A Case Study of Tax Inversion Impacts on Value Creation

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Abstract

Purpose – *Over the past four decades, a small number of U.S. corporations have elected to reduce profit taxes by relocating their legal/corporate headquarters to a foreign country with lower tax rates and a territorial assessment system. Companies in the United States have minimized their net income taxes by engaging in "inversion" transactions. It is assumed that reincorporation overseas will increase shareholder value by cutting corporate taxes. This article challenges that assumption through a case-level examination of enterprises participating in US-to-Ireland inversions and an examination of their financial operating performance.*

Method – *The analysis involves a review of all U.S. public company reincorporation in Ireland from 2010 to 2014. During these years, seven U.S. public companies "moved" to Ireland. The period was selected to maintain access to financial data post-inversion and to avoid the inversion-dampening effect of the 2018 reduction in U.S. corporate tax rates by one-third. The analysis is based on regulatory agency-reported data and assesses major financial metrics of value creation, including operating profit, net income, and return on total assets.*

Findings – *This analysis discovered that inversions do not create additional value from operations based on a rigorous review of all U.S. public company tax inversions in Ireland from 2010 to 2014. Instead, almost every instance of reincorporation to escape high US tax rates lowered the basic financial indicators used to gauge corporate performance. Inversions do not improve management's value creation outcomes from an internal value creation standpoint.*

Limitations – *The paper has several limitations. Even though it is a case study, the size of the group analyzed is quite small. The time for study is limited and might well inhibit a definitive conclusion. The focus is on operating metrics alone and does not consider positive stockholding value changes that may have occurred outside the control of company management. The value might have been created for investors through these inversion events even if profitability was not impacted.*

Implications – *The research findings are useful and interesting to academics and U.S. corporations who are considering doing an overseas tax inversion when U.S. tax rates are increased again.*

Originality – *We are not aware of any papers that specifically have questioned the assumption that tax inversions create enhanced profitability for re-incorporation-to-Ireland transactions undertaken by U.S. companies before 2018.*

Keywords: tax inversion, tax-motivated reincorporation, corporate income tax, shareholder value creation

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Introduction

Before the late 2017 Tax Cuts and Jobs Act (TCJA), the United States federal corporate income tax rate was the highest in the world. This can be seen from the Organization for Economic Cooperation and Development (OECD) compilation shown in Table 1. At 35 percent, it was the top rate among developed countries that levy a tax on net income at the business-entity level. In a search for greater profits, some U.S. firms seized the opportunity to escape from the U.S. federal tax by "inverting," relocating their legal domicile to a foreign tax jurisdiction with lower tax costs. This odd bit of locational gerrymandering does not entail changing the situation of business activity or operations. This act effectively reduces the tax burden by shifting from the higher U.S. tax regime to a lower tax domain elsewhere. While such a reincorporation event does not come without administrative costs, it usually results in a nearly transparent change that affects no one along the corporate value chain—not suppliers, employees, or customers—except the tax collector, a "silent partner" in businesses that extracts profit without effort.

The U.S. has seen several "waves" of tax inversion activity. Discovery by the fisc of the means used for this action always prompts—belatedly—new legislation to inhibit such a tax strategy. However, as soon as the law changes, new schemes are developed to skirt the altered rules. The cycle has occurred for over four decades, leading to the common belief that inversions are worthwhile and value-enhancing for shareholders. This proposition is investigated here by way of a tightly focused case-study analysis. The question is whether there is evidence that inversions are beneficial when viewed solely from the perspective of internal profit generation by the actors. Net income is indicative of managerial operating success. Can after-tax profits—value that is, in effect, owned by

stockholders—be bolstered by an artificial renaming of a firm's legal domicile? That is the notion investigated here. Moreover, the research conducted demonstrates this to be a false promise. Tax inversion transactions do not create value.

Table 1. Corporate Tax Rates for Major Countries

Corporate Tax Rates OECD Countries, 2017	
Country	**Tax Rate**
United States	35%
France	34.43%
Belgium	33%
Australia	30%
Mexico	30%
Greece	29%
New Zealand	28%
Portugal	28%
Italy	27.50%
AT, IL, NL, NO, E.S.	25.%
Data retrieved from OECD.org	

Background

A Historical Perspective on Tax Inversion Activity

McDermott International instigated the first successful U.S.-firm tax inversion in 1982. McDermott was a company based in Panama and wholly owned by McDermott, Inc., a U.S. corporation. Under U.S. tax law at that time, income tax was usually deferred for controlled foreign corporation profits until repatriated to U.S. shareholders as dividends. When the time came for McDermott International, the Panamanian subsidiary, to distribute its profit upstream to its U.S. corporate owner, that would have to pay tax on this income, and the corporate tax managers had a better idea. Cleverly, the quite small controlled foreign entity issued stock to the shareholders of its parent in exchange for their stock in McDermott, Inc. This transaction effectively reversed the parent-subsidiary relationship. Stockholders, of course, were pleased since they now received dividend income without its having been stripped of federal corporate income taxes. For owners, this innocuous and seemingly transparent transaction certainly appeared to create value for them. Quite a fair bit of tax gimmickry . . . and the door was opened for other companies to try this novel relocation technique.

In a direct but rather belated response to the McDermott action, the U.S. Congress enacted Section 1248 of the tax code (Rao, 2015). This provision forced corporate

shareholders to realize ordinary income—in the form of dividends—on any exchange or sale of a subsidiary in which the owner/parent possessed a 10 percent or greater control. Such realization of income was capped at the number of accumulated earnings of the controlled foreign corporation. That law changes completely removed any incentive to replicate this exact strategy for avoiding taxes, but it fell short of wholly terminating inversion events (Baker Tilly, 2013).

The next significant inversion, probably the most famous from a historical perspective, was accomplished more than a decade later in 1994. Helen of Troy reincorporated itself in Bermuda to reduce U.S. taxes. Helen of Troy's transaction is the prototype of inversions seen since that time: a merger of two corporations in which a U.S. target entity combines with a non-domestic entity to form a new foreign corporation. The de novo non-U.S. corporation would inherit tax domicile from the foreign counterparty, even if that non-domestic entity were newly formed to affect the subsequent inversion event.

In reaction to Helen of Troy, Congress attempted to prevent more cases of this new tax avoidance type by enacting Internal Revenue Code (IRC) Section 367. This additional IRC provision allowed for no more than 50 percent U.S. ownership in the new foreign corporation by officers or significant shareholders of the original U.S. target when considering the tax domain (Hayes, 2013). The revised law would not hinder inversion events for corporations in which the majority of U.S. shareholders owned less than 5 percent of the U.S. target or if the shareholders were "predominantly" foreign-domiciled. Even after two rounds of reactionary tax-law writing, there remained a huge loophole unaddressed by the new Code section—for in virtually all large U.S. publicly traded corporations, most stockholders are de minimis owners.

