

Essays on Tax Systems and Corporate Tax Avoidance: The Effect on MNC Location Choices and Firm Value

Proposal to
The Department of International Business
School of Business
Southern New Hampshire University

Presented
By

Michael A. Baker, CPA

In partial fulfillment of the requirements for
The Degree of Doctor of Philosophy
In the Subject of
International Business

December 31, 2016

Committee Approval:

Dr. Bülent Aybar
Professor of International Finance
Southern New Hampshire University

Dr. Bülent Aybar
Signature (Chairperson)

4/13/2017

Date

Dr. Nicholas Nugent
Professor of International Business
Southern New Hampshire University

N. Nugent
Signature

4/11/2017

Date

Dr. Aysun Ficici
Professor of International Business
Southern New Hampshire University

Aysun Ficici
Signature

4/12/2017

Date

Dr. Tej Dhakar
Professor of Quantitative Studies,
Operations and Project Management
Southern New Hampshire University

Dr. Tej Dhakar
Signature

4/11/2017

Date

COPYRIGHT PAGE

Abstract	iv
----------------	----

List of Tables and Figures	v
----------------------------------	---

1. Introduction

- 1.1 Research Motivation
- 1.2 Overview
- 1.3 Research Objective and Hypotheses

2. Essay on Worldwide and Territorial Tax Systems: Earnings Shifting Incentives and Tax Haven Utilization

- 2.1 Overview
- 2.2 Literature Review
 - 2.2.1 Territorial and Worldwide Tax Systems
 - 2.2.2 Firm and Home-Country Advantages
 - 2.2.3 Tax Haven Utilization
 - 2.2.4 Earnings Shifting Incentives
 - 2.2.4.1 Multinationality
 - 2.2.4.2 Transfer Pricing Aggressiveness
 - 2.2.4.3 Thin Capitalization
 - 2.2.4.4 Intangible Assets
- 2.3 Research Question(s)
- 2.4 A Case Study Approach to Analyze the Impact of a Transition to a Territorial Tax System
 - 2.4.1 Method and Case Selection
 - 2.4.2 Firm-Specific Review of Historical Tax Haven Utilization: The Data
 - 2.4.3 Firm Characteristics and Incentives to Utilize Corporate Tax Avoidance: The Data
 - 2.4.4 United Kingdom Strategic Plan for Corporate Tax Reform
 - 2.4.5 Results of Case Studies by Sector
 - 2.4.5.1 Engineering Sector (BAE Systems and GKN)
 - 2.4.5.2 Pharmaceutical Sector (AstraZeneca and GlaxoSmithKline)
 - 2.4.5.3 Food and Drink Sector (Diageo and SABMiller)
 - 2.4.5.4 Retail Sector (Tesco and J Sainsbury)
 - 2.4.5.5 Utilities Sector (BT Group and Severn Trent)
- 2.5 Results
- 2.6 Conclusions

3. *Essay on Corporate Inversions: Earnings Shifting and the Value Implications of Cash Hoards*

3.1 Overview

3.2 Literature Review

3.2.1 Corporate Inversion Process

3.2.1.1 Phase I Inversions

3.2.1.2 Phase II Inversions (post-2004)

3.2.2 Corporate Inversion Incentives

3.2.3 Earnings Shifting, Earnings Stripping and Permanently Reinvested Earnings

3.2.4 Market Response to Inversion Announcements

3.3 Research Question(s)

3.4 Data and Methodology

3.5 Results

3.6 Conclusions

4. *Overall Conclusions*

4.1 Overall Conclusions and Policy Implications

4.2 Future Research

Tables 87

Figures 99

Works Cited 107

ABSTRACT

Essays on Tax Systems and Corporate Tax Avoidance: The Effect on MNC Location Choices and Firm Value

Michael A. Baker, CPA

December 31, 2016

The following dissertation is structured as two related essays on tax systems and corporate tax avoidance.

The first essay focuses on the firm level impact of a government's transition from a worldwide tax system to a territorial tax system. Utilizing a case study approach, ten firms within the tax jurisdiction of the United Kingdom are analyzed pre- and post-transition. Firm behavior is evaluated pre- and post-transition through firm level incentives to shift earnings and firm level utilization of tax havens (i.e. subsidiaries located in tax advantageous areas). Despite significant efforts put forth by governments to reduce corporate tax avoidance and tax haven utilization, case study findings reveal little evidence that territorial tax systems promote such firm behavior.

The second essay focuses on the firm level change in share value, and the associated return to holding such shares, for firms that engage in corporate inversion. Cumulative abnormal returns are reviewed for a set of inverting firms to determine whether shareholders value corporate inversion transactions. In addition, this essay reviews the relationship between such cumulative abnormal returns and certain firm level incentives to shift earnings, tax haven utilization, and other firm characteristics such as permanently reinvested foreign earnings. Results reveal that the level of both permanently reinvested earnings and intangible assets impact the value shareholders place on the shares of firms engaged in corporate inversions.

LIST OF FIGURES AND TABLES

Table 1. Tax Haven Countries

Table 2. Tax-Haven and Total Subsidiaries of Selected Firms

Table 3. Location of Tax-Haven Subsidiaries of Selected Firms (2011)

Table 4. Descriptive Data for Selected Firms (Average 2009 – 2015)

Table 5. Corporate Inversions 1982 – 2016

Table 6. Cumulative Abnormal Returns (3-day, 5-day and 9-day Event Windows)

Table 7. Significance of CAR – All Firms (3-day, 5-day and 9-day Event Windows)

Figure 1: Example Scenarios of Thinly Capitalized Foreign Subsidiaries

Figure 2: Corporate Structure and Process for Conducting Corporate Tax Avoidance involving Transfer Pricing and Intangible Assets

Figure 3: Corporate Structure and Process for Conducting Corporate Tax Avoidance involving Transfer Pricing and Intangible Assets: Google, Inc.

Figure 4: United Kingdom Corporate Tax Reform Plan Timeline

Figure 5: Corporate Inversions by Year 1982-2016

Figure 6: Corporate Inversion Process: Stock and Asset Inversions

Figure 7: Corporate Structure Pre- and Post-Inversion

Figure 8: Ingersoll-Rand Corporate Inversion Process: Stock and Asset Inversions

Figure 9: Ingersoll-Rand Corporate Structure Pre- and Post-Inversion

Figure 10: Permanently Reinvested Foreign Earnings and Firm-Specific 9-Day Cumulative Abnormal Returns.

Figure 11: Intangible Assets, Foreign Sales, Tax Haven Subsidiaries and Debt to Equity of Selected Firms over the UK Corporate Tax Reform Period.

1. Introduction

The following dissertation is structured as two related essays on tax systems and corporate tax avoidance.

The first essay focuses on the firm level impact of a government's transition from a worldwide tax system to a territorial tax system. Utilizing a case study approach, ten firms within the tax jurisdiction of the United Kingdom are analyzed pre- and post-transition. Firm behavior is evaluated pre- and post-transition through firm level incentives to shift earnings and firm level utilization of tax havens (i.e. subsidiaries located in tax advantageous areas). Despite significant efforts put forth by governments to reduce corporate tax avoidance and tax haven utilization, case study findings reveal little evidence that territorial tax systems promote such firm behavior.

The second essay focuses on the firm level change in share value, and the associated return to holding such shares, for firms that engage in corporate inversion. Cumulative abnormal returns are reviewed for a set of inverting firms to determine whether shareholders value corporate inversion transactions. In addition, this essay reviews the relationship between such cumulative abnormal returns and certain firm level incentives to shift earnings, tax haven utilization, and other firm characteristics such as permanently reinvested foreign earnings. Results reveal that the level of both permanently reinvested earnings and intangible assets impact the value shareholders place on the shares of firms engaged in corporate inversions.

1.1. Research Motivation

Countries around the globe maintain unique methods of taxing multinational corporations (MNCs). The unique structure of a country's tax system is evident in its tax

rate, tax laws and regulations and other components that directly impact MNCs. Tax systems also indirectly impact MNCs, their home-countries, and the foreign governments where the firm conducts business through branches and subsidiaries. As one might expect in an increasingly globalized environment, variation in methods of corporate taxation across countries impacts firm behavior. MNCs utilize their access to multiple tax systems across countries to lower their effective tax rates. Ideally, such “corporate tax avoidance” strategies allow the firm to achieve superior profit maximization as compared to competitors that lack access to varied tax systems. It is expected that firms benefit from (legal and allowable) corporate tax avoidance strategies assuming the savings realized from such strategies outweigh the organizational efforts to conduct, legally defend and maintain such strategies.

Corporate tax avoidance strategies are implemented in various forms and include strategically locating subsidiaries in tax-advantageous countries, strategically locating and recording revenues to reduce tax liabilities, strategically sourcing debt to lower the corporate tax liability, and numerous other methods to be discussed in further detail. An obvious, yet important, effect of such corporate tax avoidance strategies is the reduced corporate tax revenue collected by governments. From the standpoint of governments based purely on governmental tax revenue, lower collected corporate tax revenues have a negative impact. Governments such as the United States have implemented numerous regulations aimed at reducing the benefits of corporate tax avoidance strategies. Many governments have gone as far as reevaluating and restructuring the entire corporate tax system while others consider a similar approach or implement piecemeal regulatory changes.

Literature focusing on international tax issues revealed certain firm-level incentives to shift earnings (Rego, 2003) (Seida & Wempe, 2004) (Desai & Hines, 2002) (Dyreng, Hanlon, & Maydew, 2008) (Kleinbard, 2011) (Gravelle, 2015) and provided empirical evidence that firms possessing such incentives are more likely to utilize tax-advantageous areas (i.e. tax havens) (Richardson & Taylor, 2015). *However, it appears to be that there is a gap in the literature regarding the firm-level impact associated with a government restructuring the corporate tax system.*

One of the more extreme corporate tax avoidance strategies involves inverting the corporate structure (i.e. the parent company becomes incorporated in a tax friendly foreign jurisdiction). Inversions have occurred since the early 1980s, but have varied in form and popularity. Assuming managers implement corporate inversion strategies only when they maximize shareholder value, and that markets are operating efficiently, one could reasonably expect shareholders to value the inversion positively and incorporate such value into the share price. In fact, the existing literature has examined the change in firm value associated with announcements of corporate inversions including (Desai & Hines, 2002) (Desai M. A., 2002) (Seida & Wempe, 2002) (Seida & Wempe, 2003) (Cloyd, Mills, & Weaver, 2003a) (Cloyd, Mills, & Weaver, 2003b) (Chorvat, 2016) and (Babkin, Glover, & Levine, 2016). Unfortunately, reported findings appear to be inconclusive as some studies point to share price declines in response to inversion announcements.

MNCs that utilize corporate tax avoidance strategies often accrue and hold large amounts of earnings in foreign jurisdictions (i.e. Permanently Reinvested Earnings). Pre-inversion, such earnings are not available to the firm to invest in its home-country

projects without paying repatriation tax. Post-inversion, the firm has the ability to access permanently reinvested earnings without incurring home-country corporate tax.

Therefore, shareholders likely perceive value in the inversion announcement as the firm gains tax-free access to permanently reinvested foreign earnings. *However, the relevant literature has not evaluated the change in firm value associated with announcements of corporate inversions of firms in relation to the level of permanently reinvested earnings.*

1.2. Overview

Methods of taxing corporate earnings vary, but may be categorized into worldwide tax systems and territorial tax systems. Territorial tax systems tax only the earnings generated within the systems jurisdiction. Worldwide tax systems also tax foreign earnings of domestic MNCs. MNCs often operate in numerous foreign locations under both tax systems. The interaction between tax systems creates opportunities and challenges for both the MNCs and governments. Corporate tax avoidance methods offer a significant opportunity to the MNC in the form of tax savings and an equally significant challenge to the government in preventing the erosion of the tax base.

MNCs utilize numerous (legal and allowable) methods of corporate tax avoidance. One such method is the use of “tax havens” or foreign locations with low or zero corporate tax. MNCs often take advantage of lower foreign tax rates by shifting earnings outside the higher taxed home country. The MNCs does not pay worldwide tax until earnings are repatriated to the MNC’s home country. However, this often leads to “trapped” earnings in foreign locations. MNC “cash hoards” may be viewed negatively by shareholders who demand that the firm allocate cash efficiently and effectively.

One method of accessing “trapped” earnings in foreign locations is corporate inversion. Corporate inversions result in the relocation of a MNC’s place of incorporation. Corporate inversions often allow the MNC to take advantage of lower corporate tax rates and access cash in foreign subsidiaries. Corporate tax avoidance methods utilizing tax havens, income shifting and corporate inversions have become increasingly popular as firms compete globally. This has led governments to transition, or consider transition, to a territorial tax system.

This paper addresses three questions which each have direct implications as to MNC behavior and related firm value implications as well as indirectly inform the ongoing effort to determine which tax regime most successfully promotes MNC competitiveness and the government’s ability to collect the intended corporate tax rate.

First, will a move to a territorial tax regime result in fewer MNCs utilizing tax havens? Second, will such MNCs have reduced incentives to shift earnings to tax havens? Finally, what are the firm value implications of shifted earnings which result in cash hoards located in foreign subsidiaries? Do shareholders place a higher value on the shares of inverting firms? In particular, those that have greater cash hoards or permanently reinvested earnings?

For instance, would a transition to a territorial tax system benefit U.S. MNCs and the U.S. Government? Fortunately, we may look to the United Kingdom which recently (2009) transitioned from a Worldwide Tax System to a Territorial Tax System.

1.3. Research Objective and Hypotheses

The first objective of this research is to determine whether firm behavior changes post-transition to a territorial tax system. Firm behavior may be examined by comparing

firm-specific pre- and post-inversion incentives to shift earnings. The literature described extensively in future chapters reveals certain firm-level incentives to shift earnings such as the degree of foreign operations as compared to domestic operations (i.e. Multinationality), pricing agreements and other transactions between related parties that do not meet an arm's length principle (i.e. Transfer Pricing Aggressiveness), excess debt agreements under an arm's length principle similar to Transfer Pricing (i.e. Thin Capitalization), non-monetary and non-physical assets (i.e. Intangible Assets) as well as the utilization of tax advantageous regions (i.e. Tax Haven Utilization). As described below, the transition to a territorial tax system is not expected to diminish a firm's incentives to utilize tax havens or a firm's subsidiaries located in tax havens. A case study method is used to examine firm behavior both before and after a home-country transition from a worldwide tax system to a territorial tax system.

The second objective of this research is to determine whether firm value changes due to the announcement of a corporate inversion. In particular, in relation to the level of permanently reinvested earnings of inverted firms. As shown below, firms with higher levels of permanently reinvested earnings are expected to realize a more significant increase in firm value associated with the inversion announcement. An event study methodology is used to examine changes in firm value around the date of the inversion announcement. A subsequent Cross Sectional Analysis is used to examine certain firm characteristics, such as permanently reinvested earnings, in relation to firm's abnormal returns as determined by the event study.

2. ESSAY ON WORLDWIDE AND TERRITORIAL TAX SYSTEMS: EARNINGS SHIFTING INCENTIVES AND TAX HAVEN UTILIZATION

2.1. Overview

The tax system employed by governments determine the types and methods of taxation imposed on corporate entities. Some governments tax only the domestic earnings of MNCs (i.e. earnings based on economic activity within domestic borders) and are known as Territorial Tax Systems. Worldwide Tax Systems tax both domestic and foreign earnings of MNCs within its jurisdiction. Jurisdiction is often based upon the legal place of incorporation (POI), while some countries define tax residence with a form of management control test.

Under the United States worldwide tax system, corporate entities are taxed based upon place of incorporation. That is, active business earnings of entities legally incorporated within U.S. borders are taxed at the U.S. corporate rate regardless of whether the source of earnings is domestic or foreign. The U.S. is well known for its relatively high corporate tax rate, but corporate tax rates also vary across jurisdictions. In fact, some tax jurisdictions are known as “tax-havens” in part due to a very low or nonexistent corporate tax rate (e.g. Bermuda, Cayman Islands, etc.). The United Kingdom also imposed a worldwide tax until 2009 when it transitioned to a territorial tax system. Under the UK tax system, corporate entities are taxed primarily based upon place of incorporation.

Each jurisdiction also promulgates tax laws and regulations which impact the taxes imposed. Related laws and regulations define the activities subject to tax, as well as define activities eligible for tax credits and exclusions. As such, any two tax systems of

the same type, same activities subject to tax, or the same corporate tax rate do not necessarily impose the same tax. The resulting global structure of tax systems varying in type (worldwide vs. territorial), corporate tax rate, tax law and regulations (e.g. specific tax rules, tax credits, tax exemptions, etc.) is not only inherently convoluted but also sets the stage for arbitrage opportunities across jurisdictions.

2.2. Literature Review

2.2.1. Territorial and Worldwide Tax Systems

Tax systems may be categorized into two theoretical models of taxation; worldwide tax systems and territorial tax systems (Kleinbard, 2011). These two models differ primarily in their approach to taxation of the foreign earnings of corporate entities. Domestic or “home-country” tax residence is often defined by the legal place of incorporation (POI). However, some jurisdictions look beyond the POI and apply a management and control test to determine the location of active central control (Cloyd, Mills, & Weaver, 2003a). The UK determines tax residence using both a POI test and a management control test (i.e. looks to the location of the highest level of corporate control), either of which might result in tax residency (Marian, 2015). However, prior literature has found that the UK’s management control test is either not consistently performed or not strictly imposed (Marian, 2015). The U.S. determines tax residence solely by POI test.

Domestic earnings include parent company earnings generated within the tax jurisdiction as well as the earnings of any domestic subsidiaries (i.e. an entity in which the parent company has a controlling financial interest). Foreign earnings include the earnings of any subsidiaries outside the home-country tax jurisdiction (i.e. earnings of

foreign subsidiaries of a parent corporation which is located within the domestic tax jurisdiction). MNCs maintain various levels of ownership in foreign corporations. Taxable income may result from foreign ownership where the parent owns either a controlling or non-controlling stake (Kleinbard, 2011). Taxable earnings are generally determined by following generally accepted accounting principles applicable in the home country with certain adjustments as required by home country tax rules and regulations (Ernst and Young Worldwide Corporate Tax Guide, 2015).

One might expect that a pure worldwide tax system would tax all domestic and foreign taxable earnings of the corporate entities within its tax jurisdiction. However, in part due to an effort to avoid the double taxation of corporate entities, worldwide tax systems do not merely tax the sum of domestic and foreign earnings. Instead, worldwide tax systems reduce the amount of imposed tax by allowing some earnings to be excluded from taxable income, provide tax credits for certain activities and allow the deferral of tax in specific circumstances. Kleinbard (2011) argues that two deviations from a pure worldwide tax offered by the United States tax system result in significant reductions to imposed tax; deferral of foreign earnings and tax-sheltered interest and royalty payments to a parent company. These two types of deviations are not unique to the U.S. worldwide tax system.

Corporate income tax on both domestic and foreign earnings is imposed on earnings in the year earned. However, deferral or “foreign reinvestment” of foreign earnings allows the foreign subsidiary to avoid home-country tax by holding foreign earnings in the foreign jurisdiction (i.e. not repatriating earnings to the home-country). While the original deferred amount is taxable at the foreign rate upon deferral, and will

eventually be subject to home-country taxation if repatriated (e.g. via cash dividend, intercompany loan, etc.), the deferred earnings are reinvested (often permanently) which leads to a “tax-exempt compounding of returns” (Kleinbard, 2011). That is, the firm realizes a compounding benefit to investing the earnings in the foreign jurisdiction pre-domestic tax. There are restrictions and limitations on the earnings that may be deferred.

Deferral is typically only permitted on the active business profits of separately incorporated foreign subsidiaries and not permitted on other less common earnings (as defined by Subpart F rules in the U.S.) (Desai & Hines, 2002) (Foley, Hartzell, Titman, & Twite, 2007). Subpart F rules impose non-deferrable tax on certain passive types of income (i.e. interest, dividends, annuities, rents and royalties) for subsidiaries that have influence over location decisions at the corporate level (i.e. Controlled Foreign Corporations) (Marples & Gravelle, 2014). U.S. Tax law identifies a “controlled foreign corporation” as one where at least 50 percent of the voting power or stock is owned by United States shareholders (Desai & Hines, 2002) (Gravelle, 2015). Controlled foreign corporations are subject to U.S. corporate taxation.

For MNCs with access to multiple tax systems (e.g. parent resides in a low-tax territorial jurisdiction while the subsidiaries reside in a higher-tax worldwide jurisdiction), interest and royalty payments made by the subsidiary to the parent result in less taxable income in the higher-tax jurisdiction. While such “earnings stripping” methods are reviewed in more detail, it is important to note that the ability to conduct such activity is possible due to the variation in tax systems globally.

Worldwide tax systems impose tax on worldwide earnings along with a complex set of tax exemptions and credits (e.g. Foreign Tax Credits or FTCs). The tax credits are

intended to mitigate double taxation by reducing the domestic tax burden for taxes paid in foreign jurisdictions. A U.S. MNC with \$1,000 foreign earnings and a 35% U.S. tax rate would have a \$350 initial U.S. tax liability on foreign earnings (i.e. assuming all foreign earnings were repatriated). The initial tax liability is then reduced by available FTCs. If the U.S. MNC paid \$300 in foreign taxes to foreign governments, then its U.S. tax liability on foreign earnings would be \$50. It is important to note that the \$300 in foreign taxes may have been paid in numerous foreign jurisdictions. That is, rather than allowing credits to be applied against the domestic taxes imposed on the same economic activity originally taxed in a specific foreign jurisdiction, credits are applied more broadly to the overall tax liability (Gravelle, 2015). The U.S. MNC in the example above may have paid no foreign taxes in tax-haven jurisdictions while paying \$300 foreign taxes in specific higher tax rate foreign jurisdictions. In the U.S. such “worldwide averaging” allows a high tax rate in one foreign jurisdiction to offset the corporate U.S. tax liability associated with a low foreign tax jurisdiction (i.e. but does not offset U.S. tax on U.S. earnings) (Foley, Hartzell, Titman, & Twite, 2007). In this effort, worldwide tax systems become something other than a pure worldwide tax system. That is, the U.S. is not simply taxing all foreign earnings at the U.S. corporate tax rate. When FTC rules are combined with the MNCs ability to defer recognition of foreign earnings, the MNC is able to strategically recognize earnings from foreign jurisdictions to maximize FTCs (i.e. minimize U.S. foreign tax liabilities). In fact, many argue that the resulting tax system effectively operates as a variant of a territorial tax system rather than a worldwide tax system (Kleinbard, 2011) (Fleming, Peroni, & Shay, 2009) (Marian, 2015). MNCs have developed extensive processes and strategic methods to utilize worldwide tax system

rules (e.g. tax exemptions, credits, deferral, etc.) to lower their tax liabilities arguably at or below that of territorial tax systems.

Conversely, a pure territorial tax system taxes only the domestic earnings of the corporate entities within its tax jurisdiction. Territorial tax systems each have a unique set of complex tax law and regulations. For the purpose of this research, the key distinction between worldwide and territorial systems is the lack of tax imposed on foreign earnings.

2.2.2. Firm and Home-Country Advantages

The key elements of tax systems described above (e.g. tax model, corporate tax rate, and tax law and regulation including credits and exclusions) differ across tax jurisdictions. The unique combination of these elements in each jurisdiction create numerous differences that exist between the tax systems of countries around the globe. Such differences create both challenges and opportunities for the MNC.

Traditional location theory, which focuses on the expansion of the MNC into new markets, recognizes that a profit-maximizing firm will choose a location where costs of production are lowest (Dunning, 1973). That is, assuming other market factors are held constant in a perfectly competitive situation. In the context of MNC taxation, the MNC must effectively make two location choices; a firm's tax jurisdiction or "tax-home" and a firm's operational headquarters or "operational-home". An MNC may be legally incorporated in Bermuda and have its operational headquarters and management control in the United States. Firms do not necessarily need to relocate production to take advantage of the variation in tax systems. MNCs base their decisions regarding location, at least in part, on tax burdens. In particular, the tax burdens implied by the home-country tax system (Marian, 2015) (Devereux & Maffini, 2006). Much of the prior literature

examining the impact of corporate taxes on the location of the MNC has assumed that the operational-home follows or is the same as the tax-home (Huizinga & Voget, 2009) (Voget, 2010) (Barrios, Huizinga, Laeven, & Nicodeme, 2012) (Laamanen, Simula, & Torstila, 2012). Considering its limitations, prior literature has demonstrated the importance of tax considerations in MNC location decisions. Thus, the differences between tax systems becomes one of the structural market distortions that encourages MNEs to relocate one or both “homes”. If MNEs are able to achieve greater profits by relocating the tax-home, they may be able to achieve superior profit-maximization as compared to competitors.

