be adopted with greater confidence in the reliability of the data. Thirdly, our analysis does not capture dynamic effects. It would be fascinating to discover the extent to which firms increase or decrease their likelihood of using of tax havens as government policy at home or abroad changes. Last, but not least, extending the analysis beyond OECD countries is important and our findings may only reflect broad trends in the developed world. For example, the relationship between country level institutional characteristics and

tax haven use in emerging market economies would be a fruitful avenue for future research. Theoretically the relationship between institutional quality and tax haven use can either be argued to be positive (i.e. high institutional quality leads to more tax haven use, due to for example the sophistication of home country financial market intermediation/tax advisory services) or negative as identified by the existing literature in relation to emerging market MNEs (e.g. the capital flight argument).

Indeed, future IB research is needed in this area to determine whether different forms of corporate governance, both at the firm and country level, dictate the use of tax havens. This will help in bridging our understanding of this complex phenomenon from the perspectives of IB, finance and corporate governance. There are a number of fascinating questions that the current IB literature can address in order to be at the forefront on this important debate. For example, what is the role of ownership structure? Do MNEs with, for example, a more opaque structure have a greater likelihood of tax haven use? Have MNEs with different ownership nationalities in a certain home country different propensities of investing in tax havens? Does management and board composition play a role? Do family owned firms engage in this activity to a greater or lesser degree than non-family owned firms (see [Chen, Chen, Cheng, & Shevlin, 2010](#))? Do state owned firms take part in this type of activity in emerging markets? Finally, it is unknown whether and to what extent the use of tax havens increases firm performance? In particular, would any performance gains be captured purely in terms of profitability or would firm level productivity be affected at all? Indeed, does the level of profitability differ between LME MNEs and CME MNEs? It is hoped that this paper introduces a new line of

enquiry to be opened up in the IB literature given the widespread use of tax havens by MNEs.

Managerial relevance

The corporate tax landscape is under much scrutiny due to the state of the public finances in OECD countries. This may have significant implications for MNEs across countries in the future. This research sheds light on the types of firms that make use of tax havens in their international business operations and offers a number of conclusions that are relevant for future policy.