The obvious inadequacy of Section 367 allowed for the continued growth of inversions into the early 2000s, with more than two dozen inversions occurring between 1999 and 2005 (Bloomberg, 2017). This wave of inversions was addressed by Congress—again by reactive-mode legislative rule-making—with a more stringent tax-law provision, IRC Section 7874. This new legal requirement significantly limited the practicality and effectiveness of inversions. It provided that when a "new" combined corporation results in shareholders of the original U.S. corporation owning between 60 and 80 percent of entity control, there would be a tax on "inversion gains" recognized by a transfer or license of any property related to the transaction. To prevent inter-jurisdictional transfer pricing manipulation, operating losses could not be used to offset this gain. Furthermore, greater than 80 percent ownership resulted in the new organization being recognized as a U.S.-domiciled entity, so there would be no tax benefits from the inversion activity (Wood, 2016).

With these strictures in place, the optimal ownership position for shareholders of a former U.S. corporation is between 50 and 60 percent. Corporations have targeted this

so-called "sweet-spot" ownership range by matching themselves with slightly smaller foreign corporations that are just the right size to avoid the impact of Section 7874. Some firms have become serial inverters: companies create the perfect size relative to their targeted counterpart by undergoing multiple mergers. The IRS has sought new rules in which recently completed mergers would be ignored when considering ownership (Rubin, 2016). Furthermore, the IRS issued a notice in 2014 proposing to ignore passive intangible assets that inflate the value of the foreign parent in the merger ("Fact Sheet: Treasury Issues," 2016).

Since 2001, a major tax haven for U.S. corporations has been Ireland. According to the compilers of "Tracking Tax Runaways" (Bloomberg, 2017), 85 successful expatriation events have occurred since inversions first appeared in 1982. Twenty-two expatriated entities were reincorporated in Ireland. This large proportionate share is due to Ireland's extraordinarily low 12.5 percent corporate net income tax rate and that country's territorial tax assessment system.

Recent developments regarding the European Union's investigations regarding tax irregularities have serious implications for U.S. tax benefits that might obtain for corporate entities domiciled in Ireland. A new competition policy authorizes the European Union to assess the fairness of tax benefits granted to corporations in member countries. The U.S. claim that this policy infringes on U.S. regulation and tax code impacts for U.S. corporations has generated a significant controversy between the two governmental bodies. Under competition law, all tax benefits are investigated for "state aid attacks." The U.S. asserts that the E.U. has diverged from its established case law in recent state-aid decisions by enforcing competition law, not tax law (Keegan, 2016). In the largest competition-related investigation to date, the European Union ordered Ireland to collect an additional $14.5 billion in taxes from Apple by deeming the untaxed dollars an unfair trade benefit granted through Ireland's lenient tax policies and low tax rate (Kanter and Scott, 2016).

The magnitude of inversions and the significant controversy surrounding Ireland in recent years is intriguing. Can firms create more value for their shareholders by saving income taxes through an inversion? The current research applies a specific case-study focus directly to every Irish inversion consummated during the five years from 2010 through 2014.

Literature on Tax Inversions

There is an unusual paucity of academic literature directed specifically at corporate tax inversions. Whether this scarcity of study comes from the legal domain in which these events reside or the ever-changing nature of the legislative and government administrative rules constraining tax avoidance in general and inversion activity, in particular, is unclear. Certainly, the isolated nature (i.e., fewer than 100 occurrences over

40 years) and extraordinary complexity of these transactions do not create fertile ground for academicians to find fertile research territory. Even the professional literature is rather sparse, and that surely is because of the very limited applicability of tax inversion schemes. From a practical standpoint, there is little usefulness to studying or commenting on tax manipulations that cannot possibly impact any but the tiniest number—albeit the very largest—of U.S. business entities.

Taking the popular press and professional literature first, the pattern adopted usually is sensational disclosures about U.S. companies "moving off-shore" in some unpatriotic action to deprive the U.S. Treasury of its due. "[W]hen companies walk out on America," trumpeted then-candidate Hillary Clinton, "they will pay the price" (dailycaller.com, 2016). "A small but growing group of big corporations are fleeing the country to get out of paying taxes," said then-President Barack Obama (huffingtonpost.com, 2014). When Burger King Corporation, domiciled in the United States, decided to acquire the small Canadian firm Tim Hortons and reincorporate in Canada, the Americans for Tax Fairness political advocacy group dubbed it, certainly with pun intended, "A Whopper of a Tax Dodge" (Americans for Tax Fairness, 2014). Even former President Donald Trump, while a candidate for the presidency, hopped on the bandwagon to berate corporate location-shifters: "Nabisco, they make Oreos. They are moving to Mexico. I am never eating another Oreo again." (factcheck.org, 2015). Stories like these, mainly sensationalism to grab an audience, appeared when Walgreens floated a proposal to move to the E.U. (Sachdev and Frost, 2014), at the time Medtronic offered to acquire Covidien (Gelles, 2014a), after news of the merger between Salix and Cosmo broke (Bennett and Wayne, 2014), as the odd combination of drug-maker Hospira and French food-products giant Danone slowly progressed to consummation (Gelles, 2014b). These examples should suffice to show that authentic and substantive discussions of inversion actions were not the order of the day in popular press reporting about inversions.

Moving to the academic literature, it is wise at the outset to be mindful of the strong conclusion reached by Hwang (2015, page 856) about such research efforts: "While inversions have gained significant attention from policymakers and the press, they have received little attention in the academic literature." Why is that the case? The principal attention of economists who venture into the realm of tax policy often tends to focus on efficiency, equity, and growth outcomes. However, results in these three areas rarely enter into the discussions about what Harrington (2016) once tagged as the "Faustian bargain" of the tax-haven business. On one side of the opposing bodies is the fisc in sovereign nations, typically bent on preserving access to corporate profits as a base for taxation. On the other side are corporate managers with a vested financial interest in maximizing returns for the risk-takers who have provided capital to business enterprises. That pitched battle rarely creates an arena into which academic researchers venture with anticipation of making intellectual contributions in their scholarly attempts to extend knowledge.

