

FDI in Tax Havens: Do Corporate Tax Rates Matter?

By

Abstract

The purpose of this paper is to examine the determinants of a MNEs strategy to invest in countries classified as tax havens. To the best of our knowledge this has not been done before. We extend the model of international business based on the OLI paradigm linking it with financial specific advantages. Our empirical tests rely on the firm-level data covering over 39,543 MNEs across the OECD between 2002 and 2011. We find that higher corporate taxes faced by MNEs at home increases the propensity of tax haven use. In addition, high technology MNEs from both the manufacturing sector and the services sector, with a large level of intangible assets, are also more likely to use tax havens. Finally, there is also evidence that MNEs from countries with a more social market orientation are less likely to invest in tax havens.

Keywords: FDI, MNEs, Tax Havens, Corporate Tax

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INTRODUCTION

Tax Havens allow multinational enterprises (MNEs) to shift profits out of high tax jurisdictions into low tax jurisdictions most commonly via transfer pricing (see Eden 2009). They are characterised by a high degree of secrecy and exceptionally low (often zero) rates of corporate income taxation. The issue of corporate tax avoidance is high on the political agenda. Recent media stories concerning the tax affairs of some of the world's most notable MNEs such as Amazon, Apple, Google and Starbucks have created much hostility from civil society, non-governmental organisations (NGOs) and the general public. The Tax Justice Network has estimated that between \$21 to \$32 trillion has been invested virtually tax-free through the world's more than 80 offshore secrecy jurisdictions. In June 2012 the G20 explicitly referred to "the need to prevent base erosion and profit shifting" (see OECD 2013). This concern was also voiced by US President Obama in the *President's Framework for Business Tax Reform*, which states that "empirical evidence suggests that income-shifting behaviour by multinational corporations is a significant concern that should be addressed through tax reform". Recently, 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.

Given this timely and critical international issue, it is surprising that the international business literature has not adequately addressed the role of tax havens in international business research. This paper seeks to fill this void by offering both a theoretical and empirical contribution. We take a cross-disciplinary approach by integrating contemporary finance into international business research to open up a new line of enquiry (see Bowe *et al.*, 2010 and Oxelheim *et al.* 2001). This allows us to construct a number of hypotheses which build upon the existing literature by offering an international perspective (see Desai, Foley, Hines, 2006) and a number of new hypotheses that have not been tested before.

The primary goal of this paper is to empirically examine the types of firms which undertake tax haven activity and contribute to the literature in four ways. First, we ask the question whether FDI into

tax havens is driven by home country statutory corporate tax rates? Politicians often make the argument that high corporate tax rates drive companies offshore. This often results in a policy of cutting the corporate tax rate on the basis that it makes the economy appear more competitive relative to its rivals. For example, the UK has reduced its top rate of corporation tax in 2014 to 21% from 30% in 2001. Many critiques argue that this creates a race to the bottom in terms of tax competition. To the best of our knowledge, existing empirical literature on this topic is predominantly on the US and therefore this question has not been addressed in the literature at a cross-country level allowing comparisons across tax regimes.

Secondly, what is the impact of firm level financial factors on the decision of firms locating in tax havens? The extant literature states that firm size and profitability (see Graham and Tucker 2006) are major determinants of firms using tax shelters. Leblang (1998) also argues that firms with more multinational activity have more tax planning opportunities, including tax haven presence. However, can similar arguments be made for all MNEs across the world, particularly as the previous empirical evidence is specific to the United States?

Thirdly, do all firms do this type of activity? Desai et al. (2006) find that technology intensive firms with high R&D have a propensity to own subsidiaries in tax haven locations. However, the literature does not distinguish between manufacturing and services firms and across other classifications of industry? Might it be the case that the financial industry has a competitive advantage in this setting by being able to use its expertise to take advantage of the complex structures that firms can use such as the use of intra-firm debt, royalty payments, dividend repatriations and intra-firm trade?

Finally, is there country heterogeneity in the sense that firms have a different propensity to do this type of activity dependent on the variety of capitalism of their home location? Do firms from a more long-term coordinated market orientation (Germany, Austria, Japan and Scandinavia) do this activity less than the more short-term liberal market orientated countries such as the US, UK and Australia (see Hall

and Soskice 2001)? In addition, what about the propensity for emerging market MNEs such as Brazil, Russia, India and China (BRICs) to do this type of activity?

We address these issues by taking advantage of a panel dataset which includes 39,543 MNEs from across the world between 2002 and 2011. Out of these firms 21% of them have a subsidiary in a tax haven according to our definition (see below). In total there are over 173,139 firm-year observations. As far as we know this is the largest dataset of its kind that has looked at the relationship between MNEs and tax havens. Tax havens by definition are locations that do their utmost to maintain secrecy. What we are able to do in this paper is to identify where MNEs subsidiaries are located. This gives us a latent measure of a firm's ability to use tax havens to mitigate tax.

It is important to stress that this paper is NOT about whether the use of tax havens by MNEs is right or wrong. Indeed we acknowledge that MNEs have a responsibility to their shareholders to maximize profit by producing goods and services that society wants and to sell them at a profit (see Carroll, 1979; 1991).

The remainder of this paper is organized into four main sections. First, we present our theoretical framework and the hypotheses. Our framework is based on the OLI paradigm (Dunning 1988)) and its adaptation to include firm financial specific advantages (see Oxelheim 2001). Second we discuss the data used in the analysis, in particular how we define a tax haven, and the empirical methodology. Third we discuss all of our results. Finally, we discuss the main findings of our research and their implications for future empirical work and practical relevance for policy makers.

THEORETICAL FRAMEWORK AND HYPOTHESES

The stylised literature on FDI has at its basis the ownership-location-internalisation (OLI) framework (Buckley & Casson, 1976; Dunning, 1979, 1988). The basic proposition of the OLI model continues to be valid, in the sense that MNEs expand into other countries and continents to take advantage of local resources and by leveraging their unique capabilities within their firm boundaries (Luo & Tung, 2007).

Bowe and Dean (2010) state that the globalization of international business activity has evolved along with increasing financial market integration and that despite this, the asymmetric incidence of accounting standards, regulations and taxation has had significant tactical and strategic financial implications for MNEs. The OLI paradigm has predominantly focused on how FDI relates to the asset side of a non-financial firm's balance sheet. An exception to this is Dunning's (1993) discussion of a 'financial asset advantage' that is concerned with an MNE's superior knowledge of, and access to, foreign sources of capital. Oxelheim *et al.* (2001) argue that this view does not identify specific proactive strategies that MNEs can undertake in order to create such an advantage, apart from becoming more multinational. For this reason Oxelheim *et al.* (2001) extend the OLI paradigm on FDI (Dunning 1977, 1988, 1995, 1998, 2000) by providing a theoretical bridge with the international cost of capital research (e.g. Stultz 1996; Rajan and Zingales 1998). Their main proposition is that a MNEs financial strength affects its ability to engage in FDI. Thus a proactive financial strategy aimed at improving a MNEs financial strength is a leading indicator of FDI.