In addition, the differences between tax systems previously discussed create arbitrage opportunities that are discussed further in later sections. To the extent that firms are able to specialize in the methods of exploiting such opportunities, an ownership advantage is realized (Dunning, 1988) (Dunning, 2003). As such, the structure of specific tax systems and the differences between tax systems affords certain location and ownership advantages for the firm. However, one may also consider the home-country impact of such structural variation of tax systems.

While firms realize certain positive effects of locating or relocating either the tax-home or operational-home, the home country is impacted as well. The most apparent impact of a change in tax-home is the reduction in the tax base of the home country. As firms relocate the tax-home of parent companies outside of a worldwide tax system, the home country loses the right to impose tax on corporate affiliates (i.e. tax on subsidiary earnings considered foreign prior to the tax-home relocation). In addition, the impact of a change in operational-home must also be considered. There are numerous well-known

non-tax economic advantages to having the operational-home of a MNC located within a particular jurisdiction such as increased capital expenditures, research and development, learning and innovation, and employment (Marian, 2015). Desai (2009) refers to the relocation of such activity by classifying it into three “homes” including Managerial, Financial and Legal. A firm may relocate its legal home (e.g. POI) without moving its managerial home (e.g. location of executive management) or financial home.

2.2.3. Tax Haven Utilization

The variation in tax systems results in some jurisdictions being considered more favorable than others from a corporate tax perspective. Characteristics typically identified as favorable include a low corporate tax rate, territorial tax model, and other tax law, regulation and treaties that result in lower corporate effective tax rates. The most favorable tax jurisdictions are often identified as “tax havens” and have tax rates as low as zero percent. While there is no official definition of a tax haven, the Organization for Economic Co-operation and Development (OECD) has described the characteristics of tax havens including “zero or low tax rates, lack of effective exchange of information, lack of transparency and no requirement of substantial activity (Gravelle, 2015).”

Countries considered tax havens by the OECD and relevant literature are listed on Table I. Aside from those listed by the OECD, other States and Countries are often considered tax havens including the U.S. State of Delaware (Dyren, Lindsey, & Thornock, 2006).

Such favorable tax systems may be utilized to conduct methods of corporate tax avoidance. Corporate tax avoidance methods include shifting earnings from high-tax jurisdictions to low-tax jurisdictions, structuring transactions to take advantage of the deductibility of certain expenses (e.g. interest expense) and other methods described in

detail below. While researchers continue to debate the amount of tax avoided by specific corporate tax avoidance methods, certain methods have been identified as most effective in avoiding corporate tax including intellectual property transfers, strategic debt allocation and strategic transfer pricing (Pak & Zdanowicz, 2002) (Grubert, 2003) (Gravelle, 2015). Such methods are often referred to as “earnings shifting” or “earnings stripping” and are more likely to be employed by tax-haven-utilizing MNCs with certain incentives.

2.2.4. Earnings Shifting Incentives

Previous studies on the association between earnings shifting incentives and tax haven utilization focus on tax haven utilization by publicly-listed U.S. multinational firms. Earnings shifting incentives found to be positively associated with tax haven utilization by U.S. MNCs include multinationality, transfer pricing aggressiveness, thin capitalization and intangible assets (Richardson & Taylor, 2015). Each of these incentives is described below along with the expected impact to each in the event of a home-country transition from a territorial tax system to a worldwide tax system.

2.2.4.1. Multinationality

Multinationality, or the degree of foreign operations as compared to domestic operations, has been found to encourage MNCs to participate in earnings shifting. The incentive to shift earnings increases as the proportion of foreign operations or foreign income increases (Rego, 2003) (Dyreng, Hanlon, & Maydew, 2008) (Richardson & Taylor, 2015). As the number of MNC foreign locations increases, the MNC gains access to a larger number of tax systems. Such tax systems often offer lower corporate tax rates and variations in tax law that allow tax savings in many forms including shifted earnings.

Thus, as the MNC becomes more multinational, earnings shifting increasingly becomes one of the corporate tax avoidance tools at the disposal of the MNC.

If the MNC's home-country were to transition from a worldwide tax system to a territorial tax system, the tax-dynamic between the headquarters and subsidiaries would change. That is, the MNC would no longer be taxed on its worldwide earnings, the domestic corporate tax rate might also change and many domestic tax laws would likely be revised to accommodate the new tax system. However, the degree of change and related impact to the behavior of the MNC would be dependent on many factors including the corporate tax rate in the home-country versus foreign subsidiaries and the arbitrage opportunities or regulatory "loopholes" between each tax system as a result of specific tax law. Corporate tax rates and specific tax law vary between all tax systems whether worldwide or territorial in nature. Regardless, the more foreign subsidiaries the MNC has access to, the more opportunities it will have to utilize those that offer a lower effective corporate tax rate. In addition, other variations in specific tax law between territorial tax systems continue to facilitate corporate tax avoidance through regulatory arbitrage. Thus, despite a transition from a worldwide tax system to a territorial tax system, multinationality will likely continue to promote tax haven utilization.

2.2.4.2. Transfer Pricing Aggressiveness

Transfer Pricing Aggressiveness (TPA) refers to the nature of pricing agreements and other transactions between related parties. Kleinbard (2011) distinguishes between three common transfer pricing strategies including (1) the aggressive use of "cost sharing" arrangements that allow low-taxed foreign subsidiaries to utilize and sub-license firm intangible assets by contributing to the high-tax parent's cost, (2) aggressive

contractual terms often in the form of low contract and agreement buy-in payments and (3) pure business opportunities available to the MNC. In the context of earnings shifting between the MNC and its subsidiaries, TPA often refers to the artificial inflation of earnings in lower taxed jurisdictions and related reduction of earnings in higher taxed jurisdictions (Desai & Hines, 2002) (Richardson & Taylor, 2015) (Gravelle, 2015) (OECD, 2015). The earnings shifted to the lower taxed region result in comparatively lower corporate tax liabilities and simultaneously reduce taxable earnings in the higher taxed region. Transactions are structured between headquarters and subsidiaries to promote corporate tax avoidance. The MNC's effective corporate tax rate may be lowered as a result of lower corporate tax rates in a specific jurisdiction, territorial tax rather than worldwide tax as well as other laws and regulations that differ between regions. Previous studies identify TPA as extensive non-arm's length transactions between related parties and found that U.S. firms engaged in such activity are more likely to utilize a tax haven incorporated firm (Richardson & Taylor, 2015). Such non-arms' length transactions and relationships must be disclosed in the financial statements of the firm. The specific disclosure requirements are set by the regulatory body for Generally Accepted Accounting Principles (GAAP) of financial statements issued within each jurisdiction.

The UK's Financial Reporting Standard 8 (FRS 8), effective December 1995, defines the financial statement disclosures necessary to declare the existence of related parties and associated transactions. FRS 8 requires disclosure of related party transactions within the financial statements (e.g. purchases or sales of goods, assets or services, agency arrangements, leasing arrangements, transfer of R&D, license agreements,

provision of finance, etc.). Per FRS 8, “in the absence of information to the contrary [...] transactions are presumed to have been undertaken on an arm’s length basis, i.e. on terms which could have been obtained in a transaction with an external party, in which each side bargained knowledgeably and freely, unaffected by any relationship between them” (UK Financial Reporting Council, 1995). Therefore, one may refer to such disclosure or lack thereof to determine whether related party transactions were conducted arm’s length.

UK companies listed in a European Union or European Economic Area securities market follow International Financial Reporting Standards (IFRS) for consolidated financial statements since 2005 (Deloitte Global Services Limited, 2015). IFRS International Accounting Standard 24 (IAS 24) requires similar related party disclosure since 1986 (Deloitte Global Services Limited, 2015). IAS 24 also requires a statement that such transactions were made arm’s length only if such disclosure can be substantiated.

If the MNC’s home-country were to transition from a worldwide tax system to a territorial tax system, differences in corporate tax rates, tax laws and regulations would likely still exist. Such variation between regions facilitate corporate tax avoidance methods utilizing transfer pricing. Thus, despite a transition from a worldwide tax system to a territorial tax system, TPA will likely continue to promote tax haven utilization.

2.2.4.3. Thin Capitalization

Thin capitalization refers to another form of transfer pricing whereby the arm’s length principle previously discussed is applied to the external financing activities of firms. Highly leveraged firms utilize a debt allocation strategy that effectively serves as another corporate tax avoidance method to shift taxable earnings from a high-tax

jurisdiction to a low-tax jurisdiction. In the case of thin capitalization, taxable earnings are impacted by the structure and source location of company debt and the related interest. The ability to deduct interest expense on debt results in a reduction in taxable earnings for the corporation. The MNC is able to take advantage of its access to varied tax systems, corporate tax rates and tax regulations by strategically allocating its debt. A MNC with access to a low-tax jurisdiction might source its home-country intracompany debt from the low-tax jurisdiction (Richardson & Taylor, 2015).

The OECD provided example scenarios whereby the level of debt is expected to have an impact on the taxable profit of multinational firms (OECD, 2012) (OECD, 2015). The OECD's thin capitalization examples are utilized, expanded upon and presented in Figure 1. The scenario begins with a U.S. parent company establishing a subsidiary in a foreign country. As a result of the debt and equity combination (i.e. 50% debt and 50% equity) used to establish the subsidiary, deductible interest expense paid by the subsidiary to the parent results in a lower tax liability as compared to 100% equity financing. The second subsidiary is established with a greater amount of debt sourced from the parent company (i.e. 90% debt and 10% equity) resulting in greater tax savings. Any withholding tax on related interest payments in the foreign jurisdiction reduce the realized tax savings. As such, tax-haven jurisdictions may be utilized in establishing additional subsidiaries as shown with the third subsidiary. The third subsidiary is established using intercompany loans from the second subsidiary. This allows the firm to utilize foreign earnings in intercompany debt while paying little to no tax in the tax-haven jurisdiction. The U.S. parent may also fund projects with intercompany debt sourced

from the lower-tax jurisdictions. This creates deductible interest expense in the high-tax country while utilizing earnings from lower tax foreign jurisdictions.

In examining a small (4) sample of inverted firms, (Seida & Wempe, 2004) found that U.S. intercompany debt and related interest expense increased dramatically post-corporate inversion. This allows the MNC to deduct related interest expense from taxable earnings at the high-tax home-country level. In addition, the post-inversion parent may finance its ownership of the pre-inversion parent largely with debt resulting in tax deductible interest expense and untaxed or lightly taxed interest income (Desai & Hines, 2002).

Worldwide tax systems do impose limits to the amount of deductible interest expense. These limitations are often in the form of earnings stripping rules, transfer pricing rules and thin capitalization rules. However, as previously discussed, the MNC is able to defer (often permanently) repatriating its foreign earnings back to the home-country. Thus, foreign subsidiary operations and intercompany lending utilize unrepatriated foreign earnings. As a result, foreign sourced debt effectively comes at no additional cost. The resulting earnings from intracompany debt are held in the low-tax jurisdiction. Meanwhile, the MNCs home-country financing needs are satisfied and its effective tax rate is reduced.

In the UK, Her Majesty's Revenue and Customs (HMRC) follows the Organization for Economic Co-Operation and Development (OECD) transfer pricing approach (OECD, 2012) and defines in tax terms a thinly capitalized firm as one that “has more debt than it either could or would borrow acting purely in its own interests, leading to the possibility of excessive interest deductions (i.e. a greater amount than would arise

if the borrower was acting at arm's length from the lender or guarantor). The company is only able to carry excessive borrowing because it is either borrowing from connected companies or borrowing from third parties on the strength of group support in the form of guarantees" (HRMC, 2016). HRMC may disallow the deductibility of interest paid between related parties for several reasons including excessive interest rates, excessive loan amounts and excessive company leverage. While each unique case of potential excessive interest is reviewed separately by HRMC using the arm's length principle, a debt-to-equity ratio of 1:1 and interest cover (i.e. Earnings Before Interest and Taxes divided by Interest Expense) of 3:1 is generally and informally considered acceptable (PricewaterhouseCoopers, 2014).

The tax benefits of such debt allocation strategies are primarily made possible by differences in corporate tax rates between taxing jurisdictions. As with TPA methods, differences in corporate tax rates, as well as tax laws and regulations, would likely still exist even if the MNC's home-country were to transition from a worldwide tax system to a territorial tax system. Such variation between regions facilitate corporate tax avoidance methods utilizing thin capitalization or debt allocation strategies. Thus, despite a transition from a worldwide tax system to a territorial tax system, thin capitalization will likely continue to promote tax haven utilization.

2.2.4.4. Intangible Assets

Intangible assets are non-monetary and non-physical in nature such as intellectual property in the form of licensing agreements, patents, trademarks, and copyrights as well as goodwill and research and development (Deloitte Global Services Limited, 2015). MNCs realize a tax benefit from transactions (e.g. transfers and related cost sharing

agreements) with related parties involving intangible assets when the related expense reduces taxable earnings in the high-tax jurisdiction and earnings are transferred to the lower-tax jurisdiction. To the extent that the price of the transaction exceeds the price that would be charged to an unrelated party, excessive earnings are realized in the low-tax jurisdiction and excessive expenses reduce taxable earnings in the high-tax jurisdiction.

As with other regulations regarding the valuation of transactions involving related parties, intangible asset transfers are analyzed by regulatory bodies using an arm's length perspective. That is, whether the transaction's structure (e.g. terms including price) is equivalent to that of a similar transaction with an unrelated party. MNCs are once again able to utilize access to varied corporate tax rates, tax systems and tax regulations to strategically structure intangible asset transactions. However, an additional layer of complexity exists in determining whether intangible asset transactions are arm's length due to the inherent difficulty in measuring the value of such assets (Richardson & Taylor, 2015) (Gravelle, 2015). The value of a trademark, for instance, is inherently difficult to determine in part due to the subjectivity in estimating the earning potential of the asset. Intangible assets are recognized in the financial statements of UK MNCs through the UK's Financial Reporting Standard 10 and International Accounting Standard 38.

A common corporate structure used to conduct corporate tax avoidance that involves both the pricing of contractual agreements and intangible assets is the "Double Irish Dutch Sandwich". Richardson (2011) describes Google Inc.'s use of such a corporate structure and search engine intellectual property to lower its tax liabilities associated with search engine revenues. Figure 2 displays this general organizational structure and process and Figure 3 displays the specific arrangement of Google as

described by Richardson (2011). In general, a U.S. based parent corporation licenses intellectual property to a holding company that is located and incorporated in Ireland, but as a result of management location has a tax-haven tax jurisdiction (e.g. Bermuda). The Ireland holding company then sub-licenses the intellectual property to another holding company located in the Netherlands. The holding company in the Netherlands then sub-licenses the intellectual property to an operating company located in Ireland. Richardson (2011) notes that “Google BV (i.e. Netherlands) exists because royalties paid directly from an Irish Company to a Bermuda company would be subject to an Irish withholding tax”. Revenue from the utilization of the intellectual property is first recorded in the Ireland holding company. However, Irish taxable earnings are typically low due to combination of deductible royalty payments paid to the Dutch holding company and the lack of Irish withholding tax on royalty payments. The Dutch holding company then makes a similar royalty payment to the Bermuda holding company whereby the royalties paid offset the royalties received. While royalties are paid to the U.S. parent, most earnings are reinvested in the tax haven jurisdiction. As it relates to transfer pricing, one may question whether the terms of the agreements between these entities are at arm’s-length. As it relates to intangible assets, such assets allow the firm to engage in such strategic arrangements and lower tax liabilities.

Once again, the tax benefits of such corporate tax avoidance strategies are primarily made possible by differences in corporate tax rates between taxing jurisdictions. Differences in corporate tax rates, as well as tax laws and regulations, would likely still exist even if the MNC’s home-country were to transition from a worldwide tax system to a territorial tax system. Such variation between regions facilitate

corporate tax avoidance methods utilizing intangible assets. Thus, despite a transition from a worldwide tax system to a territorial tax system, intangible assets will likely continue to promote tax haven utilization.

2.3. Research Questions

It has been argued by researchers, executives and media outlets that corporate entities are disadvantaged by a worldwide tax system and the U.S. corporate tax rate. Such disadvantages are used to explain the corporate tax avoidance behavior of firms. That is, corporate entities are utilizing corporate tax avoidance strategies such as tax-havens and earning shifting only because they must do so to overcome the burdens imposed by a worldwide tax system and comparatively high corporate tax rate and effectively compete in a global market. One solution often proposed is a transition from a worldwide tax system to a territorial tax system.

However, the review of incentives to shift earnings described above has led to the expectation that Multinationality, Transfer Pricing Aggressiveness, Thin Capitalization and Intangible Assets will remain associated with tax haven utilization despite a transition to a territorial tax system.

The United Kingdom transitioned from a worldwide to a territorial tax system in 2009. As such, we may examine the behavior of UK firms pre- and post-territorial tax system. If a transition to a territorial tax system reduces the incentives to utilize tax havens, then we would expect to find a corresponding reduction in the significance of such incentives in explaining tax haven utilization. A case study approach is utilized to examine the behavior of selected firms in multiple industries.

2.4. A Case Study Approach to Analyze the Impact of a Transition to a Territorial Tax System

2.4.1. Method and Case Selection

As previously discussed, the current literature does not evaluate the firm level impacts related to a transition from a worldwide tax system to a territorial tax system. The case study approach is employed in the remaining sections of this chapter to evaluate firm behavior and characteristics pre- and post-transition to a territorial tax system over the UK Corporate Tax Reform period (i.e. 2009 to 2015 or CTR period). Case studies are focused on the firm characteristics previously described to determine whether firm behavior changed post-transition to a territorial tax system. Case studies will explore whether firms reduced, maintained or expanded the use of tax havens for subsidiary location. Tax haven utilization is measured as the number (and percentage) of firm subsidiaries incorporated in an OECD tax haven. Therefore, one must identify UK MNC subsidiaries located in tax havens in order to analyze such behavior. Tax haven utilization is addressed initially by evaluating a larger group of firms than studied in case analysis, which also assists in firm selection.

2.4.2. Firm-Specific Review of Historical Tax Haven Utilization: The Data

The UK Companies Act of 1985, Section 231, Schedule 5 (CA 1985) required companies to disclose the name and place of incorporation of “principal” subsidiaries (e.g. as determined by impact to profit or loss or proportion of company assets) in the notes to the financial statements (UK National Archives, 1985). Since 1985, several revisions have superseded earlier legislation and increased the disclosure requirements of firms. The UK Companies Act of 2006, Section 410 (CA 2006) required companies to

disclose their “principal” subsidiaries and other significant holdings within the notes to the financial statements and submit a complete list to Companies House with the annual return (UK National Archives, 2006) (Deloitte Publications, 2015). Companies House is an UK executive agency that “incorporates and dissolves limited companies, registers the information companies are legally required to supply, and makes that information available to the public” (UK Companies House, 2015). CA 2006 applied to companies preparing financial statements under both IFRS and UK GAAP. CA 2006 was updated to require a full list of all subsidiaries within the financial statements as of July 1, 2015 and the address of the registered office of each subsidiary rather than the country of incorporation as of January 1, 2016.

Complete historical listings of firm subsidiaries are not widely available. Given the disclosure requirements of UK firms, one could reasonably expect to utilize UK firm’s publicly available subsidiary listings through Companies House as well as appendices and notes to the financial statements to identify subsidiaries located in tax havens. However, upon examination of firm disclosures via Companies House as well as financial statements and related notes (i.e. prior to 2016), few companies were found to have consistently reported such information. A report by an international non-governmental charity group ActionAid, which focuses on issues that impact global poverty, supports this finding. In 2011, ActionAid reviewed the subsidiary disclosures of the FTSE100 and found that more than half of the listed companies were not in compliance with the disclosure requirements listed above (ActionAid, 2011). ActionAid took additional steps including requesting additional information from FTSE100 firms, submitting formal complaints to government agencies and working with an information

and data gathering firm (i.e. DueDil) to construct a list of subsidiaries for FTSE100 firms as of 2011. In July 2011, FTSE100 firms were found to have as many as 2,600 subsidiaries with as many as 62% located in tax havens (ActionAid, 2011). ActionAid's 2011 subsidiary listing was made publicly available which assisted with the construction of a sample of firms for case study.

As previously mentioned and discussed in further detail below, the UK began the transition to a territorial tax system in 2009. The measure of tax havens used for case studies is defined by the percentage of subsidiary firms incorporated in an OECD tax haven as listed on Table I. Thus, in order to compare tax haven utilization pre-territorial tax system (i.e. pre-July 2009) to post-territorial tax system, a list of firms was constructed that disclose a complete subsidiary listing both pre- and post-territorial tax system. ActionAid's July 2011 FTSE100 firm listing and subsidiary data is compared to a pre-territorial tax system observation (i.e. subsidiary data pre-July 2009 depending on each firm's fiscal year end and data availability) and a post-territorial tax system (i.e. subsidiary data near the completion of the UK's transition plan ending April 2015). FTSE100 firm financial statements, related notes to financial statements and Companies House information was reviewed for firms in numerous sectors (engineering, food and drink, household products, insurance, investment and finance, manufacturing, media, mining, oil and gas, pharmaceutical and chemical, real estate, retail, software, support services, utilities, and wireless communication services) to verify existing disclosure. Of the firms that properly disclosed, two firms were chosen in five industries (i.e. engineering, food and drink, pharmaceutical and chemical, retail and utilities). FTSE100 firm financial statements and Companies House information was reviewed in detail for

selected firms in order to determine both the number of subsidiaries and the percentage in OECD listed tax-havens. Table 2 lists the number of tax haven and total subsidiaries, as well as the percentage of subsidiaries in tax havens, for all ten firms at each of the three observation points. Table 2 also includes the percentage change and average subsidiaries over all three observations points. Figure 11 graphs the percentage of tax haven subsidiaries for all selected firms at all three observation points. Table 3 lists the location of tax haven subsidiaries in 2011 for all selected firms.

2.4.3. Firm Characteristics and Incentives to Utilize Corporate Tax Avoidance:

The Data

Case studies will also explore certain firm characteristics and incentives to utilize corporate tax avoidance methods (e.g. Multinationality, Transfer Pricing Aggressiveness, Intangible Assets and Thin Capitalization), many of which have previously been found to be correlated with tax haven utilization (Richardson & Taylor, 2015). Financial statement data is accessed through DataStream and published annual reports. Multinationality is measured as the foreign percentage of total revenue. Transfer pricing aggressiveness is evaluated through any indication in financial statements that related party transactions cannot be substantiated as arm's length. The extent to which firms are thinly capitalized is evaluated through the debt to equity ratio and interest cover ratio. Intangible assets is evaluated as the percentage of total assets. Table 4 lists descriptive data for all selected firms over the UK Corporate Tax Reform period (i.e. all averages are calculated using data one year prior and one year beyond the formal corporate tax reform period of 2010 – 2014). As each case is reviewed, one must also consider the key

regulatory reforms enacted as part of the transition to a territorial tax system and the related impact on firm behavior.

2.4.4. United Kingdom Strategic Plan for Corporate Tax Reform

There are many distinctions between a worldwide and territorial tax system. As such, the United Kingdom's transition to a territorial tax system is multifaceted and delineated in a five-year (2010 to 2014) strategic plan (HM Treasury, 2010) (UK National Archives, 2010). In addition, prior to the development of the formal strategic plan (i.e. Corporate Tax Reform or CTR Plan), the UK government made certain changes at the outset of the UK transition in 2009. The timeline for the CTR Plan is shown on Figure 4. The UK government's focus throughout the CTR plan is "creating the most competitive tax regime in the G20 [...] to make it more attractive to international business (UKTI, 2013)." Key areas of reform in the CTR plan include: a phased reduction in the corporate tax rate; reform of Controlled Foreign Company rules; reformed taxation of foreign branches; and reformed taxation of innovation and intellectual property (HM Treasury, 2010) (UK National Archives, 2010).

The phased reduction in the corporate tax rate established rates effective in April of each year between 2011 and 2015. The UK corporate tax rate fell from 30% to 28% in 2009, 26% in 2011, 24% in 2012, 23% in 2013, 21% in 2014 and 20% in 2015 (KPMG, 2016). As for undistributed earnings of foreign subsidiaries, updated Controlled Foreign Company rules exempt foreign earnings of UK-controlled firms as of January 2013 (UKTI, 2013). If foreign earnings truly represent domestic earnings (e.g. UK earnings shifted to a foreign location), then the foreign earnings do not qualify for exemption. Further, in order to encourage innovation in the UK, the CTR plan includes a reduced tax

rate on profits (e.g. profits from royalties, sales of patents, and sales of related products) from inventions patented in the UK (UKTI, 2013). The “patent box” rules reduce the corporate tax rate to 10% on qualifying patent-related profits from April 2013 (i.e. on patents commercialized after November 29, 2010) (HM Treasury, 2010) (UK National Archives, 2010). The CTR plan also allows certain tax credits for research and development to be taken “above the line” from 2013. The new R&D rules enhance the overall value of R&D allowances in order to further promote such activity in the UK.