Notwithstanding an expectancy that there will be relatively low levels of academic interest in the topic, a modicum of quite substantive conceptual and empirical work on inversions has appeared in the literature. Arguably, the formative piece came from Hines (1991) at a time when, according to most knowledgeable commentators, just two tax inversions had been consummated in the U.S. Long before the inversion technique became "popular," Hines concluded (page 477) that the reason for U.S. government aversion to off-shore relocation had more to do with the preservation of national prestige than the loss of tax revenues. This idea may well have come from Slemrod's (1990) intriguing questioning of the government's seeming indifference to the residence location of U.S. multinational firms. No doubt, though, the conclusion of Collins and Shackelford (1995) that higher effective income tax rates—among highly developed countries—certainly impacted locational decision-making when it came to corporate-level investment decisions.

The economic literature that has grown around the issue of U.S. corporate income taxation of multinational entities is concentrated on the foundational dichotomy between two types of tax structures: residence-based (or worldwide) versus territorial. This literature, both the theoretical and empirical streams, basically is intended to motivate change in government tax policy or substantiate/validate the extant scheme. As Gravelle (2012) pointed out, outcomes from the conceptual debate vary widely, and the empirical study results shed little light on the preferred form of tax base constitution. Most of the argument, whether from 30 years ago (see, for example, Feldstein, Hines, and Hubbard, 1995) or the post-TCJA era (here, the Marples and Gravelle recent report to the U.S. Congress in 2021 stands as the definitive summary on the matter), centers on the matter of locational decisions being triggered by a driving management objective to reduce distributions of profits to governments. Managers have a very strong self-interest in maintaining the net economic consequences of their efforts: profits are indicative of managerial decision-making successes which easily can lead to enhanced compensation for them; residual amounts from operations are available for reinvestment to grow the enterprise; accounting profits when turned into cash can be distributed to corporate owners; profit is a signal to the outside market that the firm is a value-creating entity whose ownership interest (i.e., common stock) is a valuable commodity worthy of possessing.

From a functional standpoint, two features make a country an attractive location for tax domiciliary: a low corporate tax rate and a territorial system (i.e., one that does not tax foreign source income). Debate among economists and policymakers has not much addressed the first of these questions simply because national-level budgetary decision-making occurs nearly exclusively in the political realm. Yet, it is precisely this low rate matter that motivates a considerable amount of the location decisions (Hines, 1996). Therefore, much of the inversion activity that occurred prior to the TCJA was simply based on rates (Morgan, 2018), while the type of tax system in place plays a lesser role (see, for an extended discussion on this matter, Altshuler and Grubert, 2001) in the

locational decision. Whether that will continue to be the case going forward is subject to some conjecture, as McBride (2014) pointed out before the U.S. corporate rate was abruptly lowered by one-third starting in 2018.

Scope and Method of Study

Companies are incentivized to alter their legal/corporate home to a foreign country with lower tax rates (and, it should be added, those with a territorial-based assessment system) because avoiding the corporate tax is expected to create value for shareholders. Put simply; money is not sent to the government as taxes might be distributed, instead, to corporate owners. Taxes on net income, far from being an authentic business expense from which value will be generated, actually are distributions of net operating profits to the fisc. No actual economic benefits are identifiable from the payment of these deadweight monetary exactions. This, of course, is the gospel according to inversion enthusiasts who argue, qua Adam Smith, that the tax mechanism itself promotes inefficiency in basic corporate decision-making (Hines, 1999) when, in fact, it ought to be neutral in that respect.

An alternative view promoted, for example, by Bybee (2016) claims that the 35 percent (pre-2018) corporate tax rate largely is a myth, challenging the idea that inversions generate significant tax savings. He cites a Citizens for Tax Justice report that estimated the effective U.S. tax rate for 288 profitable corporations between 2008 and 2012 to be only 19.4 percent. This somewhat unconventional but financially realistic way of looking at tax payments would rank the U.S. as the eighth lowest among advanced nations rather than the country with the highest pre-2018 marginal corporate tax rate. Such thinking directly challenges the assertion that inversions add value for shareholders. So this, too, is part of the proposition investigated in this research.

Specifically, the scope of this case-level research focuses on the seven U.S.-to-Ireland tax inversions that occurred in the five-year time period between 2010 and 2014. While there were other inversions during these and earlier years, the attention here is on a single time period and single country. The U.S. Treasury and the U.S. Congress were concerned with migrations to Ireland, so tax jurisdiction is a good one for the study of inversions. Ireland's low tax rate (see Table 1) provided robust incentives for American firms to consider relocation. The time for analysis is truncated simply because U.S. corporate tax rates under the former Trump Administration declined, with the passage of the TCJA, from 35 percent to 21 percent. As a consequence, inversions have become nearly non-existent after 2017.

This research provides a case-level analysis of value creation over a five-year time period by assessing corporate return on total assets (ROA) as a measure of the profit created by management's actions. ROA, a financial ratio based on reported accounting data, is the most robust indicator of management's effectiveness in creating value from

the total capital over which investors have been granted control (Helfert, 2007). Several collateral metrics also are considered, but the principal attention here is on the return created from the assets under management's command.

Return on assets is the broadest measure of internal value creation. It is wholly abstracted from considerations outside the dominion of managers—i.e., stock valuation in trading markets. Additionally, and of high significance, ROA is independent of entity capitalization choices, so it is truly an indicator of asset management itself. Importantly for this study, return on tangible assets was examined. This allowed control for the impact of the accounting artifact of goodwill. This new asset is added to the balance sheet after any merger event to reconcile the difference between the acquisition price paid and the book value of the acquiree's assets. Since the meaningfulness of the financial metrics is relevant at the time the inversion occurred, a distinct period was selected for each case ranging from two years prior to inversion through two years after the inversion (when two years of reporting data were available). For example, if an inversion occurred in 2011, the value-creation assessment is based on the range from 2009 to 2013. This method normalized the timeline so that all the cases studied could be analyzed in a consistent manner.

As noted earlier, the research is based entirely on Irish inversions that occurred during the years 2010 to 2014. The choice of study domain, while injecting a significant research limitation, is intentional. Obviously, years after 2017 had to be avoided because of the intervention of the TCJA major rate reduction. Thus, the scope was selected so as to be both recent and relevant while maintaining accessibility to financial data post-inversion. Choosing to examine the impact of the lowest tax rate venue among developed countries provides a high likelihood of finding value accretion if it was created as a consequence of tax avoidance. All other factors aside, taxes not required to be paid will flow directly to net income that can be shared by stockholders. As a consequence, the return on assets metric ought to increase. One final point regarding the scope selected for this analysis: An investigation focused on a single foreign country also obviates complications caused by possible inter-nation discontinuities in tax law and tax base construction. This study-construction attribute, while creating a major limitation to extending the results to other jurisdictions, enhances the strength of the empirical outcomes.