A core part of any MNEs financial strategy is concerned with its tax affairs, in essence its transfer pricing activities. Transfer pricing allows MNEs to pay lower corporate income taxes or gives the firm the ability to defer taxation into the future. The use of tax havens thus allows firms to use aggressive strategies for tax avoidance. This type of activity can be used by management 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 single country firms (Oxelheim *et al.* 1998). Our view differs to Oxelheim *et al.* (2001) in that they argue that FDI to minimise taxation is essentially a reactive strategy because MNEs have no control over foreign tax rates. We argue that this may not be the case. The ability of MNEs to leverage their own unique financial capabilities by taking advantage of tax havens is essentially a proactive strategy and is based on firm-specific finance-related ownership, locational and internalisation advantages. It is proactive in the sense that MNEs can use experienced tax experts to take advantage of so called hybrid mismatch arrangements. 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 arrangements often lead to “double non-taxation” which allows MNEs to avoid corporate income tax across locations. In addition, firms often use lobbying activities to influence legislation in tax havens.

Locational Advantages

The location specific advantage in the OLI paradigm is perhaps the most obvious from the point of view of a MNE investing in a tax haven. One can only assume that the reason why a MNE would want to set up an entity in a tax haven is simply to avoid or mitigate taxation¹ from their country of origin and from other subsidiary locations and take advantage of the light touch regulation and secrecy that tax havens provide. The most well-known tax havens, for example the Cayman Islands, Bermuda, British Virgin Islands (BVI), Jersey and Guernsey are all small island economies (regarded as “dots” by Desai et al. 2006) with low populations and land masses below 23,000 square kilometres, where they offer little in terms of natural resource advantages and thus must be viewed as advantageous because of their significantly lower rates of taxation and light-touch regulation. In addition, the location of tax havens are often characterised by countries with strong institutions and good governance (see Dharmapala and Hines Jr. 2009). These facts allow us to construct our first hypothesis that has not been empirically tested before:

Hypothesis 1: High statutory corporate tax rates in the MNEs home country increases the propensity of an MNE owning a subsidiary in a tax haven.

There is a wide literature concerning the impact of taxation on FDI (see de Mooij and 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 percent cut in the tax rate leads to an increase in the FDI stock of roughly 0.6 percent. In contrast, our analysis is focused on outward FDI, in the sense that high taxes at home drive firms abroad by giving them an incentive to set up subsidiaries in tax havens to take advantage of low corporate income tax rates, light touch regulation and secrecy. Therefore, our first hypothesis can be further refined by integrating the MNEs effective tax rate:

Corollary 1: The greater the difference between the statutory corporate tax rate and a MNEs effective tax rate the higher the propensity a MNE will own a subsidiary in a tax haven.

The effective tax rate is the annual rate of taxation a firm pays and is often found to be lower than the corporate rate. The use of tax havens obviously has an impact on this difference so that those firms who can manage proactively their unique financial capabilities and take advantage of the opportunities that tax havens provide are thus more likely to invest in tax havens.

Ownership Advantages

In terms of non-financial assets, ownership advantages are usually embodied in proprietary knowledge by advanced technology, patents and trademarks, advanced production techniques, entrepreneurial skill and economies of scale and scope. In order to illustrate a financial ownership advantage that gives a MNE the ability to reap the rewards of making an investment into a tax haven it is useful to use a concept identified by Oxelheim *et al.* (2001). They use the concept of 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, be it for one year or even longer, may provide advantages to the firm over its domestic and foreign rivals. This could be obtained by hiring in-house tax specialists and lawyers to create complex hybrid mismatch arrangements. The use of internal specialists, which might be bought in via consultancy firms (such as the Big 4 accountancy firms) would also provide internalisation advantages and help the MNE to increase its opacity from the revenue services. Such measures would come naturally to technologically intensive firms with large intangible assets. It is well known that MNEs like to transplant rights, patents, trademarks, licences and sub-licenses to low tax jurisdictions and thus receive payments for these ‘intangible assets’ from related companies in ‘normal’ tax rate countries. This is causing much difficulty for the revenue raising authorities and is being attenuated by e-commerce. These facts lead to our second hypothesis:

Hypothesis 2: Technologically intensive Manufacturing and Services MNEs with high valued intangible assets increases the propensity of an MNE owning a subsidiary in a tax haven.

In addition to highlighting the sectoral level differences in the decision to invest in countries that are classified as tax havens, there may also be a country level phenomenon, where firms from countries with specific types of governance and culture are more likely to engage in FDI in tax havens. The political scientists Hall and Soskice (2001) discuss the varieties of capitalism differentiating between liberal market orientated countries such as the UK and US and coordinated market economies of Austria, Germany, Japan and Scandinavia. The former is characterised by low regulation, taxes and welfare and a reliance on equity capital which might result in an MNE having a greater propensity to invest in tax havens as their focus is on maximising shareholder value in the short run. Whereas the latter MNEs from more social market systems are less likely to take advantage of tax havens because there is a greater reliance on long term debt finance and thus less need to use an aggressive tax avoidance strategy to maximise short-run profitability. In addition, firms from countries with this orientation may also be more concerned with reputational damage and the impact that tax avoidance may have on their relationships with government. This leads to our third hypothesis:

Hypothesis 3: There is significant home country heterogeneity that leads to differences in the propensity of an MNE in owning a subsidiary in a tax haven.

Extending hypothesis 3 we define countries of interest that can be classified as liberal market versus coordinated market countries:

Corollary 3: MNEs incorporated in Social Market Economies (Austria, Germany and Japan) have a lower propensity of investing in tax havens in contrast to Liberal Market Economies (Australia, Canada, UK and USA).

Internalisation Advantages

Internalisation advantages explain why a firm would choose to undertake FDI in a foreign location as opposed to pursuing other methods of activity such as exporting or licensing. Finance related aspects of internalisation advantages are often ignored. It is fairly straightforward to see why the internalisation of a firm's tax affairs either by using in-house tax specialist or by building relationships with tax advisors may lead to advantages over MNEs foreign or domestic rivals. That is, the ability to earn income in the right locations is easier to accomplish with foreign subsidiaries that are fully owned rather than if the MNE must deal with outside partners. This is not only true for taxation purpose but also in terms of secrecy and light-touch regulation.

Empirical analysis of internalisation advantages typically focuses on the transactions costs associated with the alternative mechanisms of facilitating the international transaction. In the context of the sectoral differences discussed above, this may include arm's length trading as opposed to ownership, in terms of either exporting, or access to raw materials. However, in addition to the sectoral differences, one has to consider the ability of the firms to manage the newly created assets. Typical measures of this used in the literature are the firm age, as well as firm size. In addition, MNEs that have a large proportion of intangible assets are also more likely to want to protect their proprietary knowledge by investing in tax havens. The literature in this domain is more developed compared to the other hypotheses developed above, although not covering non-US parent MNEs. There is much evidence that larger firms (see Graham and Tucker 2006) are more likely to have subsidiaries in tax havens. In addition, Leblang (1998) argues that more international firms are more likely to invest in tax havens. This leads to our fourth hypothesis:

Hypothesis 4: The more international and profitable the MNE the greater the propensity the MNE has a subsidiary in a tax haven.