In addition, one key element of the UK’s transition was implemented prior to the formal CTR plan. Multinationals often repatriate foreign subsidiary earnings to the domestic parent through corporate dividends. Given the importance of repatriated earnings (and alternatively, reinvested foreign earnings), one of the primary distinctions in tax systems lies in the methods of taxing a multinational’s dividend income received from foreign subsidiaries. The United Kingdom’s method of taxing dividends received from foreign subsidiaries was very similar to the United States until 2009. Repatriated earnings were taxed at the corporate rate after accounting for a complex set of foreign tax credits and exclusions. As part of the effort to combat a swarm of UK corporate inversions and become a territorial tax system, the UK government took swift action to reduce the tax burden associated with repatriated earnings. Repatriated foreign earnings in the form of dividends became largely tax exempt in July 2009 (HM Treasury, 2010) (UK National Archives, 2010) (Devereux & Loretz, 2011) (UKTI, 2013). Similar exemptions were provided for foreign branches (i.e. foreign trade without a formal separate foreign subsidiary) through the firm’s ability to elect branch exemption to UK corporate tax as of July 2011.

2.4.5. Results of Case Studies by Sector

2.4.5.1. Engineering Sector (BAE Systems and GKN)

Business and Geographic Markets

BAE Systems Public Limited Company (PLC) is a UK incorporated (est. 1977) “global defense, aerospace and security company providing products for air, land and naval forces including advanced electronics, security, information technology solutions and support services” (MarketLine, 2016). BAE’s primary markets include the United States (36% of 2015 Sales), United Kingdom (23%), Saudi Arabia (21%) and Australia (3%). The remaining sales are categorized in “other” regions. BAE reported an average of £17,849 million in sales and £20,813 million in assets over the period of the UK Corporate Tax Reform plan (i.e. CTR period). BAE is headquartered in London, UK and listed on the London Stock Exchange.

GKN PLC is a UK incorporated (est. 2001) “global engineering company serving the automotive, aerospace, agricultural, construction, mining and other industrial markets” (MarketLine, 2016). GKN’s primary markets include the United States (38.22% of 2015 Sales), Europe (non-UK; 35.21%), Asia Pacific (14.11%), United Kingdom (12.43%), and Africa (.03%). GKN Reported an average of £6,522 million in sales and £5,481 million in assets over the CTR period. GKN is headquartered in Worcestershire, UK and listed on the London Stock Exchange.

Tax Haven Utilization

Of BAE’s 456 subsidiaries in January 2008, 18 or 3.95% were located in OECD tax haven jurisdictions. By July 2011, BAE’s subsidiaries in tax havens had increased slightly to 4.13% (21 of 509). By January 2015 BAE reported 6.42% (24 of 374)

subsidiaries located in OECD tax havens. Therefore, over the CTR period, BAE experienced a 33% increase in the number of subsidiaries or 2.47% increase in the percent of total subsidiaries located in OECD tax havens.

Of GKN's 232 subsidiaries in May 2009, 5 or 2.2% were located in OECD tax haven jurisdictions. GKN's tax haven subsidiaries remained constant by July 2011 (5 of 221 or 2.26%) and February 2014 (5 of 236 or 2.12%). However, by February 2016 GKN reported 24 or 9.49% (24 of 253) subsidiaries located in tax haven jurisdictions. The substantial increase is primarily due to the October 2015 acquisition of the Dutch aerospace company Fokker Technologies Group. Therefore, over the CTR period, GKN experienced a 380% increase in the number of subsidiaries or 7.33% increase in the percent of total subsidiaries located in OECD tax havens primarily due to an acquisition.

Multinationality

As previously mentioned, the degree of foreign operations as compared to domestic operations has been found to encourage MNCs to participate in earnings shifting. Multinationality is measured as the foreign percentage of total revenue. Foreign sales are analyzed as the percentage of total sales unless noted otherwise. Over the CTR Period, BAE reported an average of 79.32% foreign sales (i.e. percent of total sales). Overall, BAE reported a slight decrease (0.49%) in the percentage of foreign sales (77.78% in 2007 and 77.29% in 2015) which varied by less than 5% annually over the CTR period.

GKN reported an average of 85.92% foreign sales over the CTR period. Foreign sales were 54% of total sales in 2007 and 2008 and subsequently increased to 82% in 2009. Foreign sales trended upward for the remaining CTR period. Overall, GKN

reported an increase of 34% in the percentage of foreign sales (54% in 2007 and 88% in 2015).

Thin Capitalization

As previously stated, a debt-to-equity ratio of 1:1 and interest cover of 3:1 (EBIT divided by Interest Expense on Debt) is generally and informally considered acceptable by UK HMRC. Therefore, UK MNCs are considered thinly capitalized when the debt-to-equity ratio exceeds 1:1 and the interest cover ratio is less than 3:1. BAE's debt-to-equity ratio per annual financial statement data exceeded 1:1 over the entire CTR period. While the firm is highly leveraged given the debt-to-equity, BAE's interest cover ratio was less than 3:1 in only one year during the CTR period (i.e. 2009). As such, BAE is not considered thinly capitalized. The debt-to-equity and interest cover ratio varied considerably over the CTR period with an average of 4.94 and 6.33, respectively, but did not demonstrate a consistent upward or downward trend in thin capitalization.

GKN's debt-to-equity ratio per annual financial statement data also exceeded 1:1 over the entire CTR period. However, GKN's interest cover ratio was less than 3:1 only in the two years where the firm experienced losses (e.g. negative EBIT in 2008 and 2009). As such, GKN is not considered thinly capitalized. The debt-to-equity and interest cover ratio varied considerably over the CTR period with an average of 2.41 and 5.18, respectively, but did not demonstrate a consistent upward or downward trend in thin capitalization.

Intangible Assets

Intangible assets and all changes in intangibles are analyzed as a percentage of total assets unless noted otherwise. BAE's intangible assets represent an average of 51%

of total assets over the CTR period. Overall, BAE's intangible assets increased £558 million (i.e. an increase of 4.43% in the percentage of total assets) over the CTR period. While intangibles as a percentage of total assets remained relatively constant over the CTR period (i.e. varied less than 4% annually), total intangibles varied by as much as £2,747 million annually. Thus, BAE's reported intangible assets do not demonstrate a consistent trend over the CTR period.

GKN's intangible assets represent an average of 22% of total assets over the CTR period. Overall, GKN's intangible assets increased £1,440 million (i.e. an increase of 14% in the percentage of total assets) over the CTR period. Intangibles as a percentage of total assets as well as total intangibles remained relatively constant (i.e. annual variation of less than 2%) over the CTR period with the exception of three years (i.e. 2011, 2012 and 2015 with increases of £408, £582 and £414 million respectively). Primarily as a result of these three years, GKN's intangibles demonstrate an upward trend.

Transfer Pricing Aggressiveness

In order to measure transfer pricing aggressiveness, related party disclosures were reviewed in the annual financial statements over the CTR period for both BAE and GKN. There were no related party transactions identified where a lack of disclosure gave rise to questions or concerns regarding the arm's length basis of such transactions.

Engineering Sector Summary

While the UK Corporate Tax Reform plan was not specifically designed to prevent the utilization of tax havens, key areas of reform were focused on creating a more competitive tax regime (e.g. lower tax rates, eliminating certain forms of tax on foreign earnings, etc.). UK leaders were primarily concerned with keeping firms incorporated in

the UK. Unfortunately, tax havens are extremely competitive from the standpoint of tax rates and other tax regulation. While the newly reformed UK territorial tax system may be more competitive than pre-CTR, intuitively it does not diminish the attractiveness of tax havens. As previously discussed, the literature supports the notion that firms will seek to pay the lowest tax. In this effort, tax havens may be used to conduct the corporate tax avoidance methods previously discussed (e.g. earnings shifting) in both worldwide and territorial tax systems.

Both BAE and GKN increased the percentage of total subsidiaries located in tax haven jurisdictions. Neither firm dramatically increased tax haven utilization, 2.47% for BAE and 7.33% for GKN, but these findings do not support the notion that a territorial tax system leads to less utilization of tax havens. Furthermore, and discussed below, both firm's incentives to utilize tax havens remained steady or increased over the CTR period.

Multinationality as measured by foreign sales remained stable for BAE and increased steadily for GKN. Both firms reported a significant amount of foreign sales with an average of 83% over the CTR period. Thin capitalization as measured by the debt-to-equity ratio and interest cover ratio do not lead to any conclusive findings. Both firms are highly leveraged, but neither were thinly capitalized over any significant portion of the CTR period. Both firms reported an increase in intangible assets over the CTR period. BAE reported a higher percentage of intangible assets over the CTR period (i.e. BAE's average of 51% versus GKN's average of 22%), but remained relatively stable. GKN's total intangible assets demonstrated an upward trend over the CTR period.

Based upon the review of BAE and GKN, UK firms in the engineering sector are increasing their use of tax havens and are equally or more likely to utilize tax havens as

demonstrated by measures of multinationality and intangible assets. In addition, as previously discussed, increased multinationality and intangible assets increase the likelihood that firms will utilize corporate tax avoidance methods to lower their tax liabilities.

2.4.5.2. Pharmaceutical Sector (AstraZeneca and GlaxoSmithKline)

Business and Geographic Markets

Through a merger of Sweden-based Astra and UK-based Zeneca, AstraZeneca PLC is a UK incorporated (est. 1992) “global biopharmaceutical company engaged in developing, manufacturing and marketing prescription pharmaceuticals in several therapeutic areas” (MarketLine, 2016). AZN’s primary markets include the Americas (US, Canada and other at 36% of 2015 sales pre-intra-group eliminations), Europe (25%), UK (22%), China (7%) and Japan (5%). AZN reported an average of £18,396 million in sales and £34,811 million in assets over the CTR period. AZN is headquartered in London, UK and listed on the London Stock Exchange.

Through a merger of Glaxo Wellcome and SmithKline Beecham, GlaxoSmithKline PLC is a UK incorporated (est. 1999) “global healthcare company specialized in the discovery, development, manufacturing and marketing of pharmaceutical, vaccines and consumer health-related products” (MarketLine, 2016). GSK’s primary markets include the US (32% of 2014 sales), Europe (28%), Emerging Markets (27%), and Japan (7%) with the remaining categorized as “other” regions. GSK reported an average of £26,287 million in sales and £40,854 million in assets over the CTR period. GSK is headquartered in Brentford, UK and listed on the London Stock Exchange.

Tax Haven Utilization

Of AZN's 283 subsidiaries in May 2009, 13 or 4.59% were located in OECD tax haven jurisdictions. By July 2011, AZN's subsidiaries in tax havens had increased to 10.20% (26 of 255). By January 2015 AZN reported 10.99% (21 of 191) subsidiaries located in OECD tax havens. Therefore, over the CTR period, AZN experienced a 61.54% increase in the number of subsidiaries or 6.40% increase in the percent of total subsidiaries located in OECD tax havens.

Of GSK's 390 subsidiaries in October 2008, 50 or 12.82% were located in OECD tax haven jurisdictions. By July 2011 and October 2015, 12.62% and 12.91%, respectively, of GSK's subsidiaries (53 of 420 and 59 of 457) were located in OECD tax havens. Therefore, over the CTR period, GSK experienced an 18% increase in the number of subsidiaries or 0.09% increase in the percent of total subsidiaries located in OECD tax havens.

Multinationality

Foreign sales are analyzed as the percentage of total sales unless noted otherwise. AZN reported an average of 93.45% foreign sales over the CTR period. Overall, the percentage of foreign sales varied less than 2% annually. AZN reported a decrease of 2.11% in the percentage of foreign sales (93.3% in 2007 and 91.19% in 2015) over the CTR period. Thus, AZN's foreign sales do not demonstrate an upward or downward trend.

GSK reported an average of 86.83% foreign sales as well as an increase of 0.70% in the percentage of foreign sales over the CTR period. Foreign sales increased from 63% in 2008 to 93.5% in 2009. Subsequently, foreign sales decreased to 56% in 2013. While

the level of firm reporting of geographical information does not support a detailed analysis, GSK made numerous acquisitions during this timeframe which likely impacted the structure of sales (i.e. both foreign and domestic). Given such variation, GSK's foreign sales do not demonstrate an upward or downward trend.

Thin Capitalization

Both AZN's and GSK's debt-to-equity ratio per financial statement data exceeded 1:1 over the entire CTR period. In addition, the interest cover ratio was greater than 3:1 for the entire CTR period. As such, AZN and GSK are not considered thinly capitalized.

AZN's debt-to-equity ratio varied by less than 0.6 over the CTR period while the interest cover ratio varied considerably. The average debt-to-equity ratio and average interest cover ratio over the CTR period is reported at 1.53 and 16.01, respectively per financial statement data. Neither ratio demonstrated a consistent upward or downward trend in thin capitalization over the CTR period. However, the debt-to-equity ratio began trending upward in 2013.

GSK's debt-to-equity ratio and interest cover ratio varied considerably. The average debt-to-equity ratio and average interest cover ratio over the CTR period is reported at 4.21 and 10.99, respectively per financial statement data. Neither ratio demonstrated a consistent upward or downward trend in thin capitalization over the CTR period.

Intangible Assets

Intangible assets and all changes in intangibles are analyzed as a percentage of total assets unless noted otherwise. AZN's intangible assets represent an average of 48%

of total assets over the CTR period. Overall, AZN's intangible assets increased £12,640 million (i.e. an increase of 13% in the percentage of total assets) over the CTR period. While AZN reported a decline in intangibles in three years during the CTR period (i.e. 2009, 2011 and 2013), intangibles as a percentage of total assets as well as total intangibles demonstrate an upward trend.

GSK's intangible assets represent an average of 34% of total assets over the CTR period. Overall, GSK's intangible assets increased £16,008 million (i.e. an increase of 23% in the percentage of total assets) over the CTR period. Overall, intangibles demonstrate an upward trend most notably with the 11.5% increase in 2015.

Transfer Pricing Aggressiveness

In order to measure transfer pricing aggressiveness, related party disclosures were reviewed in the annual financial statements over the CTR period for both AZN and GSK. There were no related party transactions identified where a lack of disclosure gave rise to questions or concerns regarding the arm's length basis of such transactions. However, GSK did not provide specific disclosure stating that related party transactions were conducted at arm's length. Thus, in order to be conservative, one may assume that related party transactions were not at arm's length.

Pharmaceutical Sector Summary

Both AZN and GSK increased the percentage of total subsidiaries located in tax haven jurisdictions. AZN reported the most dramatic change (from 4.59% to 10.99%) while GSK increased by less than 1%. Once again, such findings do not support the notion that a territorial tax system leads to less utilization of tax havens. Similarly, both firm's incentives to utilize tax havens remained steady or increased over the CTR period.

Multinationality as measured by foreign sales did not demonstrate a consistent trend for AZN or GSK. Overall, neither firm reported a variance of more than 2.5% over the CTR period. Both firms reported a significant amount of foreign sales with an average of 94% for AZN and 87% for GSK over the CTR period. Thin capitalization as measured by the debt-to-equity ratio and interest cover ratio do not lead to any conclusive findings. Both firms are highly leveraged, but neither were thinly capitalized. Both firms reported an increase in intangible assets over the CTR period as well as an upward trend in intangibles.

Based upon the review of AZN and GSK, UK firms in the pharmaceutical sector are increasing their use of tax havens and are equally or more likely to utilize tax havens as demonstrated by measures of multinationality and intangible assets.

2.4.5.3. Food and Drink Sector (Diageo and SABMiller)

Business and Geographic Markets

SABMiller PLC is a UK incorporated (est. 1895) global firm “engaged in the production and distribution of beer and soft drinks” (MarketLine, 2016). SAB’s primary markets include South Africa (20% of 2015 sales), Colombia (16%), Australia (11%), UK (2%), US (0.6%) with the remaining categorized in “other” regions. SAB reported an average of £13,081 million in sales and £29,238 million in assets over the CTR period. SAB is headquartered in London, UK and listed on the London Stock Exchange.

Diageo PLC, formed through a merger of Grand Metropolitan PLC and Guinness PLC, is a UK incorporated (est. 1997) “global manufacturer and distributor of premium spirits, beer and wine products” (MarketLine, 2016). DGE’s primary markets include the United States (22.5% of 2015 sales), India (15%), Great Britain (11%), Netherlands

(0.3%), with the remaining categorized in “other” regions. DGE reported an average of £12,214 million in sales and £21,543 million in assets over the CTR period. DGE is headquartered in London, UK and listed on the London Stock Exchange.

Tax Haven Utilization

Of SAB’s 375 subsidiaries in March 2010, 100 or 26.67% were located in OECD tax haven jurisdictions. By July 2011, SAB’s subsidiaries in tax havens remained constant while total subsidiaries decreased to 367. By March 2014 SAB reported 21% (88 of 419) subsidiaries located in OECD tax havens. Therefore, over the CTR period, SAB experienced a 12% decrease in the number of subsidiaries or 5.66% decrease in the percent of total subsidiaries located in OECD tax havens.

Of DGE’s 538 subsidiaries in May 2008, 120 or 22.3% were located in OECD tax haven jurisdictions. By July 2011, DGE’s subsidiaries in tax havens increased to 29.3% (126 of 430). By May 2014, DGE’s subsidiaries in tax havens continued to increase at 34.94% (145 of 415). Therefore, over the CTR period, DGE experienced a 20.83% increase in the number of subsidiaries or 12.63% increase in the percent of total subsidiaries located in OECD tax havens.

Multinationality

SAB reported an average of 94% foreign sales over the CTR period. Foreign sales trended downward from 2007 to 2009 (i.e. 78.5% to 71%), but increased to 98% in 2010 and have varied 2% or less since. Therefore, SAB reported an increase of 21.5% in the percentage of foreign sales and an overall upward trend over the CTR period.

DGE reported an average of 82% foreign sales over the CTR period. Foreign sales varied less than 2% until the 22% decrease in 2013. Foreign sales recovered over 2014 and 2015 ending at 76%, which represents a decrease of 9% over the CTR period.

Thin Capitalization

SAB's debt-to-equity ratio per financial statement data averaged 0.92 over the CTR period and exceed 1:1 only in 2012 and 2013. The interest cover ratio averaged 5.93, varied considerably and was also greater than 3:1 for the entire CTR period. Thus, SAB is not considered thinly capitalized. Neither ratio demonstrated a consistent trend in thin capitalization over the CTR period.

DGE's debt-to-equity ratio per financial statement data averaged 2.38 over the CTR period. The interest cover ratio averaged 5.82. While the debt to equity ratio exceeded 1:1 for the CTR period, the interest cover remained above 3:1. Thus, DGE is not considered thinly capitalized. Neither ratio demonstrated a consistent trend in thin capitalization over the CTR period.

Intangible Assets

SAB's intangible assets represent an average of 48% of total assets over the CTR period. Overall, SAB's intangible assets increased £5,884 million (i.e. a decrease of 12% in the percentage of total assets) over the CTR period. Neither intangibles as a percentage of total assets nor total intangibles demonstrate a consistent trend over the CTR period.

DGE's intangible assets represent an average of 38% of total assets over the CTR period. Overall, DGE's intangible assets increased £6,848 million (i.e. an increase of 11% in the percentage of total assets) over the CTR period. Both intangibles as a percentage of total assets and total intangibles trend upward over the CTR period.

Transfer Pricing Aggressiveness

In order to measure transfer pricing aggressiveness, related party disclosures were reviewed in the annual financial statements over the CTR period for both SAB and DGE. There were no related party transactions identified where a lack of disclosure gave rise to questions or concerns regarding the arm's length basis of such transactions. However, SAB did not provide specific disclosure stating that related party transactions were conducted at arm's length. In addition, DGE did not provide such disclosure in the 2007 or 2008 annual reports. Thus, in order to be conservative, one may assume that related party transactions were not at arm's length.

Food and Drink Sector Summary

Although SAB decreased the percentage of total subsidiaries located in tax havens over the CTR period, the firm maintained 21% tax haven subsidiaries. DGE increased the percentage of total subsidiaries located in tax havens to 35%. DGE's notable (21%) increase was due to both increasing subsidiaries in tax havens and decreasing subsidiaries in non-tax haven jurisdictions over the CTR period. Therefore, while both firms maintain a large percentage of subsidiaries in tax havens, a review of SAB and DGE's tax haven utilization presents conflicting results regarding the notion that a territorial tax system leads to less utilization of tax havens. A review of both firm's incentives to utilize tax havens leads to similar findings.

Both SAB and DGE reported a significant percentage of foreign sales or "multinationality" (i.e. 94% and 82%). SAB's foreign sales increased over the CTR period and demonstrated an upward trend. However, DGE's foreign sales decreased overall but did not demonstrate a consistent trend. Thin capitalization as measured by the

debt-to-equity ratio and interest cover ratio do not lead to any conclusive findings. DGE reported greater leverage, but neither were thinly capitalized. Intangible assets also differ between the firms. While both firms report an increase in total intangibles, SAB's intangibles decrease as a percentage of total assets and do not demonstrate a consistent trend. DGE reported an upward trend in total intangibles and intangibles as a percentage of total assets.

Based upon the review of SAB and DGE, UK firms in the food and drink sector maintain a large portion of subsidiaries (21% to 35%) in tax haven jurisdictions. In addition, both firms have incentives to utilize tax havens as demonstrated by measures of multinationality and intangible assets. However, the trend in such measures cannot be estimated given the variation in incentives between these two firms over the CTR period.

2.4.5.4. Retail Sector (Tesco and J Sainsbury)

Business and Geographic Markets

Tesco PLC is incorporated in the UK (est. 1947) and “operates stores that offer grocery items, general merchandise and other non-food items such as electrical products, health and beauty products, and apparel and jewelry as well as Tesco Bank” (MarketLine, 2016). TESCO's primary markets include the UK (68.9% of 2015 sales), Asia (15.8%), Europe (13.6%) and Tesco Bank (1.6%). TESCO reported an average of £61,053 million in sales and £47,685 million in assets over the CTR period. TESCO is headquartered in Hertfordshire, UK and listed on the London Stock Exchange.

J Sainsbury PLC is incorporated in the UK and “operates supermarkets, convenience stores, online grocery, general merchandise as well as subsidiaries and joint ventures in financial services, property management, energy and entertainment”

(MarketLine, 2016). The UK is SBRY's only separately reported geographical market. SBRY reported an average of £21,900 million in sales and £12,914 million in assets over the CTR period. SBRY is headquartered in Holborn, London and listed on the London Stock Exchange.

Tax Haven Utilization

Of TSCO's 412 subsidiaries in July 2008, 59 or 14.32% were located in OECD tax haven jurisdictions. By July 2011, TSCO's subsidiaries in tax havens increased to 17.39% (100 of 575). By July 2015, TSCO's subsidiaries in tax havens and non-tax havens had decreased resulting in 17.31% in tax havens (54 of 312). Thus, over the CTR period, TSCO experienced an 8.47% decrease in the number of subsidiaries or 3% increase in the percent of total subsidiaries located in OECD tax havens.

Of SBRY's 86 subsidiaries in July 2008, 14 or 16.28% were located in OECD tax haven jurisdictions. By July 2011, SBRY's subsidiaries in tax havens decreased to 13.48% (12 of 89). By July 2015, SBRY's subsidiaries in tax havens had increased to 17.07% (14 of 82). Thus, SBRY experienced no change in the number of subsidiaries and a 0.8% increase in the percent of total subsidiaries located in OECD tax havens over the CTR period.

Multinationality

TSCO reported an average of 32% foreign sales over the CTR period. Foreign sales trended upward from 2007 to 2012 (i.e. 23% to 33%), but trended downward after 2012. Overall, foreign sales varied less than 3.5% annually resulting in a 6% increase in the percentage of foreign sales over the CTR period. SBRY reported no foreign sales over the CTR period.

Thin Capitalization

TSCO's debt-to-equity ratio averaged 2.56 and the interest cover ratio averaged 6.04 over the CTR period. The debt-to-equity ratio exceeded 1:1 and the interest coverage ratio exceeded 3:1 over the entire CTR period. Thus, TSCO is not considered thinly capitalized. Neither ratio demonstrated a consistent trend in thin capitalization over the CTR period.

SBRY's debt-to-equity ratio averaged 1.39 and the interest cover ratio averaged 5.71 over the CTR period. The debt-to-equity ratio exceeded 1:1 over the CTR period. However, the interest cover ratio exceeded 3:1 until 2015. Thus, the firm was not considered thinly capitalized until 2015. While the debt-to-equity ratio trended upward since 2012, the interest cover ratio varied less than 0.8 over the same period until falling to 0.35 in 2015. The significant decrease (7.39) in the interest cover ratio in 2015 is a result of a significant decrease in earnings (i.e. rather than a significant change in interest expense).

Intangible Assets

TSCO's intangible assets represent an average of 8.7% of total assets over the CTR period. Overall, TSCO's intangible assets increased £1,726 million (i.e. an increase of 0.38% in the percentage of total assets) over the CTR period. TSCO's total intangible assets trended upward until 2013 at which point intangibles began a downward trend. Intangible assets as a percentage of total assets varied less than 1.2% over the CTR period.