Contemporary inversions, as can be seen from the earlier historical background provided, have evolved over time. Gravelle (2021) proposed that inversions occur through three different paths: "naked inversions" that follow a substantial business presence (by a foreign subsidiary) route, a U.S. firm merger with a larger foreign-based firm, and the "swallowing" of a large U.S. entity by a significantly smaller foreign company. The actual techniques used to invert—stock-for-stock swaps, asset transfers, or drop-down transactions with newly created foreign units—are equally applicable to the three types of inversion identified by Gravelle.

Most U.S. inversions have involved a foreign holding company acquiring a U.S. corporation. The current research looks at corporate governance structures in Ireland that also evolved in response to tax-law changes. These transactions are extraordinarily complex. Whenever available, explanatory diagrams from the Securities and Exchange Commission Form S-4 have been extracted and reproduced below to clarify the studied cases. If the registrants did not provide a corporate re-structuring schematic, diagrams were created to clarify how the inversion was actually affected. These graphical visualizations should provide an understandable view, from a corporate governance perspective, of the transformation that occurred in the inversion transaction.

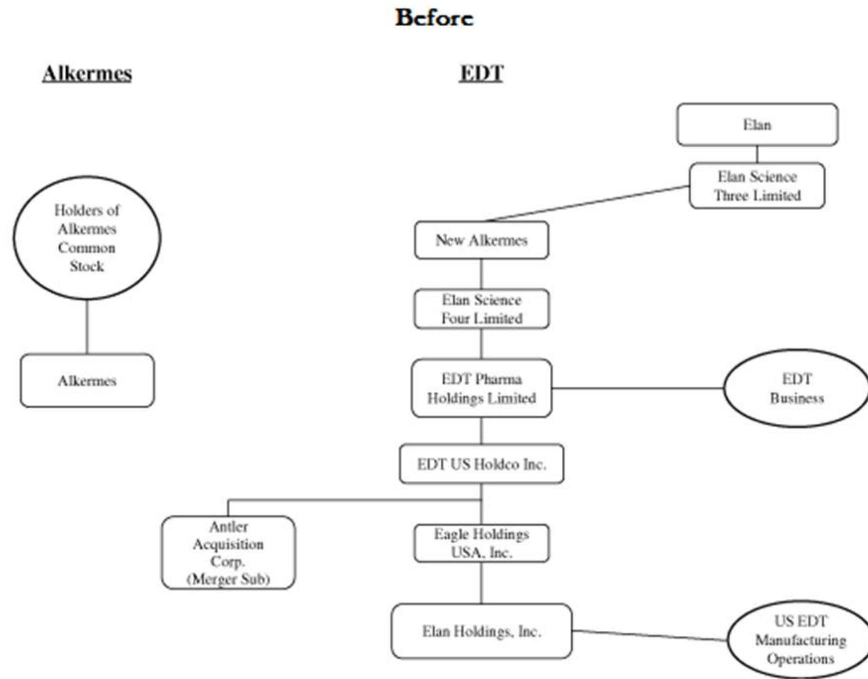
Now to the empirical study—the actual inversion transaction details for the seven cases. In each of these explanations, the financial data, pre- and post-inversion ROA ratios, are given for the relevant U.S. company. Following the seven separate descriptions and analyses, a summary is provided so that a conclusion can be drawn with regard to the initial question posed: Do tax inversions lead to value creation?

U.S. Target: Alkermes Inc.

Alkermes Inc. was a Massachusetts biotechnology company originally founded in 1987. In the year prior to its inversion, the company was best known for manufacturing the prescription medication Vivitrol, a pharmaceutical that assists patients suffering from alcohol abuse, and the drug Risperdal Constra, a chemical treatment for long-term sufferers of bipolar disorder. At the time of the inversion, the company brought to market Bydureon, a new treatment for Type 2 diabetes. For context, it should be noted that the firm's market valuation in September 2009 was $850 million (Alkermes Inc. 2010 Form 10-K).

In May of 2011 Alkermes Inc., the U.S. entity, completed a business combination agreement with Elan Corporation plc of Ireland. An Irish holding company named New Alkermes was created, formally known as Alkermes plc. Elan carved out its subsidiary, called EDT, and transferred full EDT ownership to New Alkermes. Antler Acquisition Corporation was created. EDT directly and wholly owned this entity (and, therefore, indirectly wholly owned by New Alkermes), having been created for the sole purpose of merging with Alkermes Inc. Elan Corporation plc was given 31,900 shares of New Alkermes. Alkermes Inc. shares were canceled, and the shareholders were granted an appropriate number of shares in New Alkermes. Due to these machinations, former shareholders of Alkermes Inc. owned 75 percent of Alkermes plc, and the shareholders of the merger partner Elan owned 25 percent of the new Irish holding company (Antler Science Two PLC Form S-4, 2011).

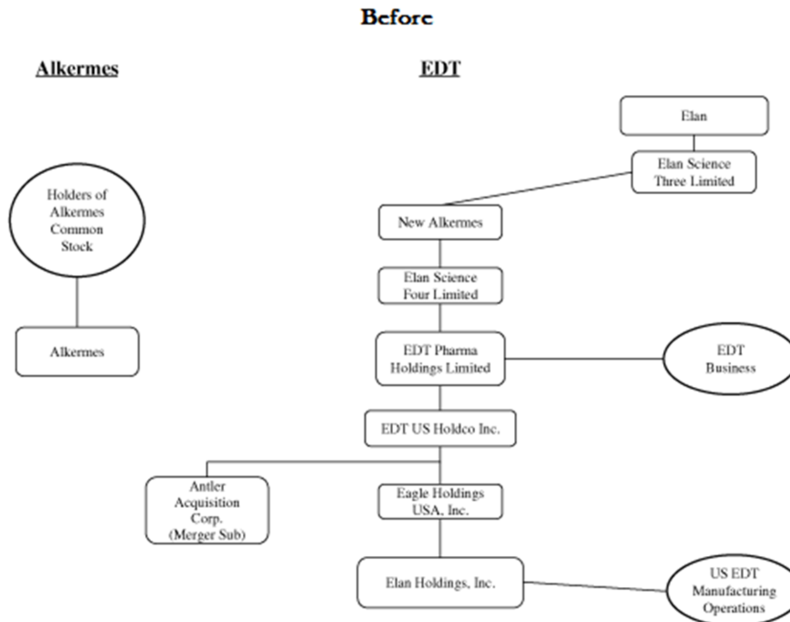
The graphics shown in the three panels of Figure 1, all of which were extracted directly from the Antler Science Form S-4, provide a visual portrayal of how this complicated inversion occurred.