DATA AND METHODOLOGY

This paper uses *ORBIS* which is a firm-level dataset provided by Bureau van Dijk, a leading electronic publisher of annual accounts information for millions of firms across the whole globe. We use financial data for every MNE included in the database. An MNE is defined as having an ownership of greater than 10% in a subsidiary located abroad. In total, we have 39,543 MNEs over the time period 2002 to 2011, which results in an unbalanced panel dataset of 173,139 observations. We use accounting data for each firm comprising of profitability (to measure firm size), cash flow, intangible assets/total assets, long term debt and firm age. All monetary values are deflated using GDP deflators to take account of inflation. No information about the subsidiaries is utilised as this data is often missing, we are therefore focusing on the parent firm. The only data we have concerning a MNEs subsidiaries is where they are located. This data allows us to construct our dependent variable $TaxHavenFDI_{it}^j$ which equals 1 if a firm has a subsidiary in a tax haven and 0 otherwise. The statutory corporate tax data is obtained from the Oxford Centre for Business Taxation. Effective tax rates are calculated by dividing taxation paid by firms (available in *ORBIS*) by Profitability. Figure A1 in the appendix graphs each countries maximum statutory corporate tax rate between 2002 and 2011. As can be seen, 29 out of the 42 countries covered in the data saw corporate taxes fall between 2002 and 2011.

We distinguish between different sectors by using NACE 2-digit codes². We use broad categories as defined by Eurostat: high technology manufacturing, medium high-technology manufacturing, medium low-technology manufacturing, total knowledge-intensive services, and total less-knowledge intensive services. Country specific dummies based on each MNEs country of incorporation are created from ISO numbers. In most specifications we report coefficient estimates for those countries of interest. When reporting regressions where country dummies are not the focus we just report the fact that we have used them. City dummy variables are created for the major financial sectors of Frankfurt, London, New York, Paris and Tokyo.

It is well established that institutional development is linked to firm performance (see Cuervo-Cazurra and Dau 2009 and Driffield et al 2013) so we also include a measure called Investment Profile from the Inter Country Risk Guide (ICRG) to control for institutional quality of the MNEs country of incorporation. The ICRG data is generated in order to provide advice or guidance to firms contemplating FDI decisions. As such, it is the database most geared to the private sector, and divorced from particular political views of institutions or institutional development. ICRG use 12 measures of political risk to assess a number of different countries. The measure Investment Profile is one of these measures and is an assessment of the factors affecting the risk to investment. This risk rating has a maximum score of 12 and is made up of three equal subcomponents: (1) Contract Viability/Expropriation; (2) Profits Repatriation; and (3) Payment Delays.

Table1 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 addition to this Table A1 in the Appendix contains the correlation³ matrix for the FDI variables.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Tax Haven	173139	0.2107	0.4078	0	1
ln Profitability	173139	8.2402	2.4801	-0.5469	17.5474
ln Cash flow	173139	8.4235	2.4501	-0.3687	17.4249
ln Intangible Fixed Assets	173139	6.9512	3.4379	-1.5140	18.9177
ln Long Term Debt	173139	8.5090	2.9063	-1.4512	19.5263
Age	173139	30.9797	30.3293	-9	740
Age ²	173139	1879.5990	5401.8350	0	547600
ln Total Subsidiaries	173139	2.0328	1.5996	0	7.8124
Top Statutory Corporate Tax Rate	173139	29.3017	5.8126	0	55
Statutory - Firm Effective Tax Rate	85432	12.6282	9.3920	0.0002	39
Firm Effective Tax Rate	85432	17.9422	9.6117	0	38.9546
Investment Profile	173139	11.5245	0.8415	2.5	12
High Technology Manufacturing	173139	0.0537	0.2255	0	1
Medium Technology Manufacturing	173139	0.1549	0.3618	0	1
Medium/Low Technology Manufacturing	173139	0.1138	0.3176	0	1
Total Knowledge Intensive Services	173139	0.2231	0.4163	0	1
Total Knowledge Less Intensive Services	173139	0.2379	0.4258	0	1

Australia	173139	0.0082	0.0900	0	1
Austria	173139	0.0168	0.1287	0	1
Brazil	173139	0.0013	0.0362	0	1
Canada	173139	0.0017	0.0417	0	1
China	173139	0.0123	0.1101	0	1
Denmark	173139	0.0110	0.1045	0	1
Finland	173139	0.0272	0.1625	0	1
Germany	173139	0.1035	0.3046	0	1
India	173139	0.0028	0.0527	0	1
Norway	173139	0.0101	0.0998	0	1
Russia	173139	0.0011	0.0334	0	1
Sweden	173139	0.0344	0.1822	0	1
UK	173139	0.0484	0.2147	0	1
USA	173139	0.0554	0.2289	0	1

Classifying Tax Havens

Defining what we mean by tax havens is not trivial. Indeed Palan, Murphey and Chavagneux (2010) 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 undertake the substance of their economic transaction”. Therefore the key characteristic is the fact that these countries have zero or near zero rates of taxation to non-resident companies. There are all sorts of tax haven lists available, see for example Hines and Rice (1994), but they all have the same characteristics in common - a number of countries appear on every list.

Our own list includes the following countries: Andorra, Anguilla, Antigua, Barbados, Bahrain, Bermuda, Bahamas, Belize Cook Islands, British Virgin Islands, Costa Rica, Cyprus, Grenada, Guernsey, Gibraltar, Ireland, Island of Man, Jersey, Saint Kitts and Nevis Cayman Islands, Liechtenstein, Luxembourg, Macao, Monaco, Malta, Netherlands Antilles, Saint Lucia, St Vincent, Seychelles,

Singapore, Turks and Caicos Islands. We include these economies because of their small island so-called ‘dot’ status (see Desai et al. 2006). We exclude Costa Rica, Hong Kong, Ireland, Liberia, Panama, South Africa, Singapore and Switzerland because they are large and encompass all types of legitimate economic activity. We acknowledge that in many ways our choice is somewhat arbitrary but robustness checks by running our models with broader definitions do not impact upon the results.