SBRY's intangible assets represent only 1.6% of total assets over the CTR period. Overall, SBRY's intangible assets increased £150 million (i.e. an increase of 0.14% in

the percentage of total assets) over the CTR period. SBRY's total intangible assets and percentage of total assets trended upward since 2011. However, annual variance over the CTR period is small (e.g. less than 0.38% for the percent of total assets).

Transfer Pricing Aggressiveness

In order to measure transfer pricing aggressiveness, related party disclosures were reviewed in the annual financial statements over the CTR period for both TSCO and SBRY. There were no related party transactions identified where a lack of disclosure gave rise to questions or concerns regarding the arm's length basis of such transactions. However, neither firm provided specific disclosure stating that related party transactions were conducted at arm's length. Thus, in order to be conservative, one may assume that related party transactions were not at arm's length.

Retail Sector Summary

Both TSCO and SBRY increased the percentage of total subsidiaries located in tax haven jurisdictions (i.e. 3% for TESCO and 0.8% for SBRY). However, TSCO decreased the number of subsidiaries located in tax havens while SBRY's remained unchanged over the CTR period. Therefore, based upon the percent of total subsidiaries located in tax havens for these two firms, the retail sector is expanding the use of tax havens. However, a review of the number of subsidiaries located in tax havens leads to inconclusive results. In addition, both firm's incentives to utilize tax havens remained steady or increased over the CTR period.

The retail sector firms are much less multinational from the standpoint of foreign sales and intangible assets. TSCO reported only 32% foreign sales and SBRY reported none. TSCO's reported a small (6%) increase in foreign sales with no consistent trend

over the CTR period. Thin capitalization as measured by the debt-to-equity ratio and interest cover ratio do not lead to any conclusive findings. Both firms are highly leveraged, but neither were consistently thinly capitalized or report a trend toward thin capitalization. Both firms reported an increase in intangible assets over the CTR period. However, neither firm reported a significant amount of intangibles (average of 8.7% total assets for TSCO and 1.6% for SBRY).

Based upon the review of TSCO and SBRY, UK firms in the retail sector are not making significant changes to their use of tax havens. Incentives to utilize tax havens are lower than other sectors as demonstrated by measures of multinationality and intangible assets. There were no significant changes to these measures as well as thin capitalization and transfer pricing aggressiveness over the CTR period.

2.4.5.5. Utilities Sector (BT Group and Severn Trent)

Business and Geographic Markets

BT Group PLC is a UK incorporated (est. 2001) “communications services group providing fixed-line services, broadband, mobile and television products and services as well as networked information technology services” (MarketLine, 2016). BT’s primary markets include the UK (77.5% of 2015 sales), Europe, the Middle East and Africa (13%), America’s (6.2%) and Asia Pacific (3.3%). BT reported an average of £19,432 million in sales and £24,788 million in assets over the CTR period. BT is headquartered in London, UK and listed on the London Stock Exchange.

Severn Trent PLC is a UK incorporated (est. 1989) “environmental services company involved in the supply of water and the treatment and disposal of sewage” (MarketLine, 2016). SVT’s primary markets include the UK (91.6% of 2015 sales) and

the US (7.2%) with the remaining categorized in “other” regions. SVT reported an average of £1,760 million in sales and £7,770 million in assets over the CTR period. SVT is headquartered in London, UK and listed on the London Stock Exchange.

Tax Haven Utilization

Of BT’s 665 subsidiaries in March 2009, 135 or 20.30% were located in OECD tax haven jurisdictions. By July 2011, BT’s subsidiaries in tax havens were 19.58% (112 of 572). By March 2015, BT’s subsidiaries in tax havens and non-tax havens had decreased resulting in 17.10% in tax havens (66 of 386). Thus, over the CTR period, BT experienced a 51% decrease in the number of subsidiaries or 3.2% decrease in the percent of total subsidiaries located in OECD tax havens.

Of SVT’s 107 subsidiaries in January 2008, 7 or 6.54% were located in OECD tax haven jurisdictions. By July 2011, SVT’s subsidiaries in tax havens increased to 10% (10 of 100). By January 2014, SVT’s subsidiaries in tax havens and non-tax havens had decreased resulting in 3.37% in tax havens (3 of 89). Thus, over the CTR period, SVT experienced a 57% decrease in the number of subsidiaries or 3.2% decrease in the percent of total subsidiaries located in OECD tax havens.

Multinationality

BT reported an average of 22.7% foreign sales over the CTR period. The percentage of foreign sales trended upward during the CTR period resulting in an overall increase of 7.8%. SVT reported an average of 13% foreign sales over the CTR period. The percentage of foreign sales varied less than 1.7% annually until decreasing 4.5% in 2015. Overall, SVT’s foreign sales decreased by 4.5%.

Thin Capitalization

BT's debt-to-equity ratio per financial statement data averaged 11.73 over the CTR period. The interest cover ratio averaged 3.82 and fell below 3:1 during 2009 and 2010. However, the interest cover ratio has trended upward since 2010. BT is highly leveraged and the debt-to-equity ratio varied widely over the CTR period. Overall the firm is not considered thinly capitalized.

SVT's debt-to-equity ratio averaged 7.17 over the CTR period. The interest cover ratio averaged 2.11. Thus, SVT is considered thinly capitalized as the debt-to-equity exceeded 1:1 and the interest cover ratio fell below 3:1 for the entire CTR period. The debt-to-equity ratio trended upward while the interest cover ratio trended downward over the CTR period.

Intangible Assets

BT's intangible assets represent an average of 13.5% of total assets over the CTR period. Overall, BT's intangible assets increased by £586 million (i.e. an increase of 1.6% in the percentage of total assets) over the CTR period. Neither intangibles as a percentage of total assets nor total intangibles demonstrate a consistent trend over the CTR period.

SVT's intangible assets represent an average of 2% of total assets over the CTR period. Overall, SVT's intangible assets decreased by £69 million (i.e. a decrease of 1.4% in the percentage of total assets) over the CTR period. Both intangibles as a percentage of total assets and total intangibles trend downward since 2011.

Transfer Pricing Aggressiveness

In order to measure transfer pricing aggressiveness, related party disclosures were reviewed in the annual financial statements over the CTR period for both BT and SVT. There were no related party transactions identified where a lack of disclosure gave rise to

questions or concerns regarding the arm's length basis of such transactions. However, SVT did not provide specific disclosure stating that related party transactions were conducted at arm's length. Thus, in order to be conservative, one may assume that related party transactions were not at arm's length.

Utilities Sector Summary

Both BT and SVT decreased the number and percentage of total subsidiaries located in tax havens over the CTR period. Both firms reported a notable (51% and 57%) decrease in the number of subsidiaries in tax havens. Either measure of tax haven utilization supports the notion that a territorial tax system leads to less utilization of tax havens. However, a review of the changes in the incentives to utilize tax havens lead to inconclusive results for the retail sector.

BT and SVT report a lower percentage of foreign sales (22.7% and 13%) as compared to many of the other sectors reviewed. BT's foreign sales trended upward while SVT's only notable change was reported in 2015 (4.5% decrease). SVT was thinly capitalized during the CTR period, but neither firm's combined debt-to-equity and interest cover ratio demonstrated consistent trends. Intangible assets for the two firms also lead to conflicting results as BT's total intangibles and percentage of total assets increased while SVT's decreased. In addition, SVT's trended downward while BT's did not demonstrate a consistent trend.

Based upon the review of BT and SVT, UK firms in the utilities sector are decreasing the use of subsidiaries in tax havens. Both firms have some incentives to utilize tax havens as demonstrated by measures of multinationality and intangible assets.

However, the trend in such measures cannot be estimated given the variation in incentives between these two firms over the CTR period.

2.5. Results

Results are summarized below for all five sectors and ten firms reviewed in the case studies. Results are categorized by each of the firm characteristics and incentives previously mentioned including: Tax Haven Utilization, Multinationality, Thin Capitalization, Intangible Assets, and Transfer Pricing Aggressiveness. The percentage of intangible assets (i.e. Intangible Assets), percentage of foreign sales (i.e. Multinationality), percentage of tax haven subsidiaries (i.e. Tax Haven Utilization) and debt to equity (i.e. a component of Thin Capitalization) are also presented graphically in Figure 11. In addition, Table 2 presents the tax haven and total subsidiaries of each firm.

Tax Haven Utilization

Of the ten firms studied in case analysis, six increased or held constant the number of subsidiaries located in tax havens. Seven of the ten firms studied increased the percentage of total subsidiaries located in tax havens. Two of the three firms that decreased the percentage of total subsidiaries located in tax havens were in the utilities sector. These results do not demonstrate that in the event of a transition from a worldwide tax system to a territorial tax system, firms will decrease their utilization of tax haven subsidiaries. In fact, the majority of firms studied increased the percentage of subsidiaries located in tax havens.

Multinationality

Of the ten firms studied in case analysis, half increased the foreign percentage of total sales. Three of the four firms that decreased the foreign percentage of total sales

reported a decrease of less than five percent. In addition, six firms reported an average of 79% or greater foreign percentage of total sales over the corporate tax reform period. These results do not demonstrate that in the event of a transition from a worldwide tax system to a territorial tax system, firms will decrease their multinationality or foreign percentage of total sales. In fact, the majority of firms studied maintained a significant (i.e. greater than 79%) average foreign percentage of total sales.

Thin Capitalization

Overall results from the ten firms studied reveal that each firm's combined debt-to-equity and interest cover ratio fail to demonstrate consistent trends. The debt-to-equity ratio varied considerably, but generally trended upward for six firms. The debt-to-equity did not demonstrate a consistent downward trend for any of the ten firms. The interest coverage ratio also varied considerably and generally trended upward for three firms and downward for three firms. As such, none were consistently thinly capitalized and none reported a trend toward thin capitalization over the corporate tax reform period. These results do not demonstrate that in the event of a transition from a worldwide tax system to a territorial tax system, firms will decrease their thin capitalization. However, the debt-to-equity ratio specifically does appear to remain consistent or increase for all but one firm.

Intangible Assets

The value of intangible assets increased for nine of the ten firms studied over the corporate tax reform period. The percentage of intangible assets increased for eight of the firms studied and averaged 38% or above for half of the firms studied. While intangible assets varied for the majority of firms over the corporate tax reform period, they generally trended upward for six (and downward for two) of the firms studied. These

results do not demonstrate that in the event of a transition from a worldwide tax system to a territorial tax system, firms will decrease intangible assets. In fact, the majority of firms increased intangible assets over the corporate tax reform period.

Transfer Pricing Aggressiveness

The review of transfer pricing aggressiveness for the ten firms studied did not reveal any consistent trends or changes in transfer pricing aggressiveness over the corporate tax reform period.

2.6. Conclusions

If multinational corporate entities are disadvantaged by a worldwide tax system (i.e. as compared to firms that reside under a territorial tax system), then one may expect firms to take advantage of opportunities to mitigate such disadvantages. Corporate tax avoidance methods comprise numerous strategies designed to lower the tax liabilities of such firms. While lower tax liabilities provide a direct benefit to the firm, they negatively impact the government's ability to collect corporate tax revenue. One possible solution to the issue of corporate tax avoidance is to transition worldwide tax systems to territorial tax systems. The goal of such a transition is often to reduce or eliminate many of the added taxes imposed by worldwide tax systems. Perhaps most important of such added taxes is the domestic tax on foreign earnings.

The review of corporate tax avoidance methods and related firm-level incentives to conduct such methods revealed several incentives to utilize tax havens as an instrument to conduct corporate tax avoidance. Incentives such as Multinationality, Transfer Pricing Aggressiveness, Thin Capitalization and Intangible Assets have been found to be associated with tax haven utilization (Richardson & Taylor, 2015). A case study approach

has been utilized to examine the behavior of ten firms in five industries within the United Kingdom. Since the United Kingdom transitioned to a territorial tax system, the behavior of firms within multiple sectors is examined to evaluate whether firms reduce either the utilization of tax havens or associated incentives.

The review of tax haven utilization, multinationality, thin capitalization, intangible assets and transfer pricing aggressiveness revealed little evidence to support that firms reduce the utilization of tax havens or demonstrate fewer incentives. The majority of firms studied increased the percentage of subsidiaries located in tax havens, maintained a significant (i.e. greater than 79%) average foreign percentage of total sales (a.k.a. multinationality) and increased intangible assets over the corporate tax reform period. In addition, firms did not demonstrate a trend of becoming less thinly capitalized or less aggressive in transfer pricing.

The results from the case analysis are intuitive given that tax havens are by design more tax advantageous than even non-tax-haven territorial tax systems. As such, despite efforts to make tax systems more competitive, tax havens likely prevail in providing firms with the superior tax advantages. That is, for example, how could a non-tax-haven jurisdiction compete with zero corporate tax rates? The resulting implications are evident; governments may risk additional tax revenue by converting to territorial tax systems without realizing the desired benefits of firms utilizing fewer tax havens and conducting fewer corporate tax avoidance strategies.

3. ESSAY ON CORPORATE INVERSIONS: EARNINGS SHIFTING AND THE VALUE IMPLICATIONS OF CASH HOARDS

3.1. Overview

While the inversion process, incentives to invert and impact of corporate inversions vary, all corporate inversions represent an attempt to reorganize the corporate structure outside the original domestic corporate tax jurisdiction. Corporate inversions have taken place since the early 1980s, but the methods used to invert have changed dramatically. Regulatory action taken to subdue inversions is largely responsible for such change. In order to “invert” the corporate structure whereby the home-country domestic parent (foreign subsidiary) becomes the subsidiary (parent), MNCs have utilized multiple inversion methods (stock-for-stock transfers, asset transfers, mergers, acquisitions, etc.). Regardless of the methods used to invert the corporate structure, the inverted MNC is able to take advantage of numerous tax benefits as described below. Post-inversion the MNC will also have greater ability to strategically locate its subsidiaries, and arguably its earnings, in the most tax-advantageous locations (e.g. territorial tax systems, tax-havens, etc.).

While corporate inversions have been highly debated in the public press, and in the extant literature, related costs and benefits have not been fully explored (Babkin, Glover, & Levine, 2016). It is also important to note that the implications of corporate inversions may be reviewed from several perspectives including the implications for the corporate entity, shareholders, and domestic and foreign governments. However, this research will focus on the value implications to the firm examined through share value with particular focus on firms with permanently reinvested earnings in foreign jurisdictions.

3.2. Literature Review

3.2.1. Corporate Inversion Process

Inversion activity for U.S. MNCs began in the early 1980s. Approximately 92 corporate inversions have taken place since 1983 (two are still pending, but were announced in the same manner as those completed). Inversion activity is generally categorized and described in phases; Phase I (1993 to 2002) and Phase II (2006 to 2014). As shown on Figure 5, the majority of corporate inversions have taken place within these two phases.

Implementation of various anti-inversion regulation impacted the type and substance of the inversions completed within each phase. Phase I inversions were primarily paper based transactions and resulted in little movement of real economic activity. Phase I inversions were often in the form of stock or asset transfers. While the MNC implementing a Phase I inversion became incorporated in a foreign jurisdiction, few firms relocated executive management or significant earnings to the foreign jurisdiction. In Phase II inversions, MNCs responded to anti-inversion regulations requiring economic substance in the foreign jurisdiction in order to avoid tax penalties. MNCs began merging and acquiring foreign businesses to increase the economic activity within the foreign jurisdiction. Thus, Phase II inversions may be considered a greater threat to both government tax collection and the overall domestic economy. Inversion activity slowed in 2015 when new anti-inversion regulation further limited MNCs use of permanently reinvested foreign earnings and made further attempts to close regulatory “loopholes”. The overall impact of this most recent regulation cannot be fully observed at this time. It is clear that inversions have slowed, but not stopped completely. Inversion

activity within each phase is described below. Table 5 includes a listing of 92 corporate inversions since 1983.

3.2.1.1. Phase I Inversions

Phase I inversions often took the form of stock-for-stock transfers (i.e. stock inversions) whereby U.S. shareholders exchange stock of the U.S. parent for the stock of a foreign entity (Desai & Hines, 2002) (Desai M. A., 2002) (Seida & Wempe, 2002) (Cloyd, Mills, & Weaver, 2003a) (Cloyd, Mills, & Weaver, 2003b) (Chorvat, 2016). The foreign subsidiary is often located in a territorial tax system, tax-haven, lower-tax jurisdiction or tax-favored area due to lower corporate tax rates and other favorable tax regulation. Bermuda and the Cayman Islands were common relocation destination points as they do not impose corporate income tax (Marples & Gravelle, 2014). As displayed in Figure 6, shareholders exchange shares in the pre-inversion parent located in a domestic tax jurisdiction for shares of a holding company located in a foreign tax jurisdiction. Shareholders are required to report a gain on the exchange of stock under U.S. rules (Desai & Hines, 2002) (Desai M. A., 2002) (Babkin, Glover, & Levine, 2016) (Chorvat, 2016). That is, any previously unrecognized gains in shares of the pre-inversion parent firm is assessed capital gains tax upon inversion based upon the difference between the fair market value and tax basis (i.e. acquisition cost) of shares. While generally not assessed on shares held in IRAs and 401(k)s, those shares owned by individual stockholders and mutual funds would owe tax regardless of whether they sell (Marples & Gravelle, 2014) (Babkin, Glover, & Levine, 2016).

Taking into account a shareholder's tax basis, Babkin (2015) values shareholders return to inversion and finds that the average shareholder realizes a positive net benefit

due to the reduction in corporate income tax. However, shareholder returns were found to vary widely and were significantly negative for many shareholders.

In a similar form of inversion, also displayed in Figure 6, the assets of the pre-inversion parent located in a domestic tax jurisdiction (DTJ) are transferred to a holding company located in a foreign tax jurisdiction (FTJ). For example, referring to Figure 6, the assets of the DTJ parent are transferred to the FTJ parent holding company. In exchange, stock in the post-inversion foreign parent holding company is transferred to the pre-inversion domestic parent (i.e. from the FTJ parent to the DTJ parent). The pre-inversion domestic parent (i.e. DTJ parent) must recognize a taxable gain based upon the difference between the fair value and the cost basis of the assets transferred. Finally, the pre-inversion domestic parent (i.e. DTJ parent) is liquidated and shareholders receive shares in the post-inversion foreign parent (i.e. FTJ Parent) (Desai & Hines, 2002) (Cloyd, Mills, & Weaver, 2003a). As long as the transaction qualifies as a reorganization, the shareholders will hold their shares in the post-inversion foreign parent with the same tax basis and holding period as with shares of the pre-inversion domestic parent (Treasury, 2002).

Phase I inversions are often referred to as “naked inversions” as they result in little movement of control or meaningful economic activity (e.g. headquarters location, capital or employment) (Marples & Gravelle, 2014). That is, the parent’s tax jurisdiction (e.g. place of incorporation) changes while business operations and the location of executive management remains unaffected. The change in place of incorporation is merely a legal change. In the well-known case of Ingersoll-Rand’s inversion from the United States (i.e. New Jersey) to Bermuda, business operations were not impacted,

headquarters location did not change, directors and officers did not change, shares continued to trade on the NYSE using ticker “IR” and the firm remained a member of the S&P 500 index (Goldman, 2008). The Ingersoll-Rand (IR) inversion may be summarized into five steps; two of which reveal characteristics of an asset inversion and the remaining three steps reveal characteristics of a stock inversion. As Goldman (2008) describes in greater detail, the five steps include: (1) pre-merger transfers of shares of IR subsidiaries and IR debt issuance to Ingersoll-Rand Limited, a pre-inversion Bermuda subsidiary of IR; (2) in exchange, pre-merger IR Ltd. issuance of class B stock to IR and its subsidiaries; (3) the creation of Ingersoll-Rand Merger Corporation (IR-MC) for purposes of the subsequent merger into IR; (4) conversion of IR Ltd.’s IR-MC shares into IR shares; and (5) conversion of IR shares into IR Ltd. Class A shares. Figure 8 and Figure 9 apply the case of Ingersoll-Rand to the general corporate inversion process and corporate structure changes outlined in Figure 6 and Figure 7. The resulting corporate structure moved the tax jurisdiction of the parent and foreign subsidiaries outside of the U.S. worldwide tax system. Instead, IR Ltd of Bermuda will owe U.S. tax on the business conducted by the U.S. subsidiary within the United States.

The American Jobs Creation Act (AJCA) of 2004 (applicable to inversions after March 4, 2003) effectively ended Phase I inversions by disallowing the associated tax benefits if the post-inversion foreign parent was owned by the pre-inversion domestic parent’s shareholders (i.e. owned 80% or greater ownership share) (Marples & Gravelle, 2014) (Marian, 2015). That is, the post-inversion parent is treated as a domestic firm for tax purposes if it does not meet the 80% requirement. Alternatively, if less than 80% ownership, but greater than 60%, the inverted firm owes domestic taxes on asset transfers

but is not treated as a domestic firm. However, inversion activity continued even after the AJCA. Perhaps as an unintended consequence of the AJCA, many argue that MNCs were encouraged to conduct corporate inversions using methods that result in the movement of meaningful economic activity (Rao, 2015). Two primary methods of inverting post-AJCA were through mergers or purchases of smaller foreign firms (Marian, 2015). Both methods are commonly used in Phase II inversions and are more likely to result in the movement of economic activity such as an increase in foreign sales.

3.2.1.2. Phase II Inversions (post-2004)

The AJCA did not disallow tax benefits associated with inversions where the MNC can demonstrate substantial business operations in the post-inversion parent's location. The percentage requirement to meet "substantial" was initially set at 10% but has since been increased (e.g. 25% of group income in June 2012) (Marples & Gravelle, 2014). A U.S. MNC could merge with a smaller foreign firm whereby at least 25% of the new foreign parent's employees, assets and sales were located in the new foreign jurisdiction (Marian, 2015). As the required percentage of business operations in the post-inversion parent's location increased, this method of inversion also became less common.

In addition, the AJCA did not prevent MNCs from merging with a foreign corporation to avoid ownership requirements. Ownership requirements are avoided if pre-inversion shareholders own 80% or less ownership share of the post-inversion foreign parent (Marples & Gravelle, 2014) (Marian, 2015). MNCs often utilize a holding company loaded with debt in order to acquire target firms (i.e. debt push-down strategies) and avoid the 80% ownership (Belz, Robinson, Ruf, & Steffens, 2013). However, further regulatory action taken in September, 2014 limits inverted firms access to accumulated

unrepatriated foreign earnings and closed “loopholes” allowing firms to avoid the 80% rule previously discussed (Marples & Gravelle, 2014).

3.2.2. Corporate Inversion Incentives

MNCs must weigh the tax consequences and incentives in determining whether corporate inversion will benefit the firm. Consequences include the taxes associated with capital gains previously discussed as well as withholding taxes on payments made to the post-inversion parent (Desai & Hines, 2002) (Desai M. A., 2002). However, there are several potential incentives to invert the corporate structure. Underlying each potential incentive is the desire to legally avoid corporate income tax. Corporate income tax avoided through inversion is often measured by the corporate income tax rate and the financial statement effective tax rate (ETR) (Seida & Wempe, 2002). Corporate inversion allows the MNC to avoid domestic corporate income tax on both domestic earnings and foreign earnings (e.g. avoid U.S. tax on income earned within the U.S. and income earned offshore). In examining the abnormal returns associated with 1- and 5-day windows comparing a small sample (19) of inverting firm stock returns with the S&P 500 index, Desai (2002) found that the probability of inverting increased with firm size, proportion of foreign assets, leverage and tax-haven utilization. Firm size, proportion of foreign assets and leverage represent determinants that were previously described in evaluating tax-haven utilization. Thus, as one might expect, inverting firms are also commonly those that utilize tax-havens.

Depending on the MNC’s specific corporate and tax structure (e.g. pre- and post-inversion corporate tax rate, tax system, accumulated unrepatriated earnings, etc.), incentives to invert differ among entities. Corporate inversions allow MNCs to reduce the

global effective tax rate using one or more of several related corporate tax avoidance strategies. For instance, using a sample of 12 inversion firms and 24 matched control firms, (Seida & Wempe, 2004) found a 11.52% reduction in the effective tax rate of inverted firms. The reductions in tax liabilities are not associated solely with the pre-inversion and post-inversion parent entities. The corporate group is able to benefit from many of the corporate tax avoidance strategies accessible through corporate inversion (Chorvat, 2016).

Certain strategies are inherently beneficial such as inverting the corporate structure to place the MNC parent company in a jurisdiction with a lower corporate tax rate. Similarly, if the parent is relocated within a territorial tax system, the MNC will no longer owe worldwide tax in its domestic tax jurisdiction. There are additional benefits to MNCs that, prior to the inversion, had accumulated earnings in foreign jurisdictions which were unrepatriated. Post-inversion the MNC is able to access previously unrepatriated earnings without incurring tax liabilities associated with repatriation. Desai (2002) notes that MNCs benefit from both a reduction in taxes associated with repatriation and a reduction in the costs associated with avoiding such taxes.