Source: Antler Science Two plc 2011 Form S-4

Figure 1. Alkermes/Elan Merger

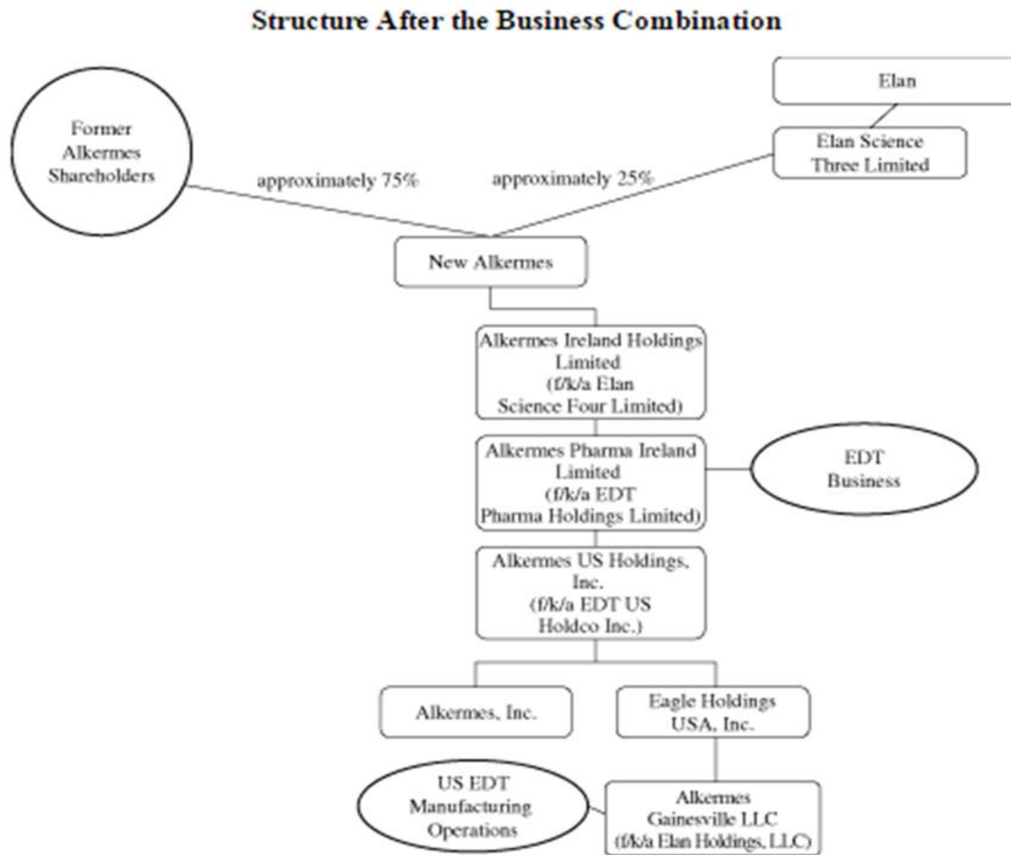
Panel A—Pre-Inversion Structure



Source: Antler Science Two plc 2011 Form S-4

Figure 1. Alkermes/Elan Merger

Panel B—Merger Transaction



Source: Antler Science Two plc 2011 Form S-4

Figure 1. Alkermes/Elan Merger
Panel C—Post-Inversion Structure

The graph in Figure 2 below provides the financial metrics for Alkermes centered around the inversion date. From these data, several conclusions can be drawn. First of all, the operating margin declined over the five-year period. For the purposes here, operating margin, a standard financial analysis measure, is defined as the profitability or performance ratio that reflects the percentage of profit a company produces from its operations before subtracting taxes and interest charges. It is calculated by dividing the operating profit by total revenue and expressing it as a percentage. In the inversion year, there was a spike in all four returns on assets metrics. This was due, in part, to increased operating profit, although other financial elements such as interest income and utilization of deferred tax assets certainly contributed to this upsurge. None of these financial factors was related to a lower statutory tax rate after moving to Ireland.

Overall, it is not evident that Alkermes benefited from the inversion transaction. Operating return on assets declined partly due to a reduction in operating margin. Consequently, this droves the ROA metrics down. Furthermore, there is a lack of

significant evidence of any improvement in operating income retention. Holding the ratio's denominator constant, the graph displays a very clear divergence of operating income and net income.

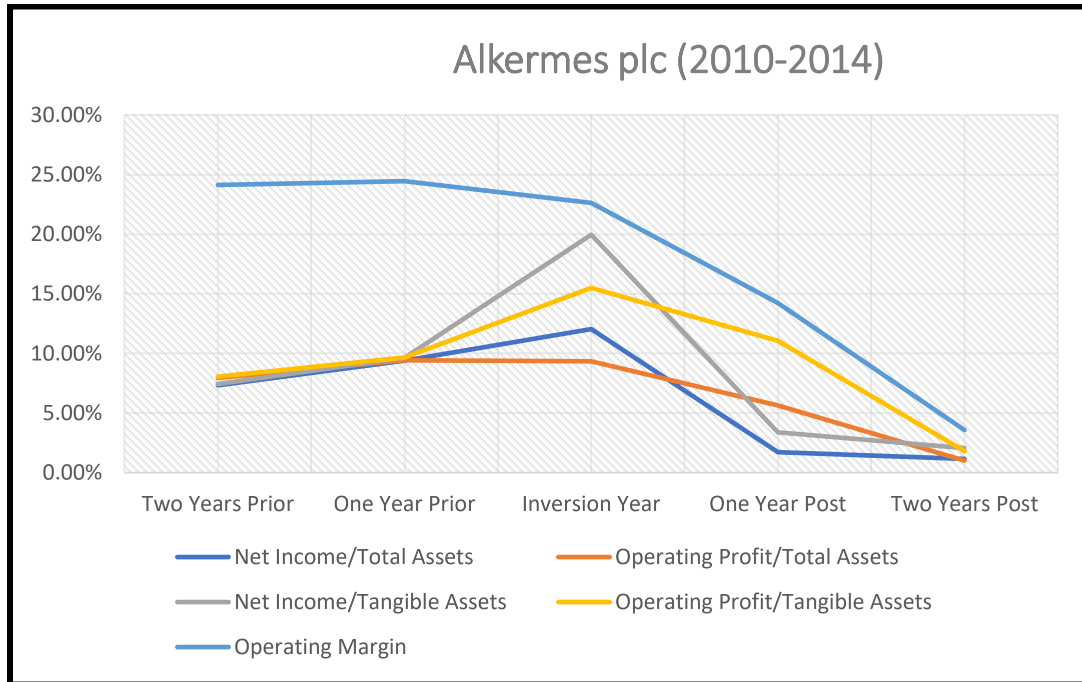


Figure 2: Alkermes Financial Measures, 2010-2014

U.S. Target: Jazz Pharmaceuticals Inc.