Empirical Model

The model that we estimate is developed from the standard firm level FDI literature that seeks to construct a specification from standard IB theory. This is discussed at length in a number of review articles, in economics and regional science, as well as international business and strategy, see for example Wiersema, and Bowen (2008), Driffield and Munday (2000), Bhaumik et al (2010) and Girma (2002). The model we estimate are variants of the following encompassing specification:

$$TaxHavenFDI_{it}^j = \beta_0 + \sum_{k=1}^9 \beta_k FSA_{kit} + \sum_{s=1}^S \phi_s Sector_{sit} + \sum_{l=1}^L \lambda_l location_{lit} + \theta_0 InvestmentProfile_{it} + \delta_0 CorpTax_{it} + \lambda_t + \varepsilon_{it} \quad (1)$$

In equation (1), the dependent variable is $TaxHavenFDI_{it}^j$, by firm i at time t , in a tax haven j and equals 1 if a MNE has a subsidiary located in a tax haven; and equals zero otherwise. This variable is contemporaneous and does not vary over time for each individual firm. It is defined by the data in 2011. We view this dichotomous independent variable as a representation of a latent variable that measures the true propensity of a MNEs to do FDI in a tax haven. This can be further justified due to the following: (1) ownership doesn’t vary significantly over such a short period of time⁴; (2) the data is unbalanced, typically with each firm having approximately 5 observations; and (3) the fact that the sample is so large.

The vector FSA_{kit} captures the firm specific assets described above. A second order term for age is included in this vector, as much of the literature defines a turning point (see for example Hennart and

Park 1993). The vector *Sector* includes sector specific dummy variables based on the classifications described above. The vector *location* includes country or city specific dummy variables of the MNEs incorporation location. The variable *InvestmentProfile* is the institutional variable taken from ICRG. The variable *CorpTax* is the statutory top rate of corporate tax levied in an MNEs country of origin. In specifications (8) and (9) below *CorpTax* is defined as the effective firm-specific tax rate and the difference between the statutory tax rate and the firm-specific tax rate respectively. Lastly β_t are time dummies and ε_{it} is the error term. In order to calculate the effective rate of corporate tax for each MNE we follow a similar procedure to Loretz and Moore (2012) in that we exclude all observations where observations for taxation is seen to be negative (this could be due to rebates or deductions), we exclude all observations where an MNE has made a loss and we also exclude all observations where the MNEs effective rate is seen to be greater than the statutory rate. Nevertheless, even though our dataset is reduced to 85,432 observations there are still 27,464 MNEs covered of which 22% have a subsidiary in a tax haven according to our definition.

EMPIRICAL RESULTS

Baseline Results

The results for the baseline model (Marginal Effects) can be seen in column (1) of Table 2. There is clear support for hypothesis 1. Higher statutory corporate tax rates, *ceteris paribus*, increase the propensity of MNEs to own subsidiaries in tax havens. This finding also holds across specifications (2) to (7) as reported below. Equally, the interpretation of this estimate could be interpreted in reverse in so far as lower statutory corporate tax rates lead to less FDI in tax havens. This has clear implications which we address in the discussion section below.

There is also clear support for hypothesis 4 in that the more international and the more profitable the MNE the greater the propensity for a firm to invest in tax haven subsidiaries. This can be seen by the

coefficient estimate on the number of subsidiaries. This finding again holds across all specifications. The results for the other variables included are as expected and are robust. Old and young MNEs tend to do this type of activity as demonstrated by the negative coefficient for Age and positive coefficient for Age². The coefficient for investment profile is a control for institutions and suggests that MNEs from countries with a better investment climate are less likely to invest in tax havens. Strong cash flow which can be indicative of quality management is also associated with MNEs having a greater propensity to invest in tax havens. Finally, firms with high long-term debt are less likely to invest in tax havens. This suggests that tax haven use may reduce the cost of capital as predicted by Oxelheim *et al.* (2001)

Sector Heterogeneity and Intangibles

Specification (2) builds on the baseline regression by including sectoral dummy variables. There is clear support for hypothesis 2 and this is robust across the remaining empirical models. Technologically intensive MNEs with large intangible assets have a greater propensity to undertake FDI in tax havens. The base category here is low-technology manufacturing. Interestingly, all of the coefficient estimates are positive relative to the base category. This suggests that both manufacturing and service sector firms have a greater propensity to invest in tax havens. The strength of the coefficients for the manufacturing sectors appears to be in the order as one would expect. The coefficient for high-technology MNEs, such as pharmaceuticals, computers, electronic and optical products is far stronger than the other estimates. Paradoxically, it would appear that the coefficient estimate for less knowledge-intensive services firms is stronger than for knowledge-intensive service firms. Nevertheless, the coefficients are of a similar magnitude and can be interpreted as demonstrating that all services firms have a propensity to do this type of activity in comparison to low-technology manufacturing firms. Additional research is needed in this area to uncover whether certain industries are more attracted to tax havens than others.

Table 2: Baseline Regression and the Inclusion of Sector Dummies (Marginal Effects)

Variables/Model	(1) Baseline	(2) Sector Dummies
ln Profitability	0.00803*** (0.00118)	0.00753*** (0.00118)
ln Cash flow	0.00287** (0.00127)	0.00278** (0.00127)
ln Intangible Fixed Assets	0.00976*** (0.000468)	0.00885*** (0.000473)
ln Long Term Debt	-0.00449*** (0.000490)	-0.00373*** (0.000494)
Age	-0.000192*** (4.70e-05)	-0.000236*** (4.80e-05)
Age ²	7.24e-07*** (2.30e-07)	9.02e-07*** (2.30e-07)
ln Total Subsidiaries	0.103*** (0.000900)	0.104*** (0.000922)
Top Statutory Corporate Tax Rate	0.00295*** (0.000171)	0.00298*** (0.000170)
Investment Profile	-0.0407*** (0.00101)	-0.0402*** (0.00102)
High Technology Manufacturing		0.102*** (0.00540)
Medium Technology Manufacturing		0.0299*** (0.00331)
Medium/Low Technology Manufacturing		0.0131*** (0.00369)
Total Knowledge Intensive Services		0.0154*** (0.00292)
Total Knowledge Less Intensive Services		0.0266*** (0.00304)
Year Dummies	Yes	Yes
Observations	173,139	173,139
Pseudo R ²	0.3097	0.3124
Correct Predictions	85.31%	85.44%
Obs. P	0.2107	0.2107
Pred. P	0.1426	0.1420

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Country/City Heterogeneity

Table 3 reports the results that include country dummy variables of interest. In total there are 42 countries represented by the MNEs in our data, it is thus inconvenient to include dummies for all countries and therefore use one country as a reference category. Instead, we present results for four models that identify countries by orientation. Specification (3) includes dummies for the Liberal Market economies, where US

firms and Australian firms have a greater propensity to have subsidiaries in tax havens. In contrast, UK firms and Canadian firms are less likely to use tax havens.

Turning to the Social Market (specification 4) and Scandinavian countries (specification 5) it is clear that MNEs from these countries are less likely to have subsidiaries in tax havens. Finally, in terms of the BRIC countries (specification 6) it would appear that only Chinese MNEs have a greater propensity to invest in tax havens. This might be due to the round-tripping activities of Chinese MNEs vis-à-vis Hong Kong (see Xiao, G. 2004). These results confirm hypothesis 3 and its corollary in that there is significant heterogeneity, *ceteris paribus*, across countries in the propensity of their MNEs to invest in tax havens.