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Appendix

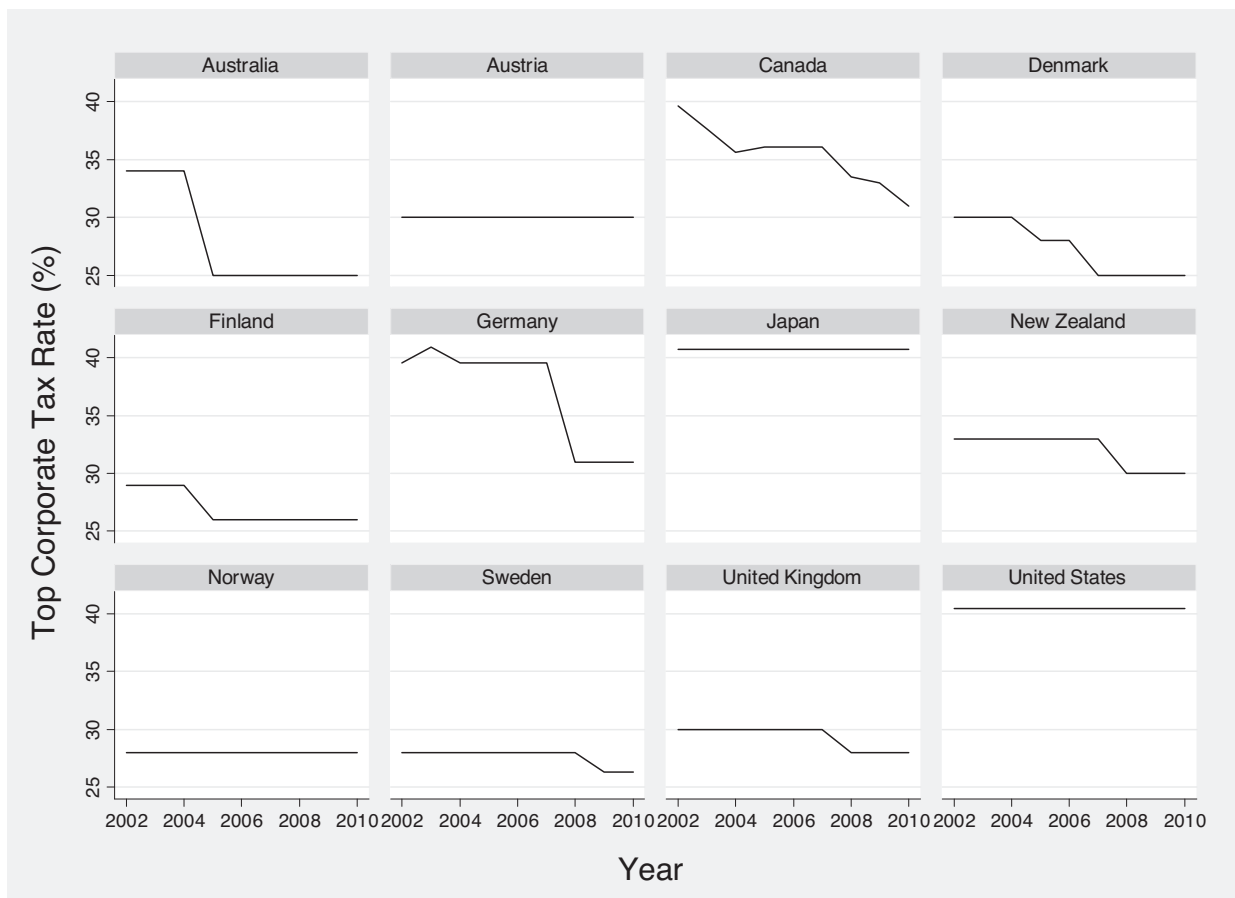


Fig. A1. Top corporate tax rates by country.
Source: Oxford University Centre for Business Taxation.

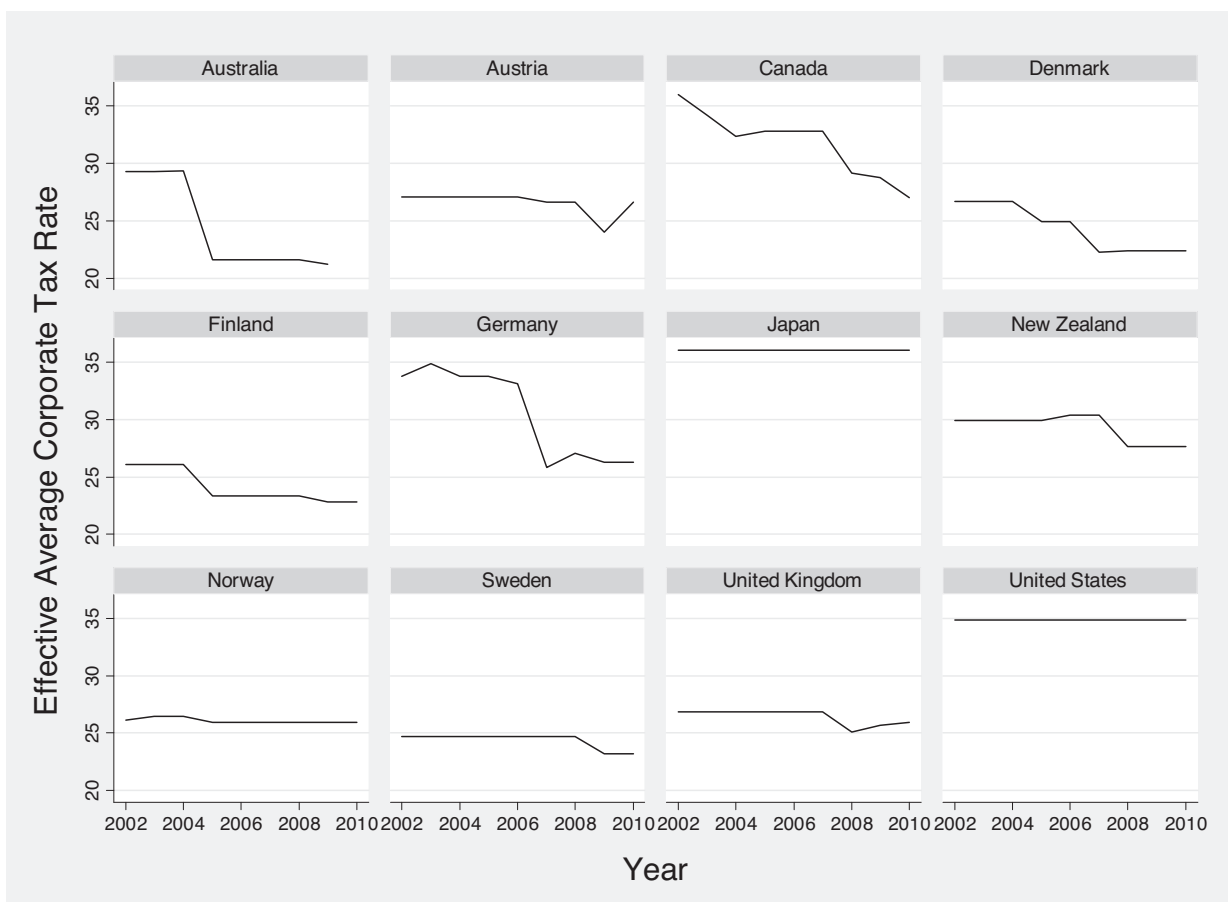


Fig. A2. Effective average corporate tax rate by country.
Source: Oxford University Centre for Business Taxation.