Jazz Pharmaceuticals Inc. was a major drug company founded in 2003 and based in Palo Alto, California. By 2010, the company's biggest successes came from developing Xyrem and Luvox C.R. Xyrem treats cataplexy and narcolepsy; Luvox C.R. is used by those with obsessive-compulsive disorder. At the time of inversion, 84 percent of the company's sales could be attributed to Xyrem. The company's aggregate market value as of June 30, 2010, was $146 million (Azur Pharma plc 2010 Form 10-K).

In September 2011, Jazz Pharmaceuticals Inc. entered into a merger agreement with Azur Pharma (Ireland). This very complex, multi-tiered transaction entailed Azur changing its name to Jazz Pharmaceuticals plc and creating a wholly-owned U.S. subsidiary, Jaguar Merger Sub Inc., for the sole purpose of merging with Jazz Pharmaceutical Inc. After Jazz Pharmaceutical Inc. merged with Jaguar Merger Sub Inc., it survived as a wholly owned subsidiary of Jazz Pharmaceutical plc. Jazz Pharmaceutical Inc. shares were swapped, on a one-for-one basis, for Jazz Pharmaceutical plc shares. In the end, 78 percent of the shareholders of the Irish holding company were former shareholders of Jazz Pharmaceutical Inc., and 22 percent were former Azur Pharma owners (Azur Pharma plc 2011 Form S-4).

The three "pieces" to this inversion are given in the panels of Figure 3.

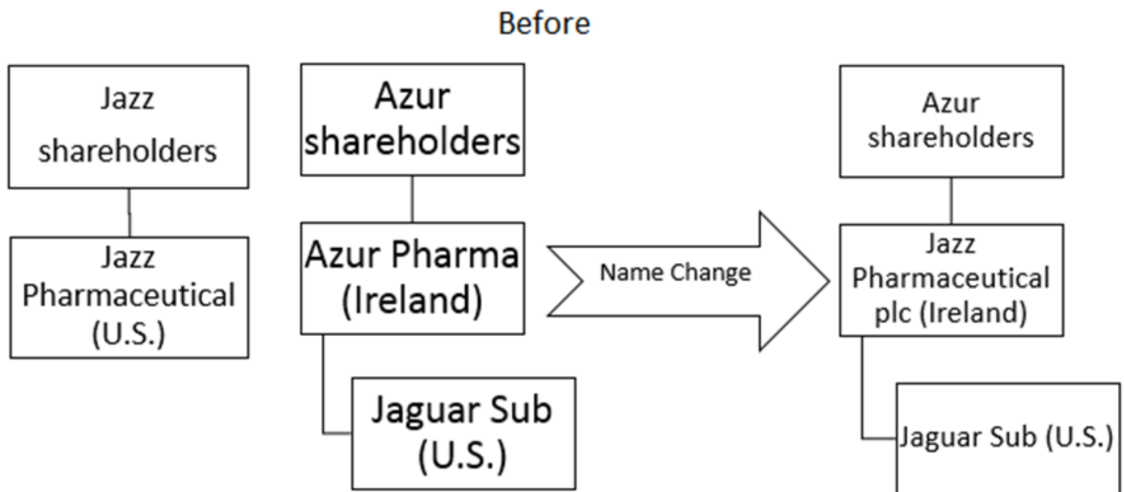


Figure 3: Jazz / Azur Merger
Panel A—Pre-Inversion Structure

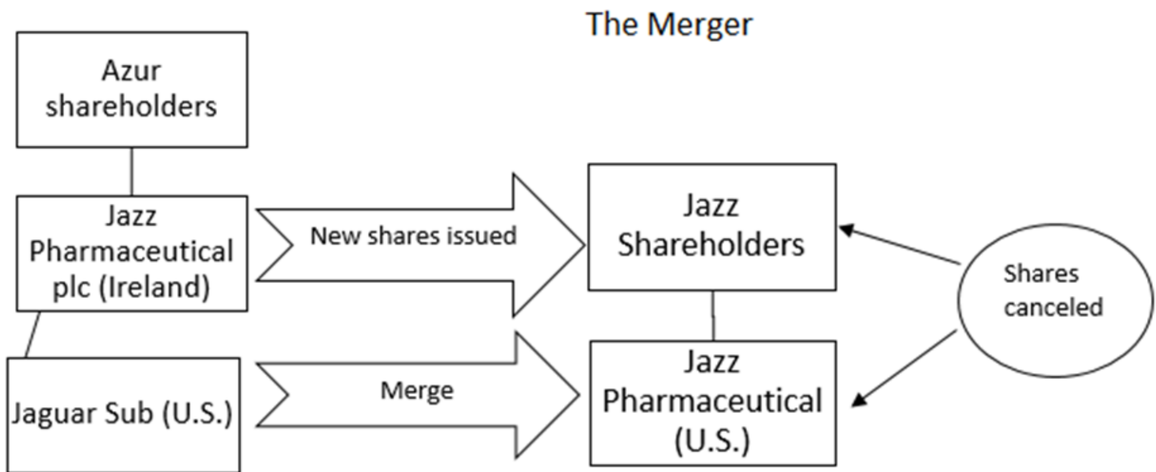


Figure 3: Jazz / Azur Merger
Panel B—Merger Transaction

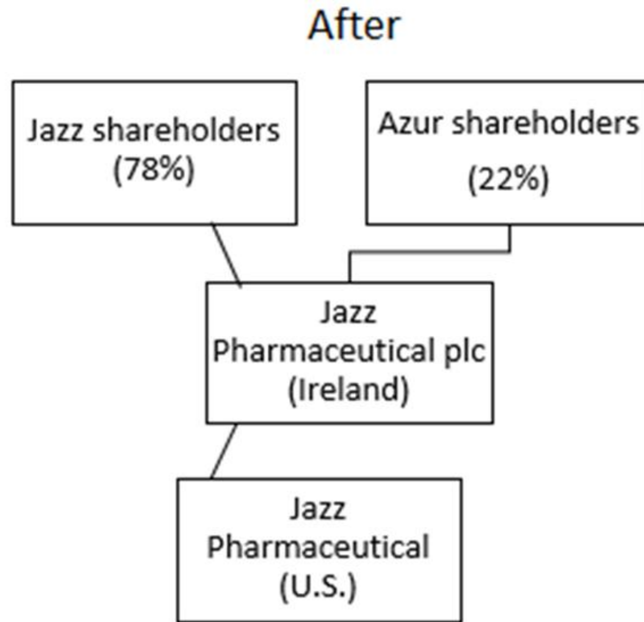


Figure 3: Jazz / Azur Merger
Panel C—Post-Inversion Structure

Figure 4, below, captures in graphical format the financial metrics covering the five years from the time before the inversion combination through the two fiscal periods after the Jazz-Azur merger. Since the inversion was agreed upon in the fourth quarter of 2011, and because the goodwill asset was added to the balance sheet in 2012, the "inversion year" actually was determined to be 2012 for the purposes of this analysis.