Table 3: Country Dummy Regressions (Marginal Effects)

Variables/Model	(3) Liberal Market	(4) Social Market	(5) Scandinavia	(6) BRICs
ln Profitability	0.00551*** (0.00118)	0.00913*** (0.00119)	0.00716*** (0.00118)	0.00763*** (0.00118)
ln Cash flow	0.00408*** (0.00127)	0.00586*** (0.00128)	0.00306** (0.00126)	0.00266** (0.00127)
ln Intangible Fixed Assets	0.00762*** (0.000486)	0.00730*** (0.000468)	0.00895*** (0.000472)	0.00885*** (0.000473)
ln Long Term Debt	-0.00420*** (0.000496)	-0.00268*** (0.000493)	-0.00390*** (0.000492)	-0.00362*** (0.000494)
Age	-0.000253*** (4.83e-05)	0.000144*** (5.16e-05)	-0.000237*** (4.80e-05)	-0.000218*** (4.83e-05)
Age ²	9.51e-07*** (2.30e-07)	1.56e-07 (2.60e-07)	9.14e-07*** (2.30e-07)	8.33e-07*** (2.31e-07)
ln Total Subsidiaries	0.104*** (0.000929)	0.0983*** (0.000919)	0.104*** (0.000922)	0.104*** (0.000923)
Top Statutory Corporate Tax Rate	0.00184*** (0.000176)	0.000467** (0.000186)	0.00277*** (0.000170)	0.00292*** (0.000171)
Investment Profile	-0.0420*** (0.00102)	-0.0331*** (0.00102)	-0.0390*** (0.00102)	-0.0392*** (0.00143)
High Technology Manufacturing	0.0937*** (0.00534)	0.123*** (0.00567)	0.101*** (0.00538)	0.102*** (0.00541)
Medium Technology Manufacturing	0.0278*** (0.00332)	0.0436*** (0.00342)	0.0292*** (0.00330)	0.0296*** (0.00331)
Medium/Low Technology Manufacturing	0.0132*** (0.00370)	0.0161*** (0.00371)	0.0125*** (0.00368)	0.0131*** (0.00370)
Total Knowledge Intensive Services	0.0175*** (0.00294)	0.0242*** (0.00298)	0.0153*** (0.00292)	0.0157*** (0.00292)
Total Knowledge Less Intensive Services	0.0270*** (0.00306)	0.0321*** (0.00307)	0.0265*** (0.00304)	0.0267*** (0.00304)
Australia	0.121*** (0.0117)			
Canada	-0.0335**			

USA	(0.0150) 0.0903*** (0.00491)			
UK	-0.0460*** (0.00306)			
Austria		-0.0606*** (0.00517)		
Germany		-0.0959*** (0.00226)		
Japan		-0.104*** (0.00204)		
Denmark			-0.00497 (0.00803)	
Finland			-0.0741*** (0.00390)	
Norway			-0.00743 (0.00914)	
Sweden			0.00119 (0.00472)	
Brazil				-0.0690*** (0.0128)
Russia				-0.0217 (0.0185)
India				-0.0149 (0.0134)
China				0.0224** (0.0103)
Year Dummies	Yes	Yes	Yes	Yes
Observations	173,139	173,139	173,139	173,139
Pseudo R ²	0.3169	0.3227	0.3134	0.3125
Correct Predictions	85.48%	85.57%	85.43%	85.46%
Obs. P	0.2107	0.2107	0.2107	0.2107
Pred. P	0.1422	0.1394	0.1414	0.1420
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1				

Table 4 extends the models described above by substituting country dummies for some of the world's wealthiest financial centres. As can be seen from table 4, MNEs incorporated in London and New York have a greater propensity to invest in tax havens compared to Frankfurt and Tokyo. This is consistent with hypothesis 3 above, in the sense that it appears that MNEs from more market liberal orientated countries have a greater propensity to do this type of activity. Somewhat paradoxically, the coefficient sign for the London dummy in model (7) is the opposite of that estimated for the UK country dummy in specification (3) above. This is an interesting result. When we re-estimate specification (3) but only for non-London based firms we again find a negative coefficient⁵. This suggests that in the UK there is regional variation in the propensity of firms to invest in tax havens. Similar regional variations within a country are

plausible, but this would go beyond the main focus of this paper. This may warrant further research in the future into this issue for other countries in the sample.

Table 4: Financial Cities (Marginal Effects)

Variables	(7) Financial Cities
In Profitability	0.00750*** (0.00118)
In Cash flow	0.00406*** (0.00127)
In Intangible Fixed Assets	0.00847*** (0.000473)
In Long Term Debt	-0.00341*** (0.000495)
Age	-0.000129*** (4.86e-05)
Age ²	6.75e-07*** (2.32e-07)
In Total Subsidiaries	0.103*** (0.000925)
Top Statutory Corporate Tax Rate	0.00300*** (0.000171)
Investment Profile	-0.0402*** (0.00102)
High Technology Manufacturing	0.107*** (0.00547)
Medium Technology Manufacturing	0.0325*** (0.00334)
Medium/Low Technology Manufacturing	0.0131*** (0.00369)
Total Knowledge Intensive Services	0.0157*** (0.00293)
Total Knowledge Less Intensive Services	0.0274*** (0.00306)
London	0.0180*** (0.00697)
New York	0.160*** (0.0254)
Tokyo	-0.0856*** (0.00316)
Frankfurt	-0.0219 (0.0199)
Year Dummies	Yes
Observations	173,139
Pseudo R ²	0.3147
Correct Predictions	85.48%
Obs. P	0.2107
Pred. P	0.1420
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Effective Tax Rates

Our next set of specifications moves away from statutory corporate tax rates and focuses on effective rates of taxation. When calculating the effective rates of tax for each of our MNEs the data set is based on 85,432 observations. Specification (8) substitutes the statutory corporate tax rate for the MNEs effective tax rate. As can be seen, the coefficient estimate is negative. This suggests that firms with lower effective tax rates are more likely, unsurprisingly, to invest in tax havens. Building on this, specification (9) includes a variable which measure the difference between the statutory rate and the effective rate for each of our MNEs. The results suggests that the bigger the difference, the greater the propensity of firms to invest in tax havens. This confirms the corollary to hypothesis 1 and has clear implications which we now discuss.