In addition to the methods described above which allow the MNC to avoid home-country (pre-inversion) tax on foreign-source earnings (i.e. worldwide tax), MNCs utilize additional corporate tax avoidance strategies to avoid home-country (pre-inversion) tax on domestic-source earnings (Seida & Wempe, 2004). These additional corporate tax avoidance strategies are less discernable or direct, yet are quite beneficial. These promote tax savings through more complex transactions, strategic arrangements and allocation of company assets and liabilities and include the earnings shifting strategies previously

discussed. Such strategies allow the MNC to relocate its earnings to the most tax-favorable jurisdiction. Seida (2004) found that the majority of tax savings realized by inverted firms relates to the avoidance of U.S. tax on U.S. earnings. MNCs also strategically locate intangible asset development to reduce the corporate tax burden (Chorvat, 2016). Highly leveraged MNCs also benefit from the ability to more fully utilize debt related tax-deductible interest expense (i.e. interest tax shields) (Desai & Hines, 2002) (Desai M. A., 2002).

3.2.3. Earnings Shifting, Earnings Stripping and Permanently Reinvested Earnings

Corporate earnings shifting and earnings stripping refers to corporate tax avoidance strategies whereby MNCs relocate taxable earnings from higher-tax jurisdictions to lower-tax jurisdictions. Several methods of corporate earnings shifting have been discussed which involve aggressive transfer pricing, debt allocation strategies and utilization of intangible assets. Each of these methods allows a MNC to utilize foreign subsidiaries located in tax-favorable jurisdictions to “shift” earnings away from the higher-tax jurisdiction or “strip” earnings from the higher-tax jurisdiction (e.g. tax deductible expenses such as interest expense incurred on debt) and lower its effective tax rate. Tax savings achieved through such methods are believed to outweigh the tax savings achieved through simply reducing the corporate tax rate or avoiding worldwide tax (Seida & Wempe, 2002) (Treasury, 2002). Marples (2014) suggests that “a lot of income from foreign sources is really U.S. income in disguise.” That is, income shifted from the U.S. to foreign jurisdictions.

As a result of such earnings shifting, MNCs accumulate large sums of earnings in (often lower-tax) foreign subsidiaries. Under a worldwide tax system, such permanently reinvested earnings (also known as unrepatriated foreign earnings, cash hoards, trapped earnings, locked-out earnings or constrained earnings) remain untaxed by the MNCs domestic tax system until repatriated or invested in domestic assets. Thus, permanently reinvested earnings (PRE) are “retained earnings of foreign subsidiaries for which no domestic income tax has been recognized” (Bryant-Kutcher, Eiler, & Guenther, 2008). Bryant-Kutcher (2008) make a distinction between PRE reinvested in foreign operating assets versus foreign financial assets which incur domestic tax only on investment income (i.e. U.S. Subpart F rules). While the MNC might often develop foreign reinvestment strategies sufficient to satisfy firm shareholders, feasible reinvestment strategies are not permanently sustainable. To the extent that positive net present value projects are no longer available for reinvestment, permanently reinvested earnings is held in cash or cash equivalents. However, external to the firm it is difficult to determine the proportion of corporate cash held in foreign jurisdictions.

Thus, rather than repatriate PRE (e.g. to fund dividends or treasury stock), MNCs first exhaust profit maximizing foreign operating investment opportunities and then pursue foreign income generating financial asset investments. Foley (2007) examines whether the magnitude of cash held by MNCs is due to the efforts of firms to avoid corporate repatriation tax and finds that higher repatriation tax burdens result in higher cash balances (Foley, Hartzell, Titman, & Twite, 2007). MNCs erode the domestic tax base through a combination of such PRE investment strategies and tax related arbitrage strategies (Kleinbard, 2011). For instance, in order to meet domestic cash flow needs,

MNCs supplant “locked-out” earnings with domestic borrowing. Related domestic interest expense deductions reduce domestic taxable earnings and erode the domestic tax base. The simultaneous “locked-out” earnings, which are often earning domestically-untaxed returns offshore, and available domestic borrowing create opportunities for tax arbitrage.

In addition, firms can avoid domestic tax on unrepatriated foreign earnings by inverting the corporate structure (Marian, 2015). As shown in Figure 7, pre-inversion repatriations from the foreign jurisdiction to the domestic jurisdiction incur repatriation tax. Post-inversion, the newly created foreign parent has access to the previously unrepatriated foreign earnings as well as future foreign earnings of foreign subsidiaries and bypasses the pre-inversion domestic parent (post-inversion domestic subsidiary) entirely. Thus, post-inversion it becomes unnecessary for the MNC to transfer to the domestic tax jurisdiction and repatriation tax is avoided.

As PRE accrue in the foreign subsidiaries of MNCs, the value implications of such earnings becomes an increasingly important question. Given that there is a limited set of optimal reinvestment opportunities in the foreign jurisdiction, one can expect that suboptimal reinvestment strategies are implemented in regard to permanently reinvested earnings (Kleinbard, 2011). To the extent that shareholders suspect being disadvantaged by PRE, they likely perceive value in the firm’s ability to access unrepatriated earnings through corporate inversion. That is, without paying repatriation tax to the domestic jurisdiction.

3.2.4. Market Response to Inversion Announcements

Prior literature has attempted to evaluate the markets' response to announcements of corporate inversions. The methodologies used and related results have varied widely and overall resulted in inconclusive findings. Cloyd (2003) notes that "economic theory suggests that the change in share price at the time of the inversion announcement should reflect the present value of the expected net benefit to shareholders". However, overall prior literature regarding the market response to inversion announcements lacks any conclusive evidence that the market reacts positively or negatively. Relevant prior literature is summarized below. It is important to note that none of the prior literature described below incorporate permanently reinvested earnings into the research methodology in the manner described in this research methodology.

Given the limited number of inverted firms, many of the relevant prior literature noted below including (Desai & Hines, 2002) (Seida & Wempe, 2002) (Seida & Wempe, 2003) (Cloyd, Mills, & Weaver, 2003a) (Cloyd, Mills, & Weaver, 2003b) incorporate the same firms in their samples. Of the 19 firms studied by Seida (2003), 18 are used in one or both of Desai (2002) and Cloyd (2003a, 2003b) (Seida, 2003).

Dasai (2002) employs three methodologies to evaluate the economic factors of corporate inversions, one of which is an event study. Desai (2002) analyzed "one-day and five-day differences between returns to holding identified stocks and the returns to holding the S&P500 index". Desai (2002) found that stock prices react on average positively to inversion announcements (10 of 19 firms) with a 1.7 percent appreciation over a five-day window. The price appreciation was more pronounced for those that were highly leveraged or had increased in value over the prior year. However, these findings were not statistically significant.

Seida and Wempe (2002) also employ an event study methodology and analyze cumulative abnormal returns associated with the market's response to inversion announcements (i.e. board approval and shareholder approval) over a three-day window using the S&P500 index (i.e. estimation window of -260 through -11). While abnormal returns associated with board approval, on average, are not found statistically significant, the mean cumulative abnormal returns associated with shareholder approval are found statistically significant. Seida and Wempe (2002) further separate firms into pre- and post-Autumn 2001 and find that the market's reaction post-2001 does not uphold statistical significance.

Seida and Wempe (2003) extended the 2002 study of cumulative abnormal returns associated with inversion announcements and found that such market reaction is associated with certain "tax profiles" or firm attributes such as foreign tax credits and post-inversion realized changes in effective tax rates.

Cloyd (2003a, 2003b) utilize approximate randomization procedures to investigate the market's response to inversion announcements for a sample of 19 inverted MNCs by comparing firm level and portfolio abnormal returns. Testing the statistical significance of cumulative abnormal returns (i.e. two-day and five-day) around the inversion date, Cloyd (2003) found only 9 with significant returns; 7 of which were negative and "find no evidence to suggest that share prices increase in response to inversion announcements". Both the S&P500 and CRSP daily value-weighted market return are used as proxies by randomly selecting two or five days over a 250-trading day period (i.e. -250 to -5). Through descriptive analysis, Cloyd (2003) also compared inverting firms to industry averages and found that inverting firms are larger, have lower

leverage, higher ETRs and decreased stock prices. However, post-inversion leverage and ETRs moved closer to industry averages.

None of the above event studies find statistically significant abnormal returns, on average, associated with board approval and announcement (Desai & Hines, 2002) (Desai M. A., 2002) (Seida & Wempe, 2002) (Seida & Wempe, 2003) (Cloyd, Mills, & Weaver, 2003b). However, some evidence of statistically significant abnormal returns associated with shareholder approval and announcement is identified.

In addition, Chorvat (2015) employs a bootstrap methodology (i.e. running random combinations of an equal number of S&P500 companies as inverting companies in order to compile hypothetical investment portfolios) and notes statistically significant excess returns in the years post-inversion. This methodology models the abnormal return “as the cumulative average return to a buy and hold portfolio of inverting firms” (Chorvat, 2016). Given the time lag between the inversion announcement and the calculation of the market price-based tax cost of the inversion (i.e. at the inversion date), Chorvat (2016) infers that managers must believe they have asymmetric information regarding company value. Otherwise, managers would not expose shareholders to inversion-related gains.

Babkin (2015) examine a sample of 73 corporate inversions from 1983 to 2014 by using equity returns for inversion transactions and computing CARs from a market model of expected returns. Babkin (2015) uses an estimation window of -120 through -21 and a 5-day event window. Similar to prior literature, many of the inversions studied resulted in low or negative (approximately 60% positive) CAR around the inversion date.

3.3. Research Question(s)

As described above, an examination of the market response to inversion announcements has led to inconclusive results overall. In addition, prior literature does not consider the impact of earnings shifting (i.e. through permanently reinvested earnings) on the estimated change in share value due to corporate inversions. To the extent that shareholders view large pre-inversion permanently reinvested earnings negatively due to expected reductions in the firm's ability to maximize share value, shareholders are expected to increase their value of the inverting firm. That is, share value should increase more for an inverting firm with permanently reinvested earnings than one without. As discussed further in the following methodology (e.g. H2):

All else being equal, inverting firms with aggressive earnings shifting strategies, as evidenced by permanently reinvested earnings, will realize a more significant market value reaction to corporate inversion.

3.4. Data and Methodology

An event study methodology is used to measure the market's reaction to the inversion announcement. If the market expects that the inversion will have a positive impact on firm value, then one may expect market participants to incorporate such information into the price of the security resulting in a price increase in response to the inversion announcement. As noted previously, examination of the market response to inversion announcements has led to inconclusive results overall. Therefore, firm-specific positive and negative cumulative abnormal returns as well as varied results regarding the significance of such returns are expected in the current analysis. However, furthering

prior literature, the permanently reinvested earnings of inverting firms is considered in relation to the cumulative abnormal returns described below.

Since its introduction in foundational literature such as (Fama, Fisher, Jensen, & Roll, 1969), the event study has become widely known for studying the market reaction to a particular event. The event study methodology may be organized into a five-step process (Dasgupta, Laplante, & Mamingi, 1998). First, the events and event windows are identified. The events in the current research are the announcements of corporate inversions. The event window describes the time period, before and after the event, that is analyzed to determine the market's reaction to the event. Event windows of 3-days, 5-days (i.e. two days prior and two days subsequent to the event) and 9-days are used.

Next, the sample of firms is selected. As previously described, corporate inversions have a long history dating back to the 1980's. Lists of inversion announcements have been published most recently by Babkin (2015) and Rao (2015) (i.e. Table 5: Corporate Expatriations, 1982 – 2016) as well as others such as Desai and Hines (2002). While the research questions and approach differ in such prior work, the corporate inversion announcement data may be utilized in the current work. While the current research utilizes the firm's announcement of the corporate inversion as the event date, it is recognized that the ability to observe changes in share value may be impacted by any "noise" surrounding the event date (e.g. early release of inversion information prior to formal announcement).

For each of the inverted firms, as shown in Table 5, equity return data is acquired via DataStream over both the event windows (3-day, 5-day and 9-day) and estimation window (-120 through -30) as described below. In addition, permanently reinvested

earnings for each firm is manually identified (i.e. as made available in financial statements and related notes) around the inversion announcement date. Identification of firm-specific permanently reinvested earnings will permit the comparison of event study abnormal returns to permanently reinvested earnings as shown in Figure 10.

Next, a “normal” return is estimated for each security under the assumption that the event did not take place. Various models may be used to estimate the normal return including the market model described below, which assumes a linear relationship between the returns of a security and a market portfolio (Dasgupta, Laplante, & Mamingi, 1998) (Babkin, Glover, & Levine, 2016). The following model is estimated over a 90-day period 30 days prior to the event (i.e. the estimation window or $t = -120$ to $t = -30$) in order to estimate the normal return:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \epsilon_{i,t}$$

where t is the time index and $t = 0$ is the date of the inversion announcement, i is the firm security (equity), $r_{i,t}$ is the equity return for firm i at time t , $r_{m,t}$ is the return on the market portfolio at time t . The error term for security i at time t is $\epsilon_{i,t}$. Using the resulting α_i and β_i from the above equation, the following estimated normal return is calculated for the event window:

$$r_{i,t}^* = \hat{\alpha}_i + \hat{\beta}_i r_{m,t}$$

where $r_{i,t}^*$ is the expected return for firm i at date t ; and where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the estimated coefficients for firm i in the regression.

Next, the estimated abnormal return (i.e. AR or the difference between the actual return and estimated normal return) is calculated for the event window as:

$$AR_{i,t} = r_{i,t} - \hat{\alpha}_i - \hat{\beta}_i r_{m,t}$$

Similarly, cumulative abnormal returns (CAR) around firm i 's inversion announcement are calculated (as follows using a 5-day event window):

$$CAR_i = \sum_{t=-2}^{+3} (r_{i,t} - r_{i,t}^*)$$

Finally, a t-test is performed to determine whether the abnormal return is statistically different from zero. The test is performed for each individual event as well as the aggregate abnormal returns for all events.

After completing the event study methodology, a cross-sectional analysis is performed to determine whether cumulative abnormal returns are associated with firm-specific variables, country-specific variables and other control variables as noted below and in Equation 1. This includes permanently reinvested earnings.

Given the long timespan over which inversions have taken place and the numerous regulatory changes that have been implemented, the phase of the inversion (PHASE) is included in the cross-sectional analysis. If regulatory actions have been successful in terms of governmental tax revenue collection, then firms conducting Phase I inversions are expected to demonstrate greater cumulative abnormal returns than those conducted in later years. That is, shareholders place a greater value on Phase I inversions as there were fewer regulations preventing firms from generating value (e.g. reducing tax liabilities) from the inversion transactions.

H1: All else being equal, Phase I inversions are expected to demonstrate greater cumulative abnormal returns than those conducted in later years (i.e. Phase II and forward).

As previously discussed, permanently reinvested earnings in foreign jurisdictions are expected to increase the value of the inversion to the shareholder. Subsequent to the inversion the firm will have access to such earnings without paying standard corporate tax to the original domestic jurisdiction. Shareholders are expected to view such access positively as the earnings may be utilized in a manner that maximizes shareholder wealth rather than simply minimizing taxes. Permanently reinvested earnings reported near the inversion date are included in the cross-sectional analysis (PRE). Unfortunately, such earnings are not commonly reported. Only 28 of the 56 firms studied in the cumulative abnormal return model and cross sectional analysis report permanently reinvested earnings. Shareholders are expected to place a greater value on the shares of inverting firms with permanently reinvested earnings. Therefore, inverting firms with greater permanently reinvested earnings are expected to generate greater cumulative abnormal returns.

H2: All else being equal, inverting firms with greater permanently reinvested earnings are expected to demonstrate greater cumulative abnormal returns.

Also included in the cross-sectional analysis are three of the firm-level incentives to shift earnings; Multinationality (MULT), Thin Capitalization (TCAP) and Intangible

assets (INTANG). Firms that demonstrate a higher degree of such firm-level incentives are more likely to shift earnings, utilize tax havens to do so (Richardson & Taylor, 2015), and thus are expected to accumulate more permanently reinvested earnings. As described above, greater PRE is expected to result in higher levels of cumulative abnormal returns. Multinationality is evaluated as the degree of foreign operations (i.e. foreign revenue) as compared to domestic operations (i.e. domestic revenue). Thin Capitalization is evaluated based upon the debt to equity ratio and interest coverage ratio. Intangible assets are evaluated based upon the proportion of non-monetary and non-physical assets to total assets. All financial data is as of the fiscal year ended prior to the inversion date.

H3: All else being equal, inverting firms with greater levels of multinationality are expected to demonstrate greater cumulative abnormal returns.

H4: All else being equal, inverting firms with higher levels of thin capitalization are expected to demonstrate greater cumulative abnormal returns.

H5: All else being equal, inverting firms with greater intangible assets are expected to demonstrate greater cumulative abnormal returns.

A country's corporate tax rate is expected to impact a firm's decision to conduct corporate tax avoidance strategies including corporate inversion as firms seek to minimize corporate tax liabilities. A higher corporate tax rate in the pre-inversion domestic jurisdiction of the parent company, as compared to the post-inversion

jurisdiction, is expected to generate greater tax savings associated with inverting the corporate structure to a lower tax jurisdiction. As such, shareholders are expected to place a greater value on corporate inversions where the difference between the corporate tax rate of the pre-inversion and post-inversion jurisdiction is greater. The country-specific post-inversion corporate tax rate for each firm is included in the cross-sectional analysis (TRATE). Since many of the firms studied invert the corporate structure to a tax haven jurisdiction, this variable often equals zero. A lower corporate tax rate in the post-inversion jurisdiction results in a greater difference between the corporate tax rate of the pre-inversion and post-inversion jurisdiction. The greater the difference between pre- and post-inversion tax rates, the greater the value shareholders are expected to place on the shares of inverting firms.

H6: All else being equal, inverting firms with greater post-inversion corporate tax rates are expected to demonstrate lower cumulative abnormal returns.

Each of the variables described above in H1 through H6 are reported in Table 8 along with the predicted sign for each variable. 56 firm-level observations are used to estimate the following equation.

$$CAR = \beta_1 PHASE + \beta_2 PRE + \beta_3 MULT + \beta_4 TCAP + \beta_5 INTANG + \beta_6 TRATE + \varepsilon$$

where:

CAR; is the 3-day cumulative abnormal return as estimated in the event study previously described.

PHASE; is a binary variable coded as 1 if the corporate inversion was announced prior to Phase II (2006 to 2014); 0 otherwise.

PRE; is firm-specific permanently reinvested earnings in foreign jurisdictions.

MULT; is firm-specific foreign percentage of total revenue.

TCAP; is the firm-specific debt to equity ratio multiplied by the interest coverage ratio.

INTANG; is the firm-specific percent of total assets invested in intangibles.

TRATE; is the corporate tax rate in the target foreign country (i.e. post-inversion corporate tax rate). Tax rates used are those in the year the firm-specific corporate inversion was announced.

3.5. Results

Table 6 reports the results of the cumulative abnormal return model for 3-day, 5-day and 9-day event windows. The 3-day event window resulted in 28 firms with negative cumulative abnormal returns and 28 firms with positive abnormal returns. Cumulative abnormal returns for six firms were significant as shown by the results of t-tests. Of those that were deemed significant, positive cumulative abnormal returns were calculated for four firms and negative cumulative abnormal returns for two firms.

The 5-day event window resulted in 27 firms with negative cumulative abnormal returns and 29 firms with positive abnormal returns. Cumulative abnormal returns for five firms were significant as shown by the results of t-tests. Of those that were deemed significant, positive cumulative abnormal returns were calculated for three firms and negative cumulative abnormal returns for two firms.

The 9-day event window resulted in 25 firms with negative cumulative abnormal returns and 31 firms with positive abnormal returns. Cumulative abnormal returns for eleven firms were significant as shown by the results of t-tests. Of those that were deemed significant, positive cumulative abnormal returns were calculated for six firms and negative cumulative abnormal returns for the remaining five firms.

Table 7 reports the results of the t-test performed to determine whether the aggregate abnormal return is statistically different from zero. The 3-day, 5-day and 9-day aggregate abnormal return are not found statistically significant.

The cumulative abnormal return model reveals inconclusive findings overall. While it is expected that shareholders value the announcement of the corporate inversion, such value is not consistently demonstrated in the cumulative abnormal return model's results. In each of the 3-day, 5-day and 9-day event windows, approximately half (i.e. 50%, 51.8% and 55%, respectively) of the firms reveal negative cumulative abnormal returns. Furthermore, the majority of firm-specific cumulative abnormal returns are not found significant per t-tests (i.e. 10.7%, 8.9% and 19.6%, respectively). In addition, 3-day, 5-day and 9-day aggregate abnormal returns are not found statistically significant. As such, the results of the cumulative abnormal return model do not present conclusive evidence that shareholders value the corporate inversion. Next, the 3-day, 5-day and 9-day cumulative abnormal returns are used as the dependent variable in cross-sectional analysis and results are evaluated below.

The results of the cross sectional analysis model are summarized on Table 8 and shown in detail on Table 9. Both permanently reinvested earnings (PRE) and Intangibles (INTANG) were found statistically significant when using cumulative abnormal returns

from the 3-day event window. The phase of the inversion (PHASE), multinationality (MULT) and intangible assets (INTANG) revealed a coefficient estimate that met the predicted sign. Permanently reinvested earnings (PRE), thin capitalization (TCAP) and the corporate tax rate (CTRATE) revealed a coefficient estimate opposite of the predicted sign. The variance in 3-day cumulative abnormal returns explained by the model is presented in the r-squared value of 46.12%. The 3-day model is found statistically significant as shown by the p-value of 0.0182.

The cross sectional analysis using 5-day cumulative abnormal returns reveals results similar to the 5-day model. Both permanently reinvested earnings (PRE) and Intangibles (INTANG) were found statistically significant when using cumulative abnormal returns from the 5-day event window. One additional variable, the Corporate Tax Rate (TRATE), revealed a coefficient estimate that met the predicted sign. The variance in 5-day cumulative abnormal returns explained by the model is presented in the r-squared value of 41.21%. The 5-day model is found statistically significant as shown by the p-value of 0.0083.

The cross sectional analysis using 9-day cumulative abnormal returns reveals results similar to the 3-day and 5-day model. Permanently reinvested earnings (PRE) remained statistically significant when using cumulative abnormal returns from the 9-day event window. However, while intangibles (INTANG) is near significant with a t-value of 1.69, no other variables were found statistically significant. As with the 3-day model, the phase of the inversion (PHASE), multinationality (MULT) and intangible assets (INTANG) revealed a coefficient estimate that met the predicted sign. The variance in 9-day cumulative abnormal returns explained by the model is presented in the r-squared value

of 30.45%. The 9-day model is found statistically significant as shown by the p-value of 0.0093.

Overall, the cross sectional analysis model reveals little conclusive evidence regarding the ability to explain the variance in cumulative abnormal returns. While permanently reinvested earnings (PRE) is consistently statistically significant, the coefficient is consistently opposite of the predicted sign. This implies that shareholders place a lower value on the corporate inversions of firms with higher permanently reinvested earnings. Such findings are counterintuitive and conflict with the arguments presented in this essay. While the coefficient estimates for the phase of the inversion (PHASE), multinationality (MULT) and intangible assets (INTANG) consistently meet the predicted sign, only intangible assets (INTANG) is statistically significant (i.e. in both the 3-day and 5-day models). As such, the results of cross sectional analysis demonstrate that greater intangibles result in shareholders placing greater value on the shares of inverting firms. However, conclusive findings are not observed for the other variables in the model including the phase of the inversion (PHASE), multinationality (MULT), thin capitalization (TCAP) or the corporate tax rate (CTRATE).

3.6. Conclusions

The question of whether corporate inversions should be viewed positively from a financial standpoint may be considered from the perspective of the country and the firm. From the perspective of the firm, the corporate inversion's impact is largely focused on the reduction in corporate tax liabilities (e.g. lower corporate tax rate, favorable tax regulation, successful implementation of corporate tax avoidance methods, etc.). To the extent that firms are successful in reducing corporate taxes in excess of the costs of

inverting, the inversion is expected to provide positive financial benefits. In addition, shareholders are expected to incorporate the value of such benefits into the firm's share value.

The analysis of inverting firm's cumulative abnormal returns revealed both positive and negative returns around the inversion announcement date. Given the positive cumulative abnormal returns, it does appear that shareholders incorporate the financial benefits of corporate inversions into the share value of some firms. However, given a nearly equal number of firms with negative cumulative abnormal returns and overall lack of statistical significance, one cannot reach any overarching conclusions regarding the value shareholders place on corporate inversions. Therefore, one may seek to identify the firm characteristics that promote positive valuation by shareholders.