Unlike in the first case shown earlier for the Alkermes merger, Jazz Pharmaceuticals did not evidence a decline in operating margins over its five-year timeline, although the increase is a very slight one indeed.

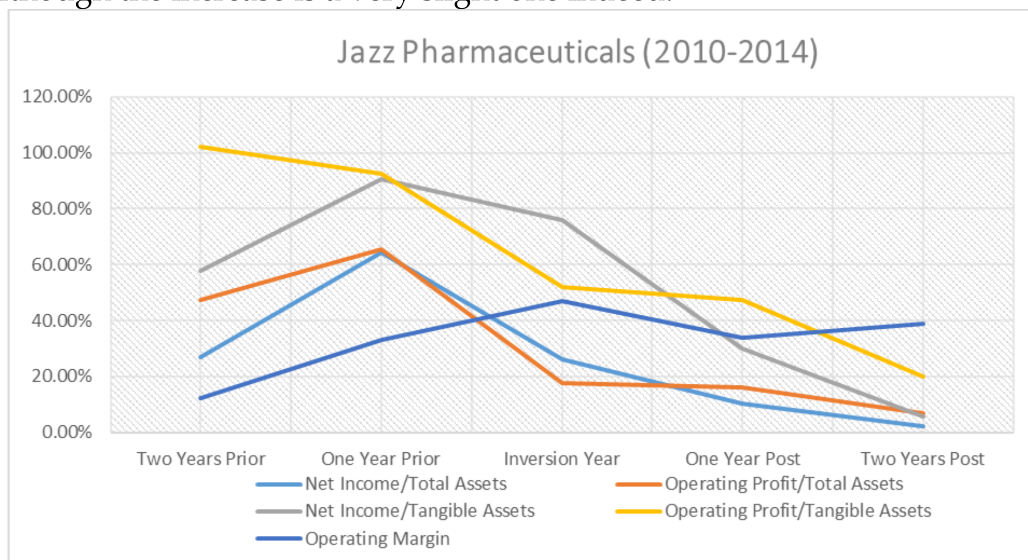


Figure 4: Jazz Pharmaceuticals Financial Measures, 2010-2014

The high rate of return on assets in the two years prior to the inversion can be attributed to the significant rise in the sales of the drug Xyrem (this drug costs more than $6,000 for a month's supply). During 2010 and 2011, prior to the inversion, Xyrem sales were $143 and $233 million, respectively. In contrast, Xyrem's earlier-year sales amounted to only $54 million in 2009. This tremendous yearly sales increase was accomplished with no significant addition to assets. Most striking, though, is the fact that in 2014, two years after the inversion, Xyrem sales skyrocketed to $779 million, but the return on assets was substantially lower than in the prior years. Evidently, management became less efficient with its asset deployment when comparing post-inversion to pre-inversion. That is certainly not the outcome expected from a value-enhancing transaction.

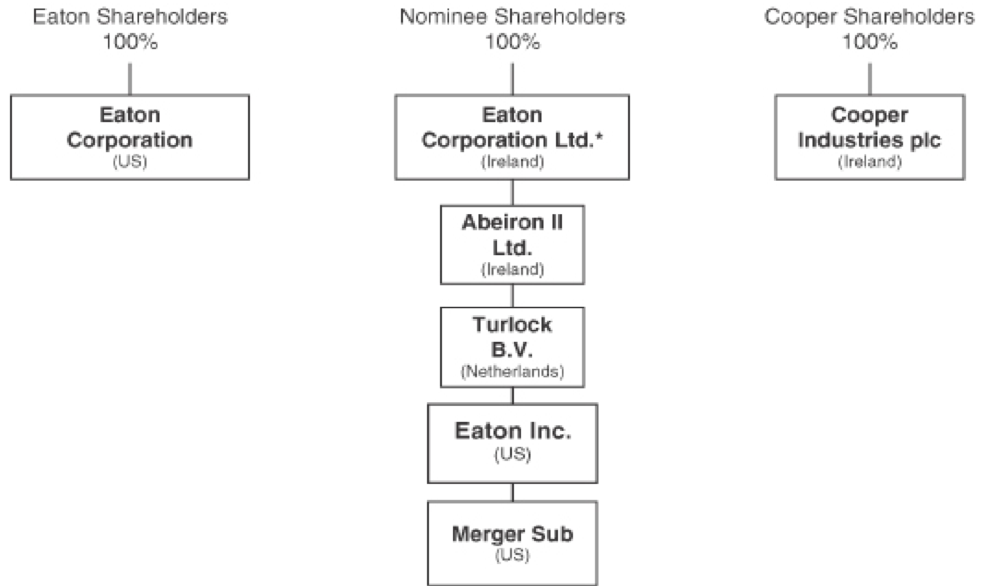
In the inversion year (2012), a large dollar amount of intangible assets and goodwill was booked from the merger transaction. This could mean that the total asset return decline might be attributed in part to a larger denominator. Were that to be the case, the prior comment regarding post-inversion managerial inefficiency might be modified. On closer analysis, though, the return on tangible asset measure also declined in the year of the inversion, leading to a dismissal of the amelioration speculation. The ROA metric never returned to the same level as in the pre-inversion period. Applying return on assets as the deciding criterion, it is not apparent that value was created from this inversion.

U.S. Target: Eaton Corporation

Eaton Corporation was a diversified power management company founded more than a century ago (1911) in Bloomfield, New Jersey. The company's operating units were Electrical Americas, Electrical Rest of World, Hydraulics, Aerospace, and Truck and Automotive. By 2011, the company had achieved $16 billion in annual net sales. The market value was $17.5 billion at the end of June of that year (Eaton Corporation 2011 Form 10-K).