Table 5: Firm Effective Tax Rates (Marginal Effects)

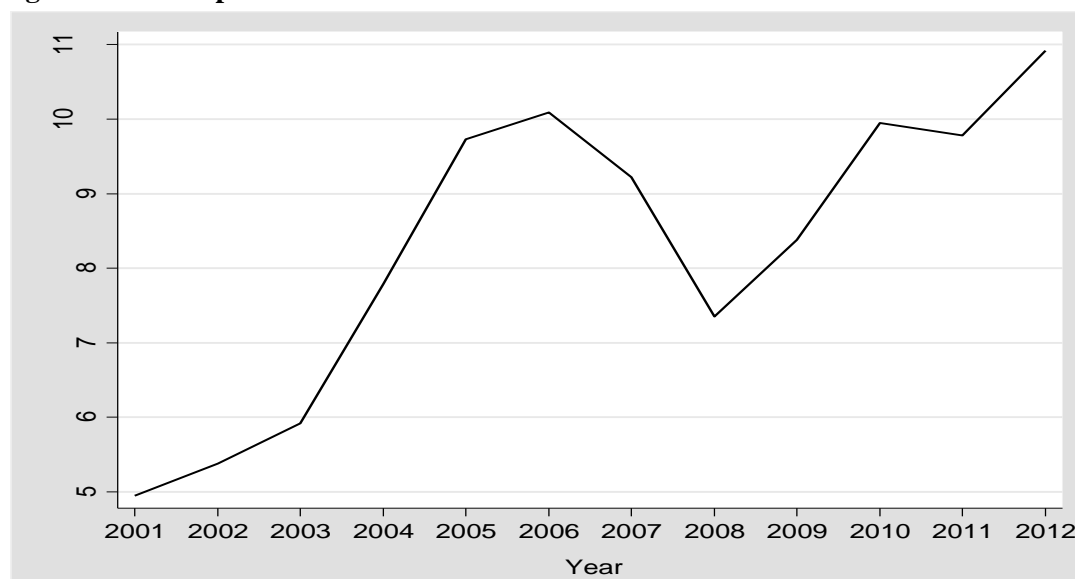
Variable/ Model	(8) Firm Effective Tax Rate	(9) Statutory - Firm Effective Tax Rate
In Profitability	0.00978*** (0.00208)	0.00987*** (0.00208)
In Cash flow	0.00567*** (0.00203)	0.00559*** (0.00203)
In Intangible Fixed Assets	0.00698*** (0.000686)	0.00698*** (0.000686)
In Long Term Debt	-0.00427*** (0.000748)	-0.00426*** (0.000747)
Age	0.000263*** (7.62e-05)	0.000263*** (7.62e-05)
Age ²	-2.06e-07 (4.16e-07)	-2.07e-07 (4.16e-07)
In Total Subsidiaries	0.0945*** (0.00131)	0.0945*** (0.00131)
Investment Profile	-0.00123 (0.00420)	-0.00152 (0.00420)
Firm Effective Tax Rate	-0.000930*** (0.000147)	
Statutory – Firm Effective Tax Rate		0.000952*** (0.000147)
High Technology Manufacturing	0.0974*** (0.00770)	0.0975*** (0.00770)
Medium Technology Manufacturing	0.0495*** (0.00501)	0.0496*** (0.00501)
Medium/Low Technology Manufacturing	0.0162*** (0.00521)	0.0162*** (0.00521)
Total Knowledge Intensive Services	0.0354*** (0.00427)	0.0355*** (0.00427)
Total Knowledge Less Intensive Services	0.0447*** (0.00436)	0.0447*** (0.00436)
Country Dummies	Yes	Yes

Year Dummies	Yes	Yes
Observations	85,432	85,432
Pseudo R ²	0.3916	0.3917
Correct Predictions	86.40%	86.38%
Obs. P	0.2212	0.2212
Pred. P	0.1271	0.1271
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

DISCUSSION

The proceeding analysis has demonstrated that higher statutory corporate tax rates at home and wide differences between the statutory rate and the MNEs effective rate drive MNEs to invest in tax havens. Given this fact it is perhaps unsurprising that the trend in statutory corporate tax rates has been falling over time (see Figure A1 in the Appendix) leading to what many perceive to be a “race to the bottom”. There is no doubt that globalisation has increased the spread and mobility of MNEs (see Eden 2009) and has thus forced the hand of governments around the world to reduce corporate tax rates. Indeed, concerns over the ownership of intangible assets in the form of patents and licenses tax only comprehend these difficulties. Notwithstanding the effects the internet is having on cross-border tax collection.

Figure 1: US Corporate Profit as a % of GDP



Source: St. Louis Federal Reserve

Over the last decade there has been increased awareness of the growing trend in profits share of GDP. Figure 1 shows corporate profit as a percentage of GDP for the US between 2001 and 2011. Even though the economic crisis caused a sharp downturn between 2006 and 2010, the share has been steadily increasing and by 2012 it stood at approximately 11 percent. Similar trends exist for other OECD countries (see OECD 2013). At the same time, OECD country statutory corporate tax revenues have been constant and averaging around 3 percent of GDP (see Table 6). Given the fact that the tax base will have been broadening due to the trend in lower statutory rates it is seemingly apparent that MNEs are becoming adept at profit shifting and thus eroding the tax base.

Table 6: OECD Corporate Tax Revenue/GDP

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	4.4	5.0	5.0	5.5	5.8	6.4	6.9	5.9	4.8	4.8	
Austria	3.0	2.2	2.2	2.2	2.2	2.2	2.4	2.5	1.7	1.9	2.2
Canada	3.3	3.0	3.2	3.5	3.4	3.8	3.5	3.4	3.4	3.3	3.1
Denmark	2.8	2.9	2.9	3.2	3.9	4.3	3.8	3.3	2.3	2.7	2.8
Finland	4.2	4.2	3.4	3.5	3.3	3.4	3.9	3.5	2.0	2.6	2.7
France	3.4	2.9	2.5	2.8	2.4	3.0	3.0	2.9	1.5	2.1	2.5
Germany	0.6	1.0	1.3	1.6	1.8	2.2	2.2	1.9	1.3	1.5	1.7
Japan	3.5	3.1	3.3	3.7	4.2	4.8	4.8	3.9	2.6	3.2	3.3
Norway	8.9	8.1	8.0	9.8	11.7	12.8	11.0	12.1	9.1	10.1	11.0
Sweden	2.9	2.3	2.4	3.0	3.7	3.6	3.7	3.0	3.0	3.5	3.5
United Kingdom	3.4	2.8	2.7	2.8	3.3	3.9	3.4	3.6	2.8	3.1	2.8
United States	1.9	1.7	2.1	2.5	3.2	3.4	3.0	2.0	1.8	2.7	2.6
OECD - Total	3.2	3.1	3.1	3.2	3.6	3.8	3.8	3.5	2.8	2.9	

Source: OECD

Given the state of OECD country public finances and issues over fairness, it is not surprising that much media attention has been devoted to this issue and that political pressure is being imposed on policy makers to do something about it. At the G20 meeting in November 2012 Chancellor of the Exchequer, George Osborne, and Germany's Minister of Finance, Wolfgang Schäuble, issued a joint statement calling for co-ordinated action to strengthen international tax standards. This 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. There is no doubt that this will lead to some formula of global tax reform which may have a significant impact upon international business. Our analysis suggests that some

MNEs may be affected more than others if policy makers are successful at forcing greater transparency from tax haven countries in relation to their inward and outward financial flows. High-technology MNEs with large intangible assets based in liberal market economies are likely to be most affected. It is needless to say that it is these firms from these countries that will be developing the proactive financial strategies to deal with this impending uncertainty.