Table A1

Definition of variables.

Variable name	Description	Source
Firm characteristics		
Turnover	(Turnover) is listed in the Balance Sheet account and defined as Total Operating Revenue (Net sales + Other operating revenue + Stock variations). These figures do not include VAT or excise taxes or similar obligatory payments.	ORBIS
Age	The age of a firm calculated since the year the company was incorporated.	ORBIS
Cash flow	Cash flow is defined in the profit and loss account as the sum of: P/L for Period [=Net Income] + Depreciation.	ORBIS
Intangible fixed assets	All intangible assets such as formation expenses, research expenses, goodwill, development expenses and all other expenses with a long term effect.	ORBIS
Long term debt	Long term debt is a financial variable in the balance sheet account and is defined as loans and financial obligations owed for a period exceeding 12 months. This can include bank loans, mortgage bonds, debentures or other obligations not due for 12 months.	ORBIS
Number of foreign subsidiaries	The total number of foreign subsidiaries identified for the parent firm.	ORBIS
Industry characteristics		
High technology manufacturing	Nace 2-digit codes: 21 and 26	Eurostat
Medium/high technology manufacturing	Nace 2-digit codes: 20, 27, 28, 29, 30	Eurostat
Medium/low technology manufacturing	Nace 2-digit codes: 19, 22, 23, 24, 25, 33	Eurostat
Low technology manufacturing	Nace 2-digit codes: 10, 11, 12, 13, 14, 15, 16, 17, 18, 31, 32	Eurostat
Knowledge intensive services	Nace 2-digit codes: 50, 51, 58, 59, 60, 61, 62, 63, 64, 65, 66, 69, 70, 71, 72, 73, 74, 75, 78, 80, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93	Eurostat
Less knowledge intensive services	Nace 2-digit codes: 45, 46, 47, 49, 52, 53, 55, 56, 68, 77, 79, 81, 82, 94, 95, 96, 97, 98, 99	Eurostat
Tax haven definitions		
Dot tax havens	Andorra, Anguilla, Antigua, Barbados, Bahrain, Bermuda, Bahamas, Belize, British Virgin Islands, Cayman Islands, Cook Islands, Cyprus, Isle of Man, Jersey, Gibraltar, Grenada, Guernsey, Liechtenstein, Luxembourg, Macao, Malta, Monaco, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent, Seychelles and the Turks and Caicos Islands	ORBIS

Table A1 (Continued)

Variable name	Description	Source
Tax variables		
Top corporate tax rate	This is obtained from a number of sources including the Ernst & Young Worldwide Corporate Tax Guide; IBFD Tax Research Platform; IBFD Global Corporate Tax Handbook; European Tax Handbook; ZEW Intermediate Report; Deloitte Tax Highlights and International Tax and Business Guide; KPMG Tax Rate Survey; and the PKF Worldwide Tax Guide.	Oxford Centre for Business Taxation
Country effective average tax rate	See Bilicka and Devereux (2012). <i>CBT Corporate Tax Ranking 2012</i> for the methodology used to calculate effective average country tax rates.	Oxford Centre for Business Taxation
Market orientation and institutions		
VOC (Excl. Nordic)	Equals 1 if an MNE is incorporated in Australia, Canada, New Zealand, United Kingdom or United States and 0 if an MNE is incorporated in Austria, Germany or Japan.	ORBIS
VOC	Equals 1 if an MNE is incorporated in Australia, Canada, New Zealand, the United Kingdom or the United States and 0 if an MNE is incorporated in Austria, Germany, Japan, Denmark, Finland, Norway or Sweden.	ORBIS

Table A2

Correlation matrix for selected variables.

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Dot tax havens	1										
2 Ln turnover	0.4271	1									
3 Ln intangible fixed assets	0.4864	0.7571	1								
4 Ln cash flow	0.4554	0.8943	0.7663	1							
5 Ln long term debt	0.3957	0.7366	0.6801	0.7403	1						
6 Age	0.1278	0.3403	0.176	0.3052	0.2294	1					
7 Number of foreign subsidiaries	0.4466	0.4661	0.4571	0.4775	0.4408	0.1587	1				
8 Top corporate tax rate	0.1502	0.4064	0.274	0.3611	0.3274	0.212	0.0965	1			
9 Effective average tax	0.1729	0.417	0.3093	0.3797	0.3417	0.2102	0.1061	0.9371	1		
10 VOC	0.3211	0.2363	0.4508	0.2822	0.2422	-0.08	0.1695	0.1192	0.1874	1	
11 VOC (Excl. Nordic)	0.3378	0.1271	0.4463	0.2018	0.1744	-0.17	0.1513	-0.177	-0.055		1

Note: Correlations are calculated based on the full sample of 64,476 observations except for the liberal vs. coordinated (Excl. Nordic) dummy variable which is calculated on the sample with 49,172 observations.

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