The analysis of firm and inversion characteristics using cumulative abnormal returns and cross-sectional analysis revealed that permanently reinvested earnings in foreign jurisdictions impacts the value shareholders place on the corporate inversion announcement. Interestingly, shareholders appear to place a lower value on the corporate inversions of firms with greater permanently reinvested earnings. While unexpected, this finding may be related to the most recent set of anti-inversion regulation like those proposed by the Hilary Clinton U.S. presidential campaign (Hillary Clinton Presidential Campaign, 2016). The newest set of anti-inversion regulation seeks to further increase the required foreign shareholder ownership that must exist before the firm is considered foreign by U.S. tax law. That is, before the firm can avoid U.S. corporate tax. In addition, such regulation seeks to impose an "exit tax" on the permanently reinvested earnings of the foreign subsidiaries of U.S. firms and impose further restrictions to limit earnings

stripping. Although the inversions reviewed in this essay predate this newest set of regulations, savvy investors and analysts are likely well aware of proposed anti-inversion regulation and the trend in limiting inversion activity and related benefits. As such, the estimated tax liabilities associated with permanently reinvested earnings may impact the value shareholders place on corporate inversions.

The analysis of firm and inversion characteristics using cumulative abnormal returns and cross-sectional analysis also revealed that greater firm intangible assets lead to greater cumulative abnormal returns in inverting firms. As such, intangibles may serve as a signal to investors that the firm is positioned to take advantage of the corporate tax avoidance methods available post-corporate inversion.

4. Overall Conclusions, Policy Implications and Future Research

4.1. Overall Conclusions and Policy Implications

The two enclosed essays are motivated by gaps in the literature regarding the firm-level impact associated with a government restructuring the corporate tax system from worldwide to territorial as well as the change in firm value associated with announcements of corporate inversions of firms in relation to firm characteristics such as the level of permanently reinvested earnings. While both essays consider the phenomenon of corporate tax avoidance, the first essay focuses on firm behavior in relation to governmental tax structure and the second essay focuses on the shareholder's valuation of corporate inversion; perhaps the most extreme form of corporate tax avoidance methods.

Results from the first essay on worldwide and territorial tax systems demonstrated little evidence that firms utilize fewer tax havens or demonstrate fewer incentives to

utilize tax havens to conduct corporate tax avoidance methods. That is, as a result of a transition from a worldwide tax system to a territorial tax system. In fact, the majority of firms increased tax haven utilization and demonstrated consistent or increased incentives such as multinationality and intangible assets. For instance, findings from the first essay revealed that UK firm's intangible assets increased (i.e. 9/10 of the firms studied increased in total value and 8/10 of the firms studied increased the percentage of intangibles) and generally trended upward (i.e. 6/10 of the firms studied) over the UK corporate tax reform period.

Results from the second essay on corporate inversions, earnings shifting and the value implications of cash hoards did not reveal any overarching conclusions regarding the firm value shareholders place on corporate inversions. However, certain firm characteristics such as permanently reinvested earnings and intangible assets demonstrated a relationship to the level of cumulative abnormal returns associated with the corporate inversion announcement. Thus, the second essay provides evidence that shareholders value higher intangible assets while the first essay provides evidence that firms increase intangible assets despite the government's effort to transition to a territorial tax system.

Given the results of the two related essays, one may consider – from the perspective of the country – the question of whether corporate inversions should be viewed positively as well as policy implications to mitigate the effects. This uncovers an opposing conclusion as compared to the earlier analysis from the perspective of the firm. At best, the corporate inversion results in lower corporate tax revenue realized by the government entity. At worst, the corporate inversion results in lower corporate tax revenue and the movement of employment, business activity, management expertise, research and

development and other home-country benefits to foreign jurisdictions. As such, government entities view corporate inversions as harmful to the overall economic health of the country.

The current U.S. presidential candidates both approach the issue of corporate inversions and corporate tax avoidance in their formal proposed tax policy. Trump's tax policy focuses on limiting such activity through a reduction to the corporate tax rate (Trump Presidential Campaign, 2016). As mentioned above, Clinton's tax policy focuses on the required foreign ownership of firms, an "exit tax" and earnings shifting (Hillary Clinton Presidential Campaign, 2016). As many of the corporate tax avoidance methods mentioned in this essay involve the utilization of tax havens, it is unlikely that a lower corporate tax rate will have a significant impact on corporate tax avoidance including corporate inversions. Firms will continue to have incentives to conduct corporate tax avoidance methods as long as there are foreign jurisdictions with lower tax rates and favorable tax regulations as compared to the U.S. As such, a plan that focuses on the specific benefits of corporate tax avoidance including corporate inversion will likely have the most significant impact. As shown by the results of the cross sectional analysis, policy that focuses on permanently reinvested earnings and earnings shifting using intangible assets is an important starting point.

4.2. Implications for Future Research

The first essay on worldwide and territorial tax systems reviewed the behavior of a set of 10 UK firms in 5 sectors over the UK's corporate tax reform period. As such, caution must be used in applying the findings from this essay to wider groups of firms, industries or countries. In order to analyze the tax haven utilization of firms, one must identify the

location of firm subsidiaries over time. Unfortunately, this information is not widely available. As such, in the current case analysis, subsidiary location was hand collected at observation dates for selected firms. However, once acquired, broad historical subsidiary location data would permit a much more comprehensive review of firms. An empirical model may be used to evaluate a large set of firms within the UK during the corporate tax reform period. Additionally, other countries that have transitioned to a territorial tax system could be evaluated. In this effort, the body of evidence regarding firm behavior will expand and consist of a large set of firms within multiple countries. This will promote cross country comparison of firm behavior in the event of a tax system transition. The results from such analysis will likely provide more robust findings that could be applied broadly. Governments will likely have significant interest in such findings as they inform the policy issues surrounding corporate tax avoidance and corporate inversion.

The second essay on corporate inversions utilized a cumulative abnormal returns model and a cross-sectional analysis. The cumulative abnormal returns model relied upon share price data for a set of firms that inverted the corporate structure. This set of firms is limited. However, the subsequent cross-sectional analysis focused on firm characteristics and their relationship to the returns calculated in the cumulative abnormal return model. Permanently reinvested earnings were identified as particularly important given the firm's ability to access such earnings after inverting the corporate structure. Shareholders are also expected to value such earnings given that they were previously "trapped" and unable to be used to maximize profits. Once again, permanently reinvested earnings were not widely reported. Thus, limited permanently reinvested earnings data was manually

located for the set of inverting firms. However, once acquired, broad permanently reinvested earnings data would permit a much more comprehensive review of this important firm characteristic in relation to cumulative abnormal returns. The results from such analysis will likely provide more robust findings that could deviate from the negative impact to cumulative abnormal returns found in this essay.

TABLES

Table 1. Tax Haven Countries

Table 1. Tax Haven Countries	
Caribbean/ West Indies	Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, British Virgin Islands, Cayman Islands, Dominica, Grenada, Monserrat, Netherlands Antilles, St. Kitts and Nevis, St. Lucia, St. Vincent and Grenadines, Turks and Caicos, U.S. Virgin Islands
Central America	Belize, Costa Rica, Panama
Coast of East Asia	Hong Kong, Macau, Singapore
Europe/ Mediterranean	Andorra, Channel Islands (Guernsey and Jersey), Cyprus, Gibraltar, Isle of Man, Ireland, Liechtenstein, Luxembourg, Malta, Monaco, San Marino, Switzerland
Indian Ocean	Maldives, Mauritius, Seychelles
Middle East	Bahrain, Jordan, Lebanon
North Atlantic	Bermuda
Pacific, South Pacific	Cook Islands, Marshall Islands, Samoa, Nauru, Niue, Tonga, Vanuatu
West Africa	Liberia
Sources: Gravelle (2015)	

Table 2. Tax-Haven and Total Subsidiaries of Selected Firms

FIRM	TITLE	OBSERVATION 1	OBSERVATION 2	OBSERVATION 3	% CHANGE	AVERAGE
GKN	Tax-Haven Subsidiaries	5	5	24	380.00%	11
	Total Subsidiaries	232	221	253	9.05%	235
	% Subsidiaries in Tax-Havens	2.16%	2.26%	9.49%	7.33%	4.63%
BAE SYSTEMS	Tax-Haven Subsidiaries	18	21	24	33.33%	21
	Total Subsidiaries	456	509	374	-17.98%	446
	% Subsidiaries in Tax-Havens	3.95%	4.13%	6.42%	2.47%	4.83%
DIAGEO	Tax-Haven Subsidiaries	120	126	145	20.83%	130
	Total Subsidiaries	538	430	415	-22.86%	461
	% Subsidiaries in Tax-Havens	22.30%	29.30%	34.94%	12.63%	28.85%
SABMILLER	Tax-Haven Subsidiaries	100	100	88	-12.00%	96
	Total Subsidiaries	375	367	419	11.73%	387
	% Subsidiaries in Tax-Havens	26.67%	27.25%	21.00%	-5.66%	24.97%
ASTRAZENECA	Tax-Haven Subsidiaries	13	26	21	61.54%	20
	Total Subsidiaries	283	255	191	-32.51%	243
	% Subsidiaries in Tax-Havens	4.59%	10.20%	10.99%	6.40%	8.59%
GLAXOSMITHKLINE	Tax-Haven Subsidiaries	50	53	59	18.00%	54
	Total Subsidiaries	390	420	457	17.18%	422
	% Subsidiaries in Tax-Havens	12.82%	12.62%	12.91%	0.09%	12.78%
TESCO	Tax-Haven Subsidiaries	59	100	54	-8.47%	71
	Total Subsidiaries	412	575	312	-24.27%	433
	% Subsidiaries in Tax-Havens	14.32%	17.39%	17.31%	2.99%	16.34%
J SAINSBURY	Tax-Haven Subsidiaries	14	12	14	0.00%	13
	Total Subsidiaries	86	89	82	-4.65%	86
	% Subsidiaries in Tax-Havens	16.28%	13.48%	17.07%	0.79%	15.61%
BT GROUP	Tax-Haven Subsidiaries	135	112	66	-51.11%	104
	Total Subsidiaries	665	572	386	-41.95%	541
	% Subsidiaries in Tax-Havens	20.30%	19.58%	17.10%	-3.20%	18.99%
SEVERN TRENT	Tax-Haven Subsidiaries	7	10	3	-57.14%	7
	Total Subsidiaries	107	100	89	-16.82%	99
	% Subsidiaries in Tax-Havens	6.54%	10.00%	3.37%	-3.17%	6.64%
AVERAGE	Tax-Haven Subsidiaries	52	57	50	-4.41%	53
	Total Subsidiaries	354	354	298	-15.97%	335
	% Subsidiaries in Tax-Havens	12.99%	14.62%	15.06%	2.07%	14.22%
MEDIAN	Tax-Haven Subsidiaries	34	39.5	39	14.71%	38
	Total Subsidiaries	383	394	343	-10.33%	373
	% Subsidiaries in Tax-Havens	13.57%	13.05%	14.99%	1.42%	13.87%

Table 3. Location of Tax-Haven Subsidiaries of Selected Firms (2011)

LOCATION	GKN	BAE	DIAGEO	SABMILLER	ASTRAZENECA	GLAXOSMITHKLINE	TESCO	J SAINSBURY	BT GROUP	SEVERN TRENT	TOTAL
BAHRAIN									1		1
BARBADOS		1							1		2
BERMUDA			2			3			2		7
BRITISH VIRGIN ISLANDS				8			8		3		19
CAYMAN ISLANDS			1	2	1	1	14	3	2		24
COSTA RICA			3		1	2			2		8
CYPRUS			1	3		1			1		6
GIBRALTAR				1					1	1	3
GUERNSEY			2	2		2	2				8
HONG KONG		1	5	2	2	3	34	2	6		55
IRELAND			63	1	1	10	23	4	15	1	118
ISLE OF MAN	1	2		2				1	10		16
JERSEY	1	4		2		1	8	2	12		30
JORDAN					1				1		2
LATVIA									1		1
LEBANON			2						1		3
LIBERIA			2			1					3
LUXEMBOURG					1	3	5	8		8	25
MACAU			1						1		2
MALTA						1			1		2
MAURITIUS			2	10		2	1		2		17
NETHERLANDS	2	5	30	43	15	10	3		12		120
NETHERLANDS ANTILLES				4		1					5
PANAMA		1	1	9	1	2			2		16
SEYCHELLES			2						1		3
SINGAPORE	1	4	6		1	7			18		37
ST. KITTS AND NEVIS				4							4
ST. LUCIA			1								1
SWITZERLAND		3	1	7	2	3	2		7		25
U.S. VIRGIN ISLANDS			1						1		2
TOTAL TAX-HAVEN SUBSIDIARIES	5	21	126	100	26	53	100	12	112	10	565
TOTAL SUBSIDIARIES	221	509	430	367	255	420	575	89	572	100	
PERCENT LOCATED IN TAX-HAVENS	2.26%	4.13%	29.30%	27.25%	10.20%	12.62%	17.39%	13.48%	19.58%	10.00%	

Table 4. Descriptive Data for Selected Firms (Average 2009 – 2015)

AVERAGE (2009 - 2015)	ASTRAZENECA		BAE		BT GROUP		DIAGEO		GKN	
Foreign Revenue	£	17,191,409	£	14,157,000	£	4,415,000	£	10,054,857	£	5,603,143
Domestic Revenue		1,204,284		3,691,857		15,016,857		2,158,714		918,571
Total Revenue	£	18,395,693	£	17,848,857	£	19,431,857	£	12,213,571	£	6,521,714
% Foreign Revenue		93.45%		79.32%		22.72%		82.33%		85.92%
Total Assets	£	34,811,163	£	20,812,857	£	24,787,714	£	21,542,571	£	5,480,571
Intangible Assets		16,800,653		10,671,000		3,355,857		8,068,143		1,192,429
% Intangible Assets		48.26%		51.27%		13.54%		37.45%		21.76%
Debt-to-Equity		1.53		4.94		11.73		2.38		2.41
Interest Coverage Ratio		16.01		6.33		3.82		5.82		5.18
Pre-Tax Income	£	4,455,465	£	913,857	£	1,760,571	£	2,440,571	£	298,000
Return on Assets		13.23%		4.37%		7.35%		11.69%		5.54%
Market-To-Book		3.24		3.84		(1.09)		6.52		2.34

	ALL (10) FIRMS					
	GLAXOSMITHKLINE	SABMILLER	J SAINSBURY	SEVERN TRENT	TESCO	AVERAGE
Foreign Revenue	£ 22,825,714	£ 12,302,584	£ -	£ 228,200	£ 19,456,857	£ 10,623,476
Domestic Revenue	3,461,714	778,726	21,899,714	1,531,457	41,596,571	9,225,847
Total Revenue	£ 26,287,428.6	£13,081,310.0	£21,899,714.3	£ 1,759,657.1	£61,053,428.6	£ 19,849,323.2
% Foreign Revenue	86.83%	94.05%	0.00%	12.97%	31.87%	58.94%
Total Assets	£ 40,854,143	£ 29,238,175	£ 12,914,143	£ 7,770,443	£ 47,685,000	£ 24,589,678
Intangible Assets	13,874,857	14,031,328	199,571	153,543	4,155,429	7,250,281
% Intangible Assets	33.96%	47.99%	1.55%	1.98%	8.71%	26.65%
Debt-to-Equity	4.21	0.92	1.39	7.17	2.56	3.93
Interest Coverage Ratio	10.99	5.93	5.71	2.11	6.04	6.79
Pre-Tax Income	£ 6,400,714	£ 2,200,804	£ 609,143	£ 232,371	£ 1,564,429	£ 2,087,593
Return on Assets	15.95%	7.65%	5.20%	3.03%	3.43%	7.74%
Market-To-Book	10.70	2.56	1.12	3.87	1.99	3.51

Table 5. Corporate Inversions 1982 – 2016

	Firm	Ticker	Announcement Date	Source(s)
1	McDermott International	MDR	10/28/82	A, B, C
2	Flextronics International Ltd.	FLEX	05/31/90	C
3	Core Laboratories NV	CLB	12/09/93	C
4	Helen of Troy Limited	HELE	12/30/93	A, B, C, D
5	Loral Space & Communications Ltd.	LORL	01/07/96	C
6	Triton Energy Ltd.	OIL	02/08/96	A, B, C, D
7	Chicago Bridge & Iron Company N.V.	CBI	12/18/96	A, C, D
8	Tyco International	TYC	03/17/97	A, B, D
9	Santa Fe International	GSF	06/01/97	A, C, D
10	Fruit of the Loom Ltd.	FTL	02/11/98	A, B, C, D
11	Playstar		05/05/98	A, C
12	XOMA Corp	XOMA	11/24/98	A, B, C, D
13	Gold Reserve Inc.	GLDR	11/24/98	A, B, C, D
14	Transocean Ltd	RIG	03/15/99	A, B, C, D
15	Parex Resources Inc.	PXT	07/07/99	A, B, C, D
16	Everest Re Group Ltd.	RE	09/17/99	A, B, C, D
17	White Mountains Insurance Group Ltd.	WTM	09/23/99	A, B, C, D
18	Trenwick	TWK	12/19/99	A, B, C, D
19	Arch Capital Group Ltd.	ACGL	01/18/00	C
20	Seagate Technology PLC	STX	01/26/00	A, C
21	APW Ltd.	APW	01/27/00	B, C
22	Tycom Ltd.	TCM	03/10/00	C
23	R&B Falcon FLC	FLC	08/21/00	A, B, C, D
24	Foster Wheeler AG	FWC	11/29/00	A, B, C, D
25	Cooper Industries PLC	CBE	06/11/01	A, B, C, D
26	Ingersoll-Rand PLC	IR	10/16/01	A, B, C, D
27	Nabors Industries Ltd.	NBR	01/02/02	A, B, C, D
28	Noble	NE	01/31/02	A, B, C, D
29	Stanley Black & Decker, Inc.	SWK	02/08/02	A, B, C
30	Weatherford International	WFT	04/05/02	B, C, D
31	Herbalife Ltd.	HLF	04/10/02	C
32	Vistaprint NV	VPRT	04/29/02	C
33	Michael Kors Holdings Ltd	KORS	01/29/03	C
34	Lazard Ltd.	LAZ	05/04/05	C
35	Sensata Technologies Holding NV	ST	01/09/06	C
36	Travelport Worldwide Ltd.	TVPT	06/30/06	C
37	Freescale Semiconductor Ltd.	FSL	09/15/06	C
38	Argo Group International Holdings, Ltd.	AGII	03/14/07	C
39	Western Goldfields Inc.	WGI	03/27/07	C
40	Covidien plc	COV	06/07/07	C
41	TE Connectivity Ltd	TEL	06/07/07	C

	Firm	Ticker	Announcement Date	Source(s)
42	James River Group Holdings Ltd	JRVR	06/11/07	C
43	Convatec Healthcare B.S.a.r.l.		05/02/08	C
44	Invitel Holdings A/S	INVHY	11/28/08	C
45	Altisource Portfolio Solutions S.A.	ASPS	05/13/09	C
46	Tim Hortons Inc.	THI	06/29/09	C, D
47	Delphi Automotive PLC	DLPH	07/26/09	C
48	Samsonite SA	SAMC	09/02/09	C
49	ENSCO PLC	ESV	11/09/09	C, D
50	Global Indemnity PLC	GBLI	02/16/10	C
51	Trinseo S.A.	TSE	03/02/10	C
52	Valeant Pharmaceuticals Intl Inc	VRX	06/21/10	C
53	Alkermes Plc	ALKS	05/09/11	C
54	Jazz Pharmaceutical	JAZZ	05/19/11	C
55	Tronox	TROX	09/26/11	C
56	Mallinckrodt PLC	MNK	12/15/11	C
57	Aon	AON	01/13/12	C, D
58	Rowan Companies PLC	RDC	02/28/12	C, D
59	Pentair	PNR	03/28/12	C, D
60	Stratasys	SSYS	04/16/12	C
61	Eaton Corporation PLC	ETN	05/21/12	C, D
62	D.E. Master Blenders 1753 NV	DEMBF	05/31/12	C
63	Tower Group International Ltd.	TWGP	07/30/12	C
64	Axalta Coating Systems Ltd	AXTA	08/29/12	C
65	Liberty Global PLC	LBTY	02/05/13	C, D
66	Theravance Biopharma Inc.	TBPH	04/25/13	C
67	Actavis PLC	ACT	05/20/13	C, D
68	Allegion PLC	ALLE	06/17/13	C
69	Perrigo	PRGO	07/29/13	C, D
70	Paragon Offshore PLC	PGN	09/24/13	C
71	Applied Materials, Inc.	AMAT	09/24/13	C, D
72	Endo International	ENDP	11/05/13	C, D
73	Cadence	CADX	2/11/14	D
74	Forest Laboratories Inc.	FRX	02/18/14	D
75	Zale Corp.	ZLC	2/19/14	D
76	Horizon Pharma PLC	HZNP	03/19/14	C, D
77	Questcor Pharmaceuticals Inc	QCOR	04/07/14	D
78	Medtronic, Inc.	MDT	06/15/14	C, D
79	C&J Energy Services	CJES	06/25/14	C
80	Mylan Inc.	MYL	07/14/14	C, D
81	Burger King Worldwide Inc.	BKW	08/26/14	C, D
82	Civeo Corporation	CVEO	09/29/14	C

	Firm	Ticker	Announcement Date	Source(s)
83	Auxilium Pharmaceuticals	AUXL	10/09/14	
84	Steris PLC	STE	10/13/14	C
85	Wright Medical Group Inc	WMGI	10/27/14	C
86	Allergan	AGN	11/14/14	D
87	Salix	SLXP	2/22/15	D
88	Cyberonics	CYBX	02/26/15	
89	Arris International PLC	ARRS	4/22/15	
90	Waste Connections Inc.	WCN	1/19/16	
91	Johnson Controls Inc.	JCI	1/25/16	
92	IHS Inc.	IHS	3/21/16	

A (Desai & Hines, 2002)

B (Cloyd, Mills, & Weaver, 2003a)

C (Rao, 2015)

D (Chorvat, 2016)

Table 6. Cumulative Abnormal Returns (3-day, 5-day and 9-day Event Windows)