CONCLUSION

This paper is the first in the international business literature to analyse the propensity of MNEs (from around the world) to invest in tax havens, using a large firm-level dataset. Our results suggest that high home country corporate tax rates will drive firms offshore. In addition, high technology MNEs from both the manufacturing and services sector have a real propensity to do this activity. Moreover, there is significant country heterogeneity with MNEs from the liberal market economies showing a greater propensity to do so. Future research is needed in this domain to determine whether different forms of corporate governance dictate the use of tax havens. For example, do more opaque firms with a concentrated ownership have a greater propensity to invest in tax havens? In addition, it is unknown whether the use of tax havens increases firm performance. What impact does tax haven use have on profitability and total factor productivity. It is hoped that this paper introduces a new line of enquiry to be opened up in the International Business literature given the importance that corporate taxation has on the location of MNEs.

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REFERENCES

- Buckley, P. J., & Casson, M. C. (1976). *The future of the multinational enterprise*. London: Macmillan.
- Bhaumik, S., Driffield, N. and Pal, S. Does (2010) Ownership Concentration Affect MNE Operations? The Case of Indian Automobiles and Pharmaceuticals. *Journal of International Business Studies* 41 (3), pp. 437–450
- Bowe, M. (2009). International financial management and multinational enterprises. In A.M. Rugman (Ed), *The Oxford Handbook of International Business*, 2nd edition, (pp 557-590). Oxford: Oxford University Press.
- Bowe, M., Filatotchev, I., & Marshall, A. (2010). Integrating contemporary finance and international business research. *International Business Review* 19(5), 435-445.
- Carroll, A. B. (1979). A three-dimensional model of corporate social performance. *Academy of Management Review*, 4, 497–505.
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39–48.
- Cuervo-Cazurra, A., & Dau, L. (2009). Structural reform and firm profitability in developing countries. *Academy of Management Journal*, 52(6), 1348–1368.
- Desai, Mihir, Foley, Fritz, Hines Jr., James R., 2006a. The demand for tax haven operations. *Journal of Public Economics* 90, 513–531.
- Desai, Mihir, Foley, Fritz, Hines Jr., James R., 2006b. Do tax haven operations divert economic activity? *Economics Letters* 90, 219–224.
- Dharmapala, Dhammika & Hines Jr., James R., 2009. "Which countries become tax havens?" *Journal of Public Economics*, Elsevier, vol. 93(9-10), pages 1058-1068, October.
- Driffield, N., Jones, C., and Crotty, J., (2013) International business research and risky investments, an analysis of FDI in conflict zones, *International Business Review*, Vol 22, 1, pp 140-155.

- Driffield, N. and Munday, M. (2000). Industrial Performance, Agglomeration, and Foreign Manufacturing Investment in the UK, *Journal of International Business Studies*, Palgrave Macmillan Journals, vol. 31(1), pages 21-37, March.
- Dunning, J. H. (1977). Trade, location of economic activity and the MNE: a search for an eclectic approach. In B. Ohlin, P. O. Hesselborn, & P. M. Wijkman, *The international allocation of economic activity* (pp. 395–418). New York: Holmes and Meier.
- Dunning, J. H. (1988). The eclectic paradigm of international production: a restatement and some possible extensions. *Journal of International Business Studies*, 19 (1), 1–32.
- Dunning, J. H. (1981). *International production and the multinational enterprise*. London: Allen and Unwin.
- Dunning, J. H. (1988). *Explaining International Production*. London: Unwin Hyman.
- Dunning, J. H. (1993). *Multinational enterprises in the global economy*. Wokingham, UK: Addison-Wesley.
- Dunning, J. H. (1995). Reappraising the eclectic paradigm in an age of alliance capital. *Journal of International Business Studies*, 26 (3), 461–491.
- Dunning, J. H. (1997). *Alliance capitalism and global business*. London: Routledge.
- Dunning, J. H. (1998). Location and the multinational enterprise: a neglected factor. *Journal of International Business Studies*, 29 (1), 45–66.
- Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE Activity. *International Business Review*, 9, 163–190.
- Eden (2009). Taxes, Transfer pricing and the multinational enterprise. In A.M. Rugman (Ed), *The Oxford Handbook of International Business*, 2nd edition, (pp 557-590). Oxford: Oxford University Press.
- Girma, S. (2002). The process of European integration and the determinants of entry by non-EU multinationals in UK manufacturing. *The Manchester School*, 70, 315–335.
- Graham, J. R. and A. Tucker 2006, Tax Shelters and Corporate Debt Policy. *Journal of Financial*

Economics, 81, pp. 563-594.

Hall, P. A. and Soskice, D. (eds.): *Varieties of Capitalism. The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press, 2001.

Hennart, J.-F., & Park, Y. R. (1993). Greenfield vs acquisition: The strategy of Japanese investors in the United States. *Management Science*, 39, 1054–1070.

Hines, James R., Jr., and Eric M. Rice, (1994) Fiscal paradise: Foreign tax havens and American business, *Quarterly Journal of Economics*, 109 (1), 149-182.

Hines Jr., J. R. 1999, Lessons from Behavioral Responses to International Taxation, *National Tax Journal* 52 (2), pp. 305-322.

Leblang, S. 1998, International double nontaxation, *Tax Notes International*, 134 (10), pp. 181-3.

Luo, Y., & Tung, R. L. (2007). International expansion of emerging market enterprises: A springboard perspective. *Journal of International Business Studies*, 38, 481–496.

Organisation for Economic Co-operation and Development. (2013). *Addressing Base Erosion and Profit Shifting*. Retrieved from <http://www.oecd-ilibrary.org/>.

Oxelheim, L., Stonehill, A., Randøy, T., Vikkula, K., Dullum, K. B., & Mode'n, K.-M. (1998). *Corporate strategies to internationalise the cost of capital*. Copenhagen: Copenhagen Business School Press.

Lars Oxelheim, L., Randøy, T., and Stonehill, A. On the treatment of finance-specific factors within the OLI paradigm, *International Business Review*, Volume 10, Issue 4, August 2001, Pages 381-398

Loretz, S. and Moore, P. (2012) Corporate Tax Competition Between Firms. *International Tax and Public Finance* , August.

de Mooij R. A., and Ederveen, S. (2008). "Corporate tax elasticities: a reader's guide to empirical findings," *Oxford Review of Economic Policy*, Oxford University Press, vol. 24(4), pages 680-697, winter.

Palan, R., Murphy, R., and Chavagneux, C. (2010), *Tax Havens: How Globalization Really Works*, Cornell University Press.

Rajan, R., & Zingales, L. (1998). Debt, folklore, and cross-country differences in financial structure.

Journal of Applied Corporate Finance, 10 (4), 102–107.

Stulz, R. M. (1996). Does the cost of capital differ across countries? An agency perspective. European

Financial Management, 2, 11–22.

Wiersema, M. F. and Bowen, H.P. (2008). Corporate diversification: the impact of foreign competition,

industry globalization, and product diversification. Strategic Management Journal vol 29 (2) pp.