FIRM NAME	EVENT DATE	PRE (millions\$)	3-DAY CAR	3-DAY TEST	5-DAY CAR	5-DAY TEST	9-DAY CAR	9-DAY TEST
MCDERMOTT	10/28/82		-7.98%	(1.45)	-7.82%	(1.17)	2.37%	0.32
FLEXTRONICS	5/31/90		-11.48%	(0.77)	-12.74%	(0.92)	-16.19%	(1.59)
HELEN OF TROY	12/30/93		0.13%	0.43	4.76%	1.52	2.61%	0.68
TRITON ENERGY	2/8/96		-1.86%	(0.27)	-6.80%	(1.23)	-8.14%	(1.88)
TYCO INTERNATIONAL	3/17/97		-5.28%	(1.10)	-2.72%	(0.50)	-2.41%	(0.53)
FRUIT OF THE LOOM	2/11/98	157	11.92%	2.66	11.45%	1.71	14.79%	2.74
PLAYSTAR	5/5/98		-2.23%	(0.13)	-7.62%	(0.57)	-14.92%	(1.37)
GOLD RESERVE	11/24/98		-8.28%	(0.56)	-8.62%	(0.79)	-12.17%	(0.70)
XOMA	11/24/98		-2.84%	(0.89)	-0.48%	(0.13)	-4.38%	(0.80)
TRANSOCEAN	3/15/99		0.46%	0.04	5.68%	0.49	17.84%	1.33
EVEREST RE GP.	9/17/99		-3.61%	(0.97)	-4.27%	(1.26)	-13.88%	(3.84)
WHITE MOUNTAINS IN.GP.	9/23/99		3.51%	0.97	1.41%	0.35	2.07%	0.70
TRENWICK GROUP	12/20/99		-9.43%	(0.48)	-8.84%	(0.55)	-7.69%	(0.63)
ARCH CAP.GP.	1/18/00		7.12%	1.50	9.44%	1.47	14.78%	2.66
SEAGATE TECH.	1/26/00	1,634	-0.91%	(0.25)	0.36%	0.09	0.84%	0.16
R & B FALCON	8/21/00		4.92%	0.77	13.32%	2.00	14.06%	2.39
FOSTER WHEELER	11/29/00	324	-7.56%	(0.56)	-16.81%	(1.36)	-17.77%	(1.79)
COOPER INDUSTRIES	6/11/01		-1.10%	(0.22)	0.12%	0.02	1.36%	0.39
INGERSOLL-RAND	10/16/01		1.93%	0.50	1.13%	0.34	3.58%	1.07
NABORS INDUSTRIES	1/2/02	212	-8.77%	(1.65)	-7.61%	(1.23)	-11.46%	(2.31)
NOBLE CORPORATION	1/31/02	650	6.94%	4.11	3.83%	0.77	4.26%	0.94
STANLEY BLACK & DECKER	2/8/02	62	0.80%	0.13	2.59%	0.55	4.21%	1.01
WEATHERFORD INTL.	4/5/02		-3.51%	(0.62)	-8.87%	(1.97)	-6.00%	(1.38)
HERBALIFE INTL.'B'	4/10/02	18	33.43%	0.82	33.09%	1.03	35.11%	1.47
FREESCALE SEMICONDUCTOR	9/15/06	556	5.72%	0.72	1.45%	0.19	19.84%	1.23
ARGO GP.INTL.HOLDINGS	3/14/07		8.02%	0.60	7.26%	0.71	4.06%	0.52
WESTERN GOLDFIELDS	3/27/07		5.39%	0.43	8.62%	0.98	5.51%	0.71
JAMES RIVER GROUP	6/11/07		-1.27%	(0.24)	0.28%	0.05	1.97%	0.47
INVITEL HOLDINGS A/S ADR.	11/28/08		-7.68%	(0.49)	-6.65%	(0.56)	-0.18%	(0.02)
TIM HORTONS	6/29/09	51	-2.05%	(1.42)	-1.81%	(1.23)	-1.97%	(0.84)
DELPHI	7/27/09	184	-2.51%	(0.40)	-7.44%	(0.72)	-27.52%	(2.69)
SAMSONITE (BER)	9/2/09		3.41%	0.54	-13.06%	(0.66)	-1.84%	(0.10)
ENSCO CLASS A	11/9/09	2,614	-9.07%	(3.54)	-10.18%	(2.87)	-7.74%	(1.81)
GLOBAL INDEMNITY	2/16/10		-5.69%	(0.86)	-1.88%	(0.27)	15.61%	1.76
VALEANT PHARMS.INTL.	6/21/10		27.66%	1.43	27.07%	1.51	32.19%	2.32
ALKERMES	5/9/11	10	11.39%	3.72	17.22%	6.99	20.76%	3.19
JAZZ PHARMACEUTICALS	5/19/11		0.16%	0.03	-3.73%	(0.73)	-10.65%	(2.10)
TRONOX CLASS A	9/26/11	144	-26.07%	(0.75)	-33.66%	(1.32)	-40.27%	(2.04)
AON CLASS A	1/13/12	3,000	0.01%	0.02	-0.54%	(0.61)	0.40%	0.46
ROWAN COMPANIES CL.A	2/28/12	204	-3.99%	(0.39)	-4.62%	(0.62)	-3.37%	(0.57)
PENTAIR	3/28/12	261	19.07%	1.05	20.62%	1.42	17.56%	1.48
STRATASYS	4/16/12	0.31	17.53%	1.04	22.09%	1.74	32.98%	1.99
EATON	5/21/12	8,000	-0.65%	(0.11)	-0.29%	(0.07)	1.78%	0.55
TOWER GROUP INTL.	7/30/12		-12.46%	(0.67)	-12.30%	(0.86)	-17.00%	(1.57)
LIBERTY GLOBAL	2/5/13	667	-6.77%	(2.42)	-1.34%	(0.21)	-2.74%	(0.60)
PERRIGO	7/29/13	640	-4.57%	(0.46)	-4.45%	(0.58)	-2.10%	(0.35)
APPLIED MATS.	9/24/13	2,200	12.76%	1.27	11.71%	1.27	11.17%	1.56
ENDO INTERNATIONAL	11/5/13	98	26.09%	0.67	29.66%	1.03	32.61%	1.51
HORIZON PHARMA	3/19/14		15.15%	2.31	20.73%	3.79	-0.16%	(0.01)

FIRM NAME	EVENT DATE	PRE (millions\$)	3-DAY CAR	3-DAY TEST	5-DAY CAR	5-DAY TEST	9-DAY CAR	9-DAY TEST
MEDTRONIC	6/16/14	20,529	0.81%	0.19	3.68%	0.91	2.12%	0.60
C&J ENERGY SERVICES	6/25/14		0.24%	0.04	0.12%	0.03	-2.45%	(0.63)
MYLAN	7/14/14	216	2.16%	0.56	2.32%	0.59	2.22%	0.70
BURGER KING WORLDWIDE	8/26/14	499	12.85%	0.44	17.49%	0.84	19.96%	1.32
CIVEO	9/29/14	855	-57.50%	(0.96)	-47.68%	(0.92)	-44.24%	(1.14)
STERIS	10/13/14	224	-1.87%	(0.33)	0.57%	0.12	2.37%	0.53
WRIGHT MEDICAL GROUP	10/27/14	16	15.16%	0.90	14.94%	1.11	8.21%	0.73

Table 7. Significance of CAR – All Firms (3-day, 5-day and 9-day Event Windows)

Linear regression			Number of obs			=	56
			F(0, 55)			=	0.00
			Prob > F			=	.
			R-squared			=	0.0000
			Root MSE			=	.13335
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
_cons	.0109055	.0178197	0.61	0.543	-.024806	.046617	
Linear regression			Number of obs			=	56
			F(0, 55)			=	0.00
			Prob > F			=	.
			R-squared			=	0.0000
			Root MSE			=	.14055
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
_cons	.0130582	.0187817	0.70	0.490	-.0245812	.0506975	
Linear regression			Number of obs			=	56
			F(0, 55)			=	0.00
			Prob > F			=	.
			R-squared			=	0.0000
			Root MSE			=	.16008
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]		
_cons	.0172558	.0213911	0.81	0.423	-.0256129	.0601245	

Table 8. Results of Cross Sectional Analysis using Cumulative Abnormal Returns

3 DAY CUMULATIVE ABNORMAL RETURN							
Variable	Name	Coefficient	Predicted Sign	Coefficient Estimate	Standard Error	t	P-Value
PHASE	Phase of Inversion	β_1	+	0.0188157	0.0304272	0.62	0.540
PRE	Permanently Reinvested Earnings	β_2	+	(0.3896679)	0.1560017	(2.50)	0.016
MULT	Multinationality	β_3	+	0.0730907	0.0514931	1.42	0.163
TCAP	Thin Capitalization	β_4	+	(0.0002286)	0.0002110	(1.08)	0.285
INTANG	Intangibles	β_5	+	0.1950940	0.0770041	2.53	0.015
CTRATE	Corporate Tax Rate	β_6	-	0.0196847	0.1516186	0.13	0.897
						Prob > F	0.0182
						F	2.90
						R-squared	46.12%

5 DAY CUMULATIVE ABNORMAL RETURN							
Variable	Name	Coefficient	Predicted Sign	Coefficient Estimate	Standard Error	t	P-Value
PHASE	Phase of Inversion	β_1	+	0.0157879	0.0354145	0.45	0.658
PRE	Permanently Reinvested Earnings	β_2	+	(0.3637897)	0.1232767	(2.95)	0.005
MULT	Multinationality	β_3	+	0.0536852	0.0576472	0.93	0.357
TCAP	Thin Capitalization	β_4	+	(0.0002708)	0.0002514	(1.08)	0.287
INTANG	Intangibles	β_5	+	0.2223785	0.0887889	2.50	0.016
CTRATE	Corporate Tax Rate	β_6	-	(0.0080592)	0.1731771	(0.05)	0.963
						Prob > F	0.0083
						F	3.35
						R-squared	41.21%

9 DAY CUMULATIVE ABNORMAL RETURN							
Variable	Name	Coefficient	Predicted Sign	Coefficient Estimate	Standard Error	t	P-Value
PHASE	Phase of Inversion	β_1	+	0.0243678	0.0468487	0.52	0.606
PRE	Permanently Reinvested Earnings	β_2	+	(0.3640775)	0.1174042	(3.10)	0.003
MULT	Multinationality	β_3	+	0.0829765	0.0748480	1.11	0.274
TCAP	Thin Capitalization	β_4	+	(0.0002104)	0.0002817	(0.75)	0.459
INTANG	Intangibles	β_5	+	0.1945811	0.1149981	1.69	0.098
CTRATE	Corporate Tax Rate	β_6	-	0.1018601	0.2265248	0.45	0.655
						Prob > F	0.0093
						F	3.29
						R-squared	30.45%

Table 9. Results of Cross Sectional Analysis using Cumulative Abnormal Returns (3-day, 5-day and 9-day Event Windows)

Linear regression				Number of obs	=	51
				F(6, 44)	=	2.90
				Prob > F	=	0.0182
				R-squared	=	0.4612
				Root MSE	=	.10738
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
MULT	.0730907	.0514931	1.42	0.163	-.0306867	.1768681
TCAP	-.0002286	.000211	-1.08	0.285	-.0006537	.0001966
INTANG	.195094	.0770041	2.53	0.015	.0399024	.3502856
PRE	-.3896679	.1560017	-2.50	0.016	-.7040688	-.0752671
CTRATE	.0196847	.1516186	0.13	0.897	-.2858826	.3252519
PHASE	.0188157	.0304272	0.62	0.540	-.0425062	.0801376
_cons	-.0300168	.0305539	-0.98	0.331	-.0915941	.0315605
Linear regression				Number of obs	=	51
				F(6, 44)	=	3.35
				Prob > F	=	0.0083
				R-squared	=	0.4121
				Root MSE	=	.11638
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
MULT	.0536852	.0576472	0.93	0.357	-.0624951	.1698655
TCAP	-.0002708	.0002514	-1.08	0.287	-.0007774	.0002358
INTANG	.2223785	.0887889	2.50	0.016	.0434362	.4013208
PRE	-.3637897	.1232767	-2.95	0.005	-.6122375	-.1153419
CTRATE	-.0080592	.1731771	-0.05	0.963	-.3570748	.3409563
PHASE	.0157879	.0354145	0.45	0.658	-.0555854	.0871613
_cons	-.0187981	.0344456	-0.55	0.588	-.0882187	.0506226

Linear regression		Number of obs	=	51		
		F(6, 44)	=	3.29		
		Prob > F	=	0.0093		
		R-squared	=	0.3045		
		Root MSE	=	.14465		
cumulative~n	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
MULT	.0829765	.074848	1.11	0.274	-.0678697	.2338228
TCAP	-.0002104	.0002817	-0.75	0.459	-.0007781	.0003572
INTANG	.1945811	.1149981	1.69	0.098	-.0371824	.4263447
PRE	-.3640775	.1174042	-3.10	0.003	-.60069	-.1274649
CTRATE	.1018601	.2265248	0.45	0.655	-.3546706	.5583908
PHASE	.0243678	.0468487	0.52	0.606	-.0700495	.1187852
_cons	-.039371	.0499193	-0.79	0.435	-.1399766	.0612347

FIGURES

Figure 1: Example Scenarios of Thinly Capitalized Foreign Subsidiaries

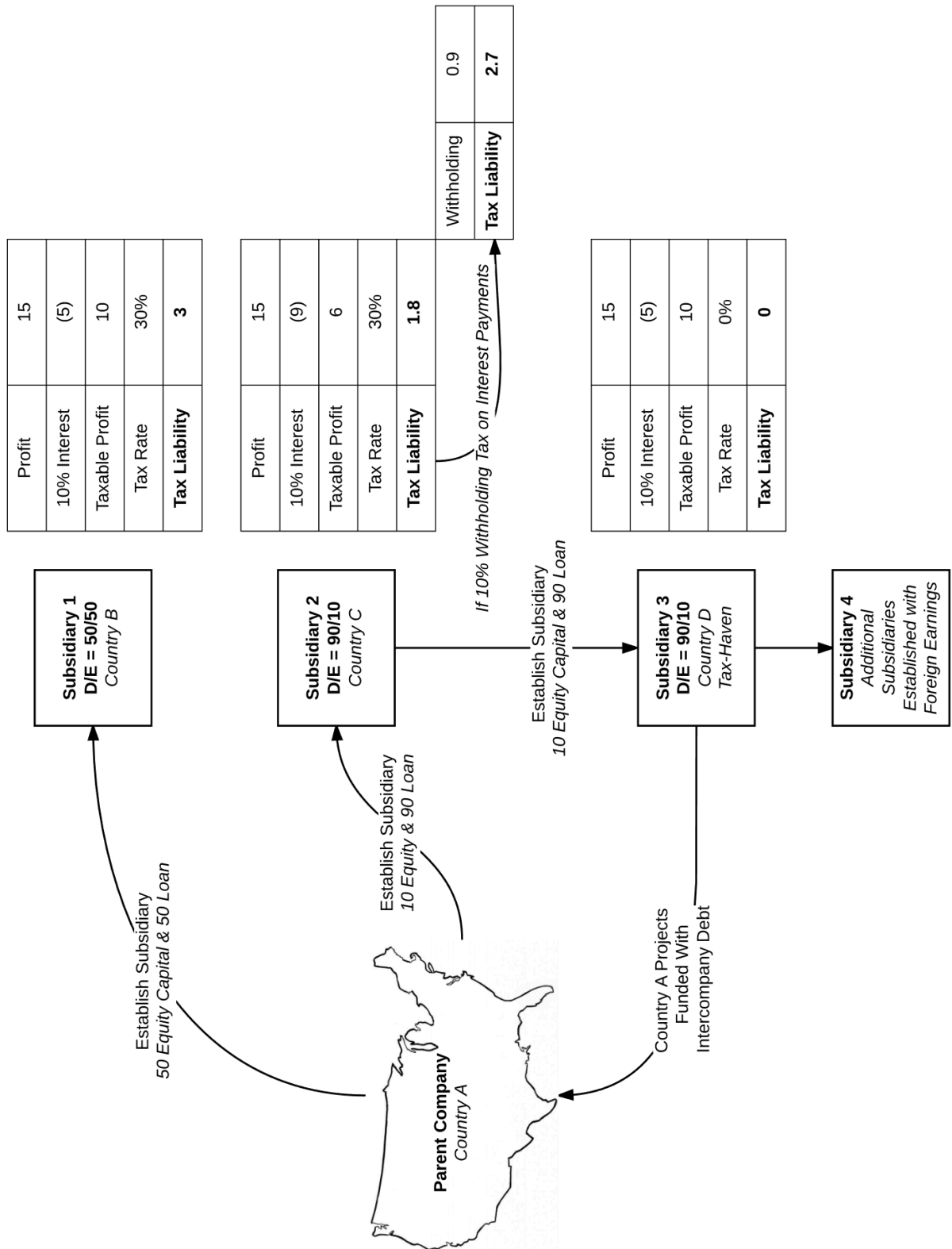


Figure 2: Corporate Structure and Process for Conducting Corporate Tax Avoidance involving Transfer Pricing and Intangible Assets

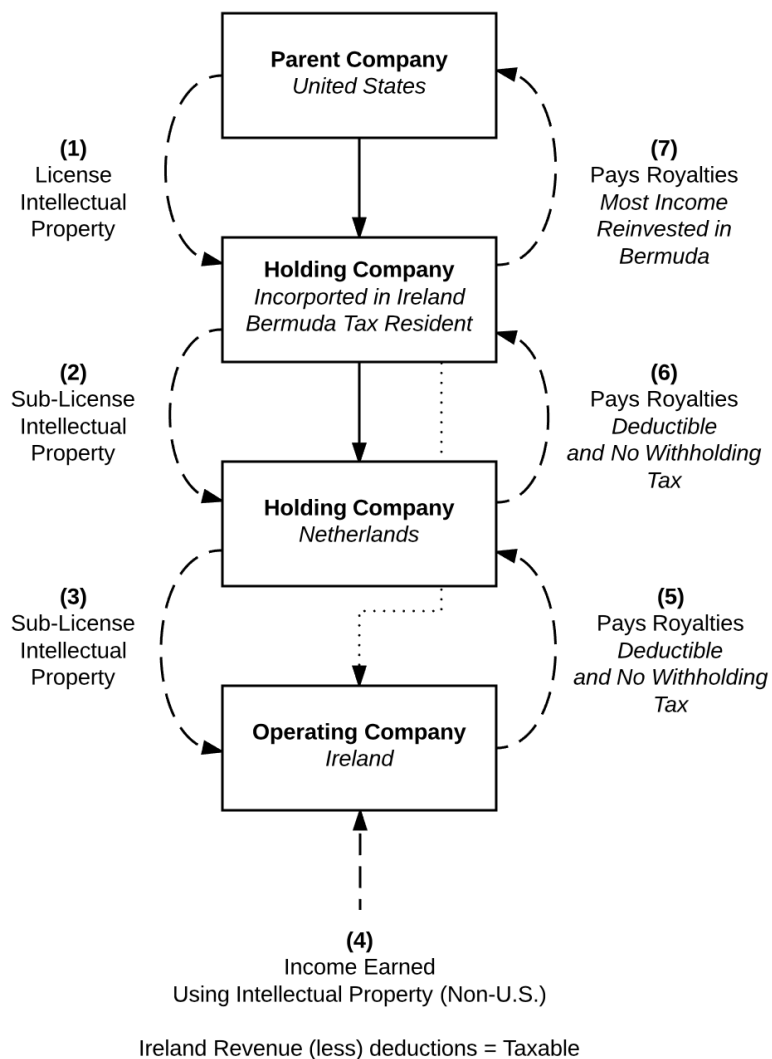


Figure 3: Corporate Structure and Process for Conducting Corporate Tax Avoidance involving Transfer Pricing and Intangible Assets: Google, Inc.

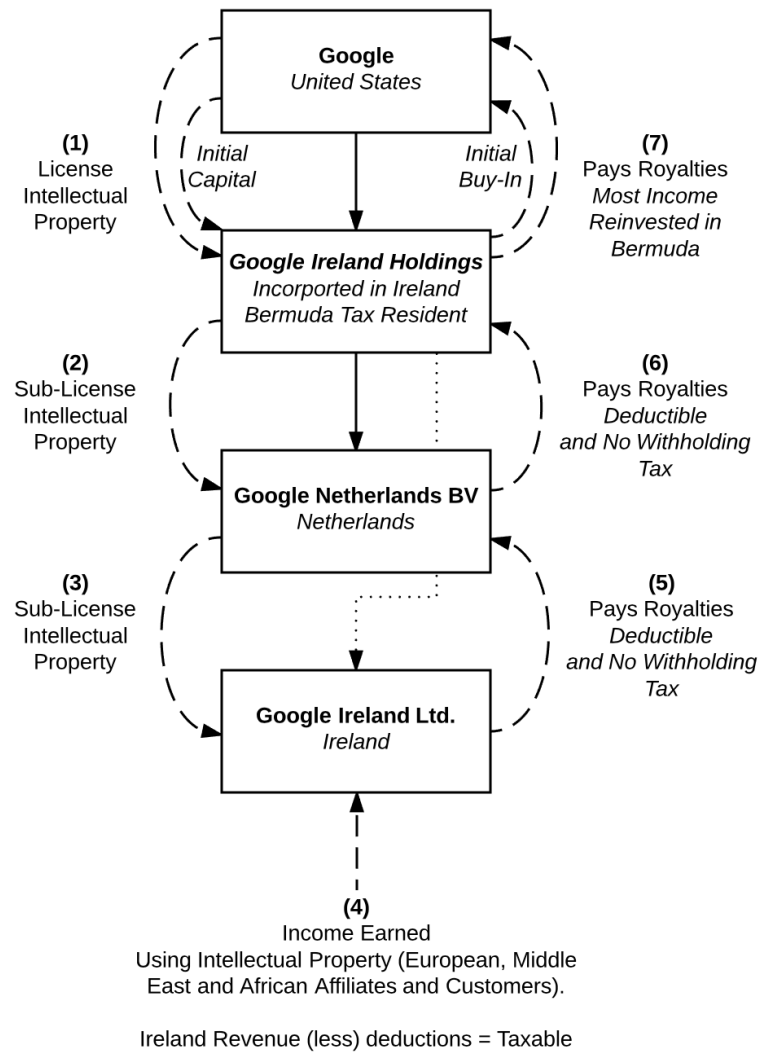


Figure 4: United Kingdom Corporate Tax Reform Plan Timeline

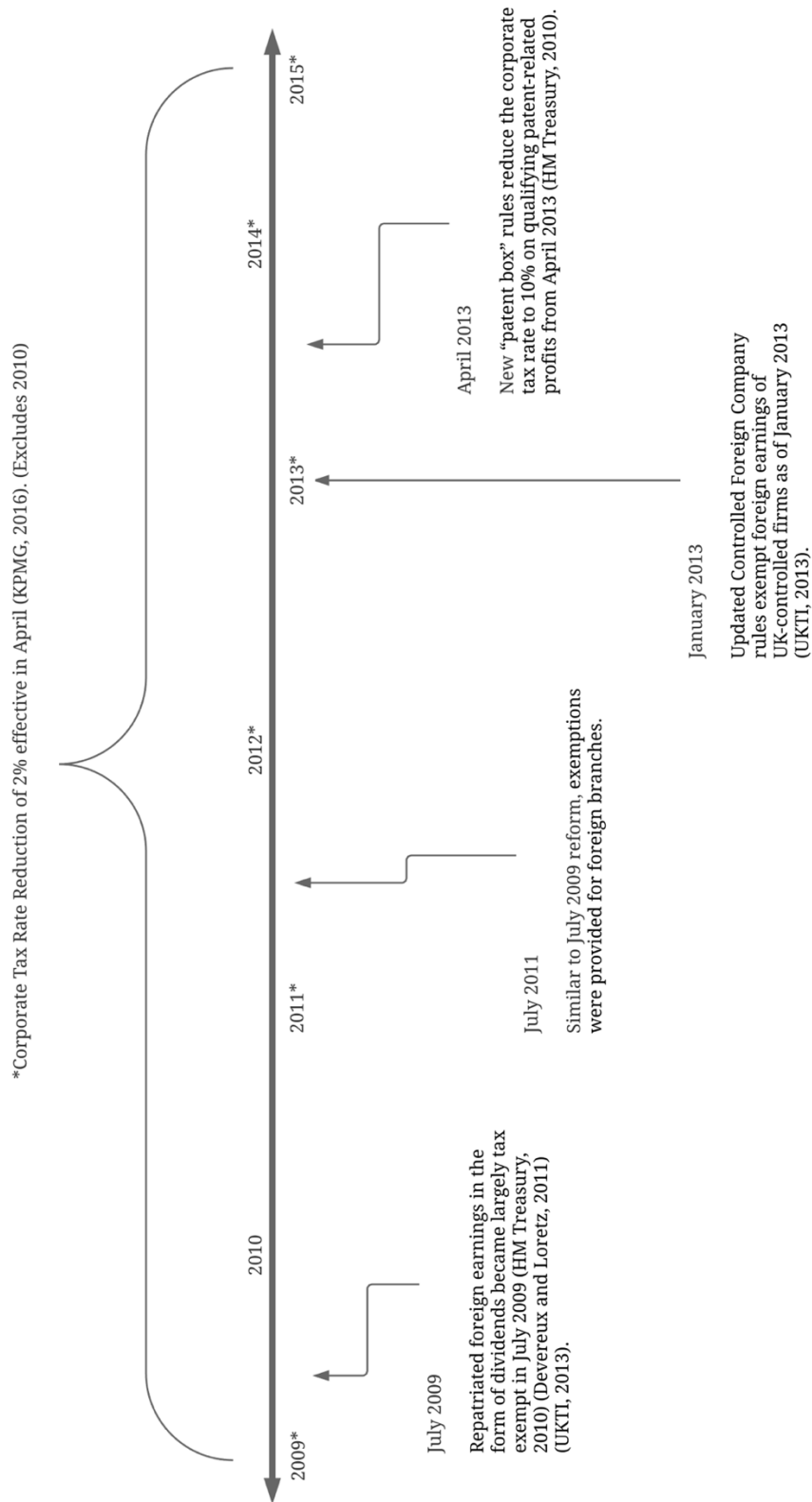


Figure 5: Corporate Inversions by Year 1982-2016

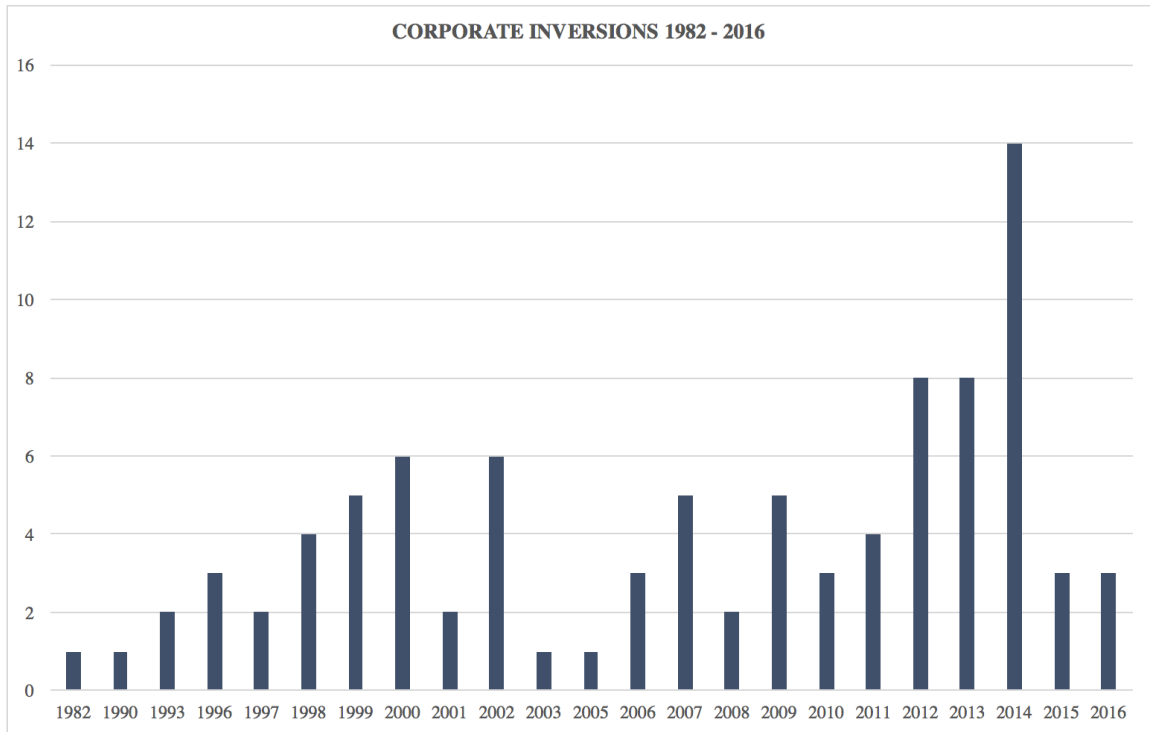


Figure 6: Corporate Inversion Process: Stock and Asset Inversions

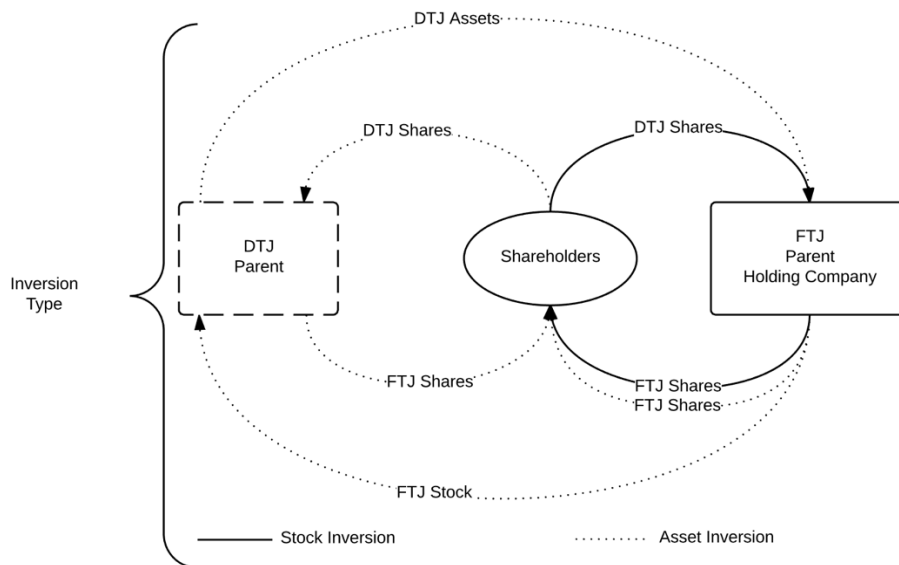


Figure 7: Corporate Structure Pre- and Post-Inversion

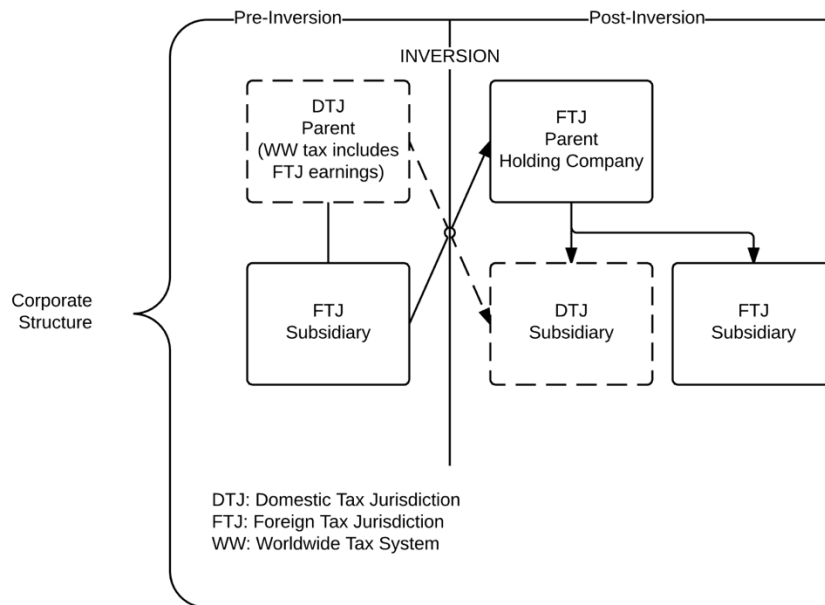


Figure 8: Ingersoll-Rand Corporate Inversion Process

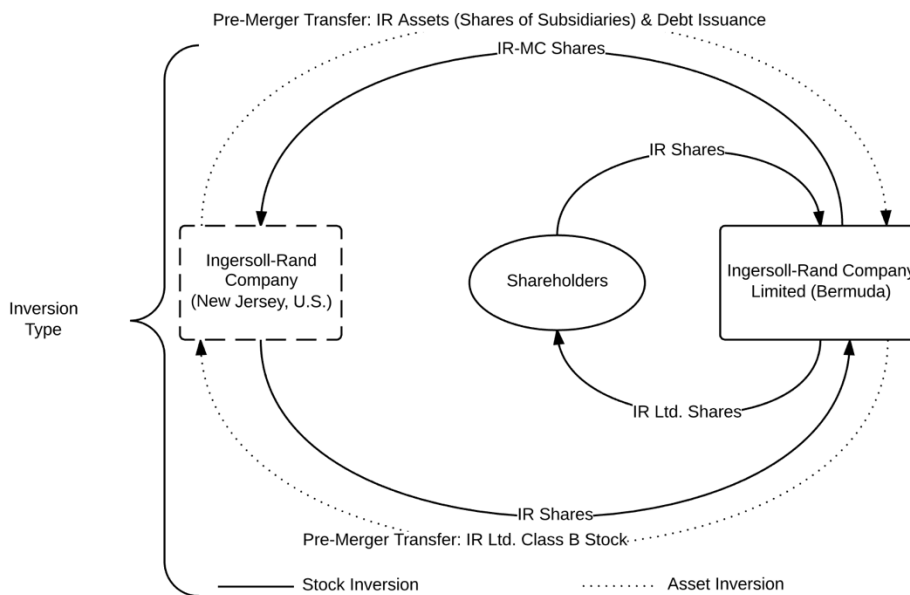


Figure 9: Ingersoll-Rand Corporate Structure Pre- and Post-Inversion

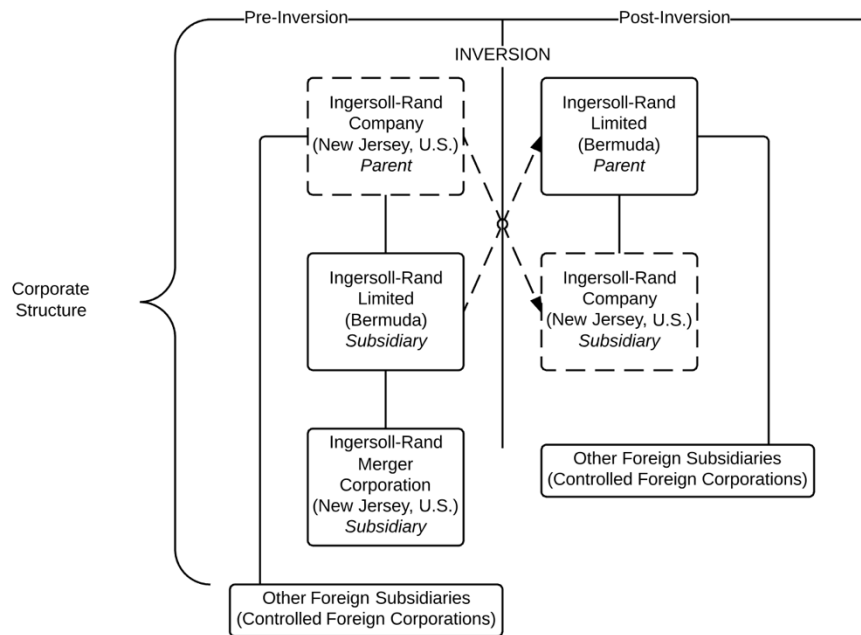


Figure 10: Permanently Reinvested Foreign Earnings and Firm-Specific 9-Day Cumulative Abnormal Returns.

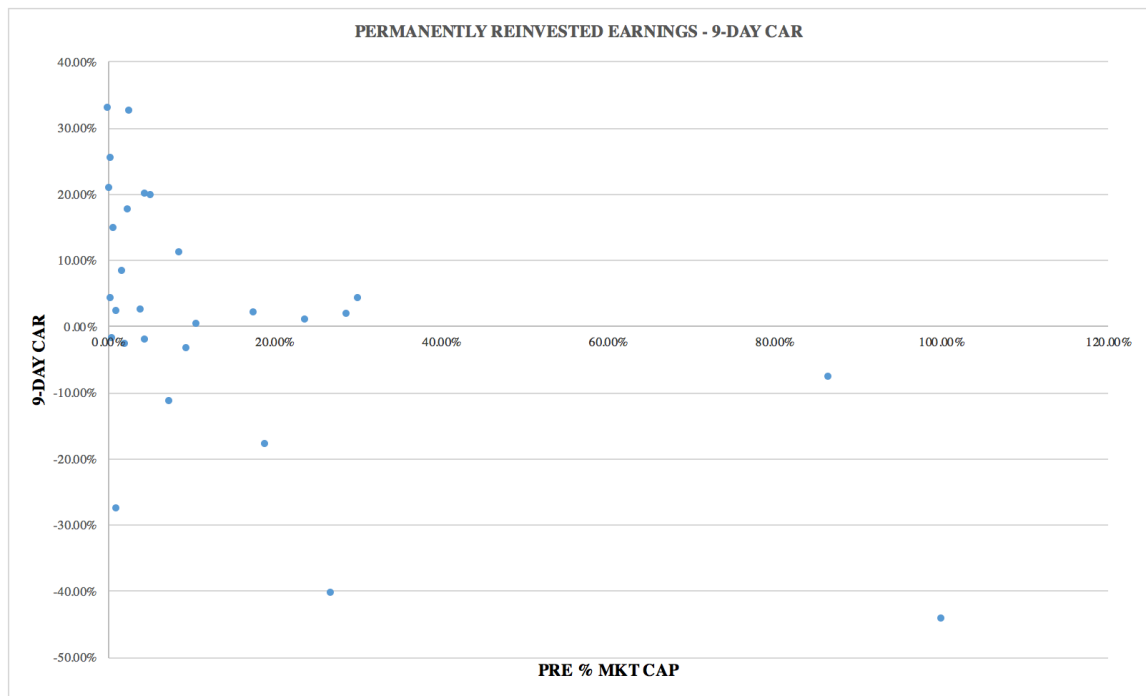
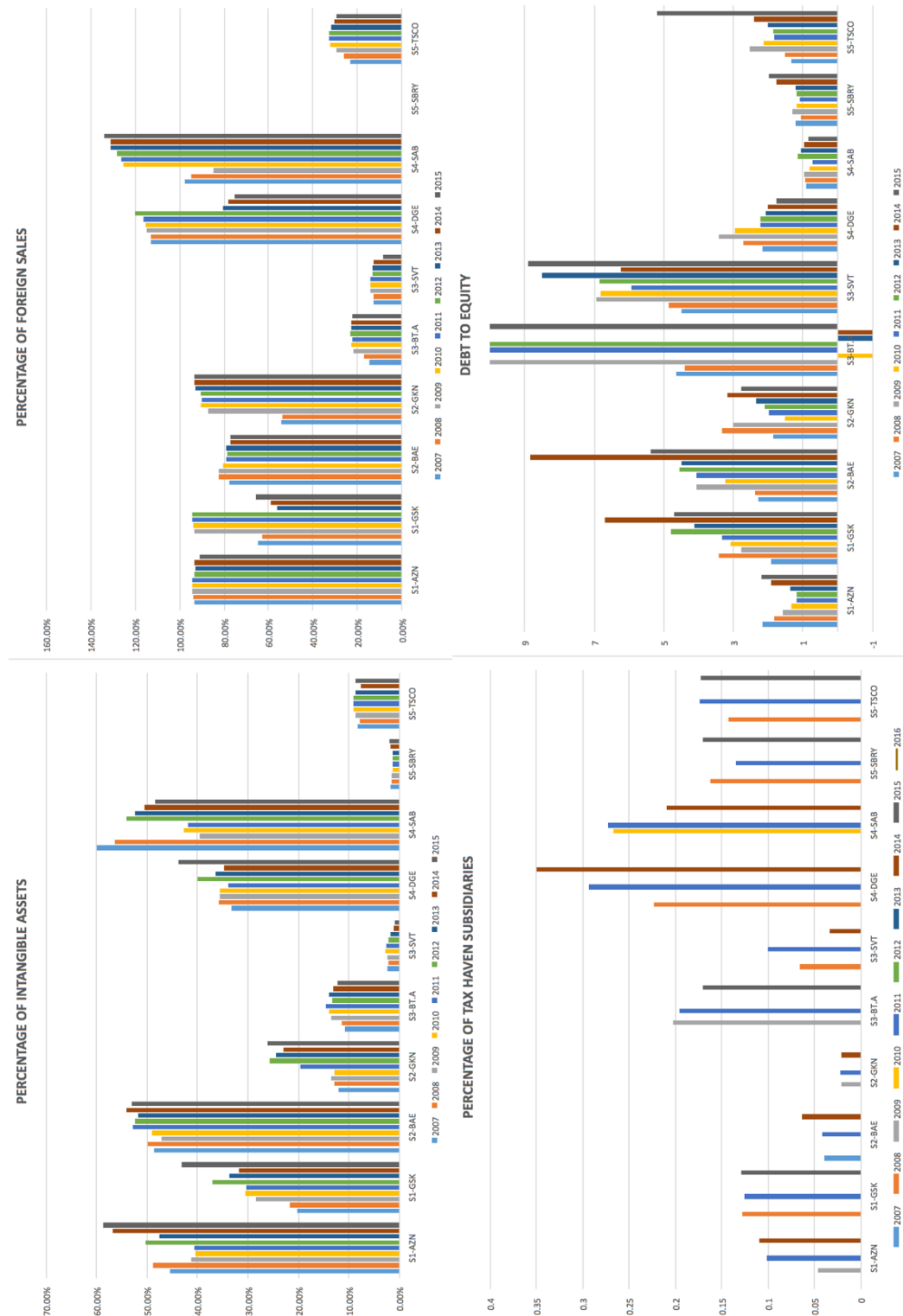


Figure 11: Intangible Assets, Foreign Sales, Tax Haven Subsidiaries and Debt to Equity of Selected Firms over the UK Corporate Tax Reform Period.



Works Cited

- ActionAid. (2011, Oct 1). *Addicted to tax havens: The secret life of the FTSE 100*. Retrieved from ActionAid: www.actionaid.org.uk/taxhavens
- Babkin, A., Glover, B., & Levine, O. (2016, Sept 8). Are Corporate Inversions Good for Shareholders? *Journal of Financial Economics, Forthcoming*. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2700987, 59.
- Barrios, S., Huizinga, H., Laeven, L., & Nicodeme, G. (2012). International taxation and multinational firm location decisions. *Journal of Public Economics*, 96(11-12), 946-958.
- Belz, T., Robinson, L. A., Ruf, M., & Steffens, C. (2013, Dec 23). Tax avoidance as a driver of mergers and acquisitions. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2371706, 44.
- Bryant-Kutcher, L., Eiler, L., & Guenther, D. A. (2008). Taxes and Financial Assets: Valuing Permanently Reinvested Foreign Earnings. *National Tax Journal*, 61(4), 699-720.
- Chorvat, E. (2016, Aug 20). Expectations and Expatriations: A Long-Run Event Study. *U of Chicago Public Law Working Paper No. 445*. Available at SSRN: <http://ssrn.com/abstract=2309915>, 51.
- Cloyd, C. B., Mills, L. F., & Weaver, C. D. (2003a). Firm Valuation Effects of the Expatriation of U.S. Corporations to Tax-Haven Countries. *The Journal of the American Taxation Association*, 25, 87-109.
- Cloyd, C. B., Mills, L., & Weaver, C. (2003b, Jan 13). Market Nonreaction to Corporate Inversions. *Tax Notes*, 98, 259-262.
- Dasgupta, S., Laplante, B., & Mamingi, N. (1998). Capital market responses to environmental performance in developing countries. *World Bank Policy Research Working Paper*(1909), 42.
- Deloitte Global Services Limited. (2015, Feb 03). *Standards*. Retrieved from Deloitte International Accounting Standards Plus: <http://www.iasplus.com/en-us/standards>
- Deloitte Publications. (2015, Nov 2). *A Closer look: The requirement to include a full listing of related undertakings within annual financial statements*. Retrieved from Deloitte International Accounting Standards Plus Publications: <http://www.iasplus.com/en-gb/publications/uk/closer-look/2015/closer-look-related-undertakings>
- Desai, M. A. (2002). The demand for tax haven operations. *Journal of public economics*, 90(3), 513-531.
- Desai, M. A., & Hines, J. R. (2002). Expectations and expatriations: Tracing the causes and consequences of corporate inversions. *National Tax Journal*, 55(3), 31.
- Devereux, M. P., & Loretz, S. (2011). *Corporation tax in the United Kingdom*. Said Business School, Economic and Social Research Council. Oxford: University of Oxford Centre for Business Taxation.

- Devereux, M. P., & Maffini, G. (2006). The impact of taxation on the location of capital, firms and profit: A survey of empirical evidence. *The Impact of Corporation Taxes Across Borders* (p. 52). London: European Tax Policy Forum.
- Dunning, J. H. (1973). The Determinants of International Production. *Oxford Economic Papers*, 25(3), 289-336.
- Dunning, J. H. (1988). The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions. *Journal of International Business Studies*, 19(1), 1-31.
- Dunning, J. H. (2003). Toward an Eclectic Theory of International Production: Some Empirical Tests. *Journal of International Business Studies*, 11(1), 9-31.
- Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-Run Corporate Tax Avoidance. *The Accounting Review*, 83(1), 61-82.
- Dyreng, S. D., Lindsey, B. P., & Thornock, J. R. (2006). Exploring the role Delaware plays as a domestic tax haven. *Journal of Financial Economics*, 108(3), 751-772.
- Ernst and Young Worldwide Corporate Tax Guide. (2015, Mar 20). *Publications*. Retrieved from Ernst and Young: [http://www.ey.com/Publication/vwLUAssets/Worldwide_corporate_tax_guide_2015/\\$FILE/Worldwide%20Corporate%20Tax%20Guide%202015.pdf](http://www.ey.com/Publication/vwLUAssets/Worldwide_corporate_tax_guide_2015/$FILE/Worldwide%20Corporate%20Tax%20Guide%202015.pdf)
- Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The Adjustment of Stock Prices to New Information. *International Economic Review*, 10(1), 1-21.
- Fleming, J. C., Peroni, R. J., & Shay, S. E. (2009). Worse Than Exemption. *Emory Law Journal*, 59(1), 79-149.
- Foley, C. F., Hartzell, J. C., Titman, S., & Twite, G. (2007). Why do firms hold so much cash? A tax-based explanation. *Journal of Financial Economics*, 86(3), 579-607.
- Goldman, S. H. (2008). Corporate Expatriation: A Case Analysis. *Florida Tax Review*, 9(2), 72-117.
- Gravelle, J. G. (2015). Tax havens: International tax avoidance and evasion. *National Tax Journal*, 727-753.
- Grubert, H. (2003). Intangible income, intercompany transactions, income shifting, and the choice of location. *National Tax Journal*, 221-242.
- Hillary Clinton Presidential Campaign. (2016, Oct 21). *Briefing*. Retrieved from Hillary Clinton Presidential Campaign: www.hillaryclinton.com
- HM Treasury. (2010). *Corporate Tax Reform: delivering a more competitive system*. Her Majesty's Revenue and Customs, HM Treasury. London: Crown Copyright.
- HRMC. (2016, Jan 15). *Transfer Pricing*. Retrieved from Her Majesty's Revenue and Customs (HMRC): <https://www.gov.uk/guidance/transfer-pricing-transactions-between-connected-companies>
- Huizinga, H. P., & Voget, J. (2009, May 20). International Taxation and the Direction and Volume of Cross-Border M&As. *The Journal of Finance*, 64(Mar), 1217-1249.
- Kleinbard, E. (2011). Stateless Income. *Florida Tax Review*, 11(9), 84.
- KPMG. (2016, May 15). *KPMG Corporate Tax Rates Table*. Retrieved from KPMG: <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>

- Laamanen, T., Simula, T., & Torstila, S. (2012). Cross-border relocations of headquarters in Europe. *Journal of International Business Studies*, 43(2), 187-210.
- Marian, O. (2015). Home-Country Effects of Corporate Inversions. *Washington Law Review*, 90(1), 1-73.
- MarketLine. (2016, Mar 08). *MarketLine Company Profile Reports*. Retrieved from MarketLine Advantage: <http://advantage.marketline.com.ezproxy.snhu.edu>
- Marples, D. J., & Gravelle, J. G. (2014). Corporate Expatriation, Inversions, and Mergers: Tax Issues. *Congressional Research Service Report*, 7-5700(R43568), 21.
- OECD. (2012). *Thin Capitalisation Legislation: A Background Paper for Country Tax Administrations*. Organisation for Economic Co-operation and Development, OECD Secretariat. Paris: OECD Tax & Development.
- OECD. (2015). *OECD G20 Base Erosion and Profit Shifting Project Final Reports*. Paris: Organisation for Economic Co-operation and Development.
- Pak, S., & Zdanowicz, J. (2002). US Trade with the World: An estimate of 2001 lost US federal income tax revenues due to over-invoiced imports and under-invoiced exports. *Center for International Business Education and Research, Florida International University*.
- PricewaterhouseCoopers. (2014, 02 02). *International Transfer Pricing*. Retrieved from pwc Tax Services: <http://www.pwc.com/gx/en/services/tax/transfer-pricing/itp-download.html>
- Rao, N. S. (2015, Sept 06). Corporate Inversions and Economic Performance. *NYU Wagner Research Paper No. 2566429*. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2566429. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2566429
- Rego, S. O. (2003). Tax-Avoidance Activities of U.S. Multinational Corporations. *Contemporary Accounting Research*, 20(4), 805-833.
- Richardson, G., & Taylor, G. (2015). Income Shifting Incentives and Tax Haven Utilization: Evidence from Multinational U.S. Firms. *The International journal of accounting education and research*, 50(4), 28.
- Seida, J. A., & Wempe, W. F. (2002). Market reaction to corporate inversion transactions. *Tax Notes*, 1098.
- Seida, J. A., & Wempe, W. F. (2003, Sept 5). Investors' and managers' reactions to corporate inversion transactions. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=359820, 1-37.
- Seida, J. A., & Wempe, W. F. (2004). Effective Tax Rate Changes and Earnings Stripping Following Corporate Inversion. *National Tax Journal*, 57(4), 805-828.
- Treasury, U. (2002). *Corporate Inversion Transactions: Tax Policy Implications*. U.S. Department of the Treasury. Washington, D.C.: Office of Tax Policy.
- Trump Presidential Campaign. (2016, Oct 21). *Trump Presidential Campaign*. Retrieved from Press Releases: <https://www.donaldjtrump.com>
- UK Companies House. (2015, Nov 02). *Compaines House About Us*. Retrieved from UK Government Organisations: <https://www.gov.uk/government/organisations/companies-house/about>

- UK Financial Reporting Council. (1995, Oct). FRS 8 Related Party Disclosures. London, England, UK.
- UK National Archives. (1985, Jan 01). *Companies Act 1985*. Retrieved from United Kingdom National Archives:
<http://www.legislation.gov.uk/ukpga/1985/6/contents>
- UK National Archives. (2006, Jan 01). *Companies Act 2006*. Retrieved from United Kingdom National Archives:
<http://www.legislation.gov.uk/ukpga/2006/46/contents>
- UK National Archives. (2010, Nov 01). *Corporate tax reform: delivering a more competitive system*. Retrieved from United Kingdom National Archives:
http://webarchive.nationalarchives.gov.uk/20130129110402/http://www.hm-treasury.gov.uk/corporate_tax_reform.htm
- UKTI. (2013). *A Guide to UK Taxation*. HM Government. London: UK Trade & Investment.
- Voget, J. (2010). Relocation of Headquarters and International Taxation. *Journal of public economics*, 95(9-10), 1067-1081.