115-132

Xiao, G., 2004. “People’s Republic of China’s Round-Tripping FDI: Scale, Causes and Implications,”

Asia Development Bank Institute Discussion Paper No. 7,

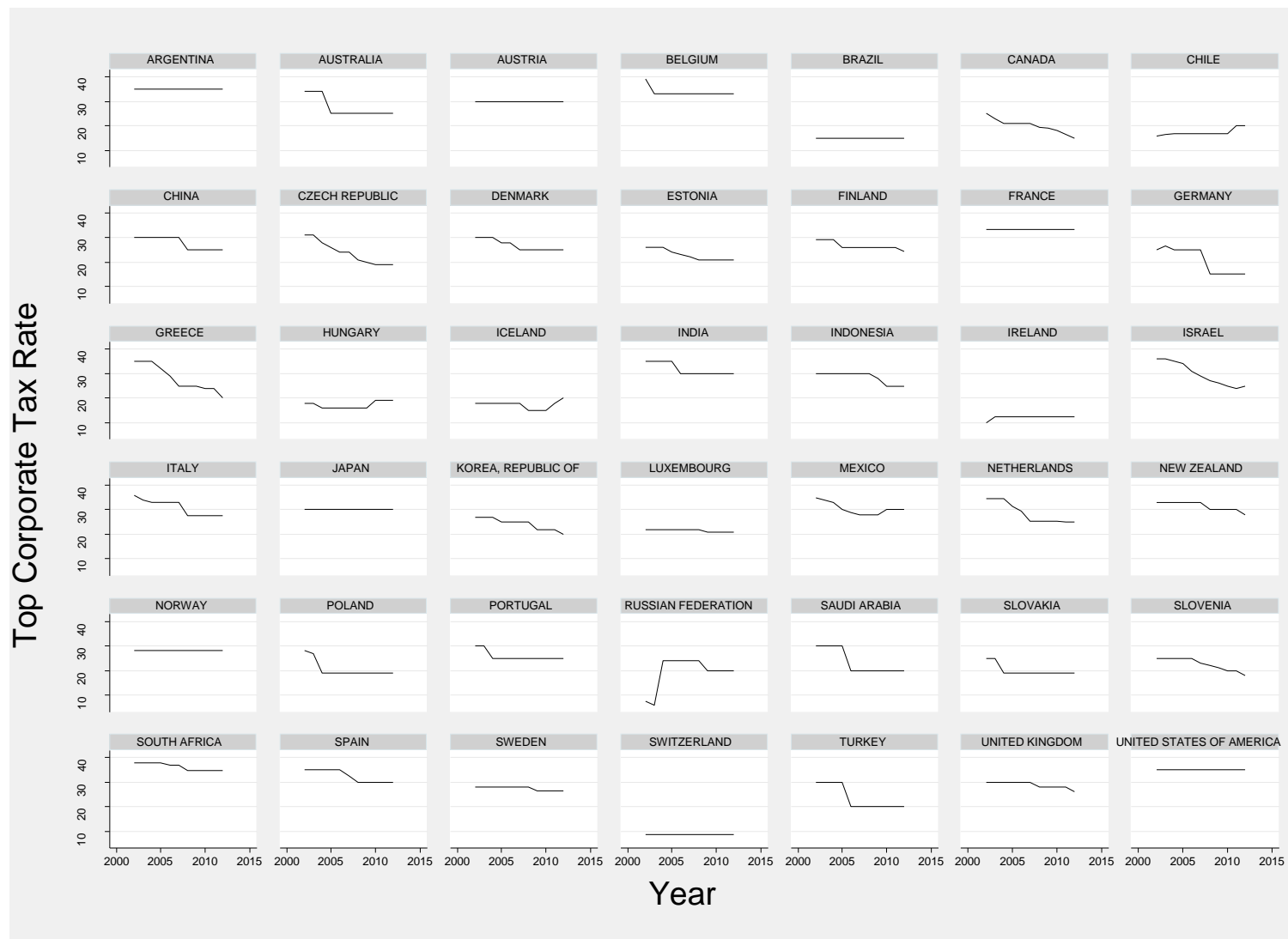
<http://www.adbi.org/files/2004.06.dp7.foreign.direct.investment.people.rep.china.implications.pdf>

Appendix A

Table A1: Correlation Matrix for Selected Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Tax Haven	1.0000											
2. ln Profitability	0.4376	1.0000										
3. ln Cash flow	0.4412	0.9408	1.0000									
4. ln Intangible Fixed Assets	0.4327	0.7489	0.7729	1.0000								
5. ln Long Term Debt	0.3804	0.7348	0.7531	0.6882	1.0000							
6. Age	0.1466	0.3187	0.3321	0.2334	0.2665	1.0000						
7. Age ²	0.1133	0.2251	0.2332	0.1807	0.1906	0.8289	1.0000					
8. ln Total Subsidiaries	0.5416	0.7018	0.7176	0.6818	0.6432	0.2684	0.2017	1.0000				
9. Top Corporate Tax Rate	0.0278	-0.0666	-0.0696	0.0195	-0.0571	-0.0877	-0.0904	0.0026	1.0000			
10. Investment Profile	-0.1193	-0.0938	-0.0955	-0.0473	-0.0691	0.0463	0.0353	-0.0513	0.1580	1.0000		
11. Firm Effective Tax Rate	-0.0220	-0.1780	-0.1523	-0.0677	-0.0275	-0.0730	-0.0463	-0.0700	0.2019	-0.0114	1.0000	
12. Statutory - Firm Effective	0.0625	0.1626	0.1366	0.0918	0.0083	0.0505	0.0218	0.0958	0.2900	0.0931	-0.8787	1.0000

Figure A1: Corporate Tax Rates by Country 2001-20011



¹ We acknowledge that some MNEs will set-up operations in tax havens to provide legitimate economic activities as opposed to tax avoidance. This is most likely in the so-called Big 7: Hong Kong, Ireland, Lebanon, Liberia, Panama, Singapore and Switzerland (see Hines and Rice 1994). The focus of our analysis is with the so-called “dots”. Indeed one wonders whether even though there might be legitimate activity in these countries would it prevail if corporate tax rates were similar to the OECD average.

² The Nace 2-digit codes for each of these are the following: High technology manufacturing 21 and 26; Medium high-technology manufacturing 20, 27, 28, 29, 30; Medium low-technology manufacturing 19, 22, 23, 24, 25, 33; Low-technology manufacturing 10, 11, 12, 13, 14, 15, 16, 17, 8, 31, 32; Total knowledge-intensive services 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; Total less-knowledge intensive services 45, 46, 47, 49, 52, 53, 55, 56, 68, 77, 79, 81, 82, 94, 95, 96, 97, 98, 99.

³ Profitability and Sales are highly correlated, thus we prefer the former as a measure of firm size.

⁴ We have run the regressions over shorter time periods and the results remain robust. These results are available on request.

⁵ Results of this estimation are available from the authors upon request.