In May 2012, Eaton Corporation and Cooper Industries plc (Ireland) engaged in a merger transaction. Under the combination agreement, Eaton Corporation plc was formed as a holding company to acquire Eaton Corporation and Cooper. Merger Sub, wholly owned by Eaton Corporation plc, was incorporated in the United States to merge with Eaton Corporation. After the merger, Eaton Corporation shares were canceled via a straightforward conversion to shares of Eaton Corporation plc. Simultaneously, Eaton Corporation plc acquired Cooper Industries by exchanging each holding company share for 0.77 Cooper shares and $39.15 in cash. These transactions resulted in former Eaton Corporation shareholders owning 73 percent and former Cooper Industries plc shareholders owning 27 percent of the new Eaton Corporation plc (Eaton Corporation Limited 2012 Form S-4).

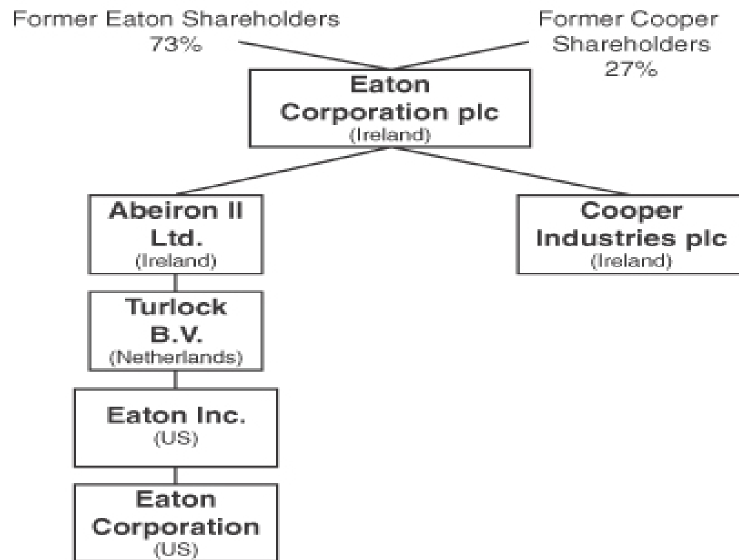
The diagrams in the separate panels of Figure 5 were extracted from the Eaton Corporation S-4 filing. They show how the inversion event transformed the corporate structures.



Source: Eaton Corporation Limited 2012 Form S-4

Figure 5: Eaton/Cooper Merger

Panel A—Pre-Inversion Structure



Source: Eaton Corporation Limited 2012 Form S-4

Figure 5: Eaton/Cooper Merger

Panel B—Post-Inversion Structure

Figure 6 below displays financial metrics for Eaton Corporation before and after the inversion transaction. Operating return on assets and operating margin on sales both were relatively steady for Eaton over this complete five-year timeline. During the inversion year, the company recognized a small dip in the operating profit over the tangible assets' ratio.

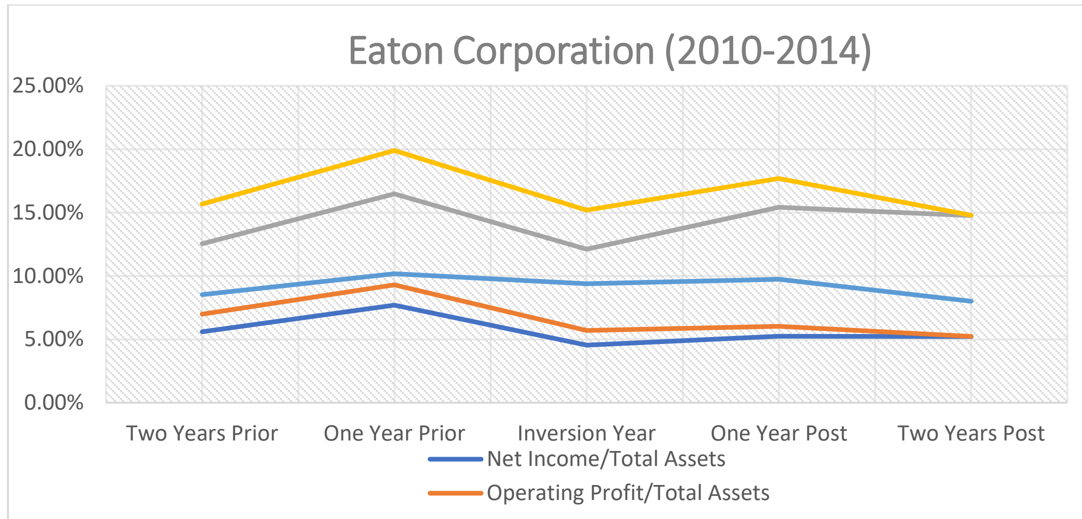


Figure 6: Eaton Corporation Financial Measures, 2010-2014

Delving a bit deeper into the aggregated data, there appears to be *some* evidence for value creation that is related to tax avoidance alone. A comparison of the ratio of operating profit over net income change through this time period shows signs of an improvement in the retention of operating income. That analytic ratio was 80 percent in 2010, 85 percent in 2011, 93 percent in 2012, 90 percent in 2013, and 97 percent in 2014. Furthermore, the effective tax rate declined at the time of the inversion and continued to decline in the post-inversion period displayed. The effective tax rate was 9.5 percent in 2010, 12.9 percent in 2011, 2.4 percent in 2012, only 0.6 percent in 2013, and -2.4 percent in 2014. Taken together, all of this evidence points towards a successful inversion with respect to income tax costs, but that appears to have occurred at the expense of a marginal reduction in operating efficiency.

U.S. Target: Questcor Pharmaceuticals Inc.

Questcor Pharmaceuticals Inc. was a U.S. biopharmaceutical company with focused pharma-chemical research on difficult-to-treat autoimmune and inflammatory disorders. The firm was founded in 1990 in Anaheim Hills, California. A company with extensive production facilities, it also provided manufacturing services to others in the pharmaceutical industry all over the globe. As of January 30, 2013, the company had a market valuation of $1.8 billion (Questcor Pharmaceuticals Inc. 2013 Form 10-K).

In May of 2014, Covidien (Ireland) and Questcor consummated a merger transaction. Under the agreement, a new company, Mallinckrodt plc, was formed as an

Irish holding company that would acquire both Covidien and Questcor and remains the surviving entity. Covidien shareholders received one Mallinckrodt share for every eight Covidien shares held. Quincy Merger Sub, Inc., wholly owned by Mallinckrodt, was created to merge with Questcor Pharmaceuticals Inc. At the time of the merger, each share of Questcor stock was converted into 0.88 shares of Mallinckrodt stock; shareholders also received a value-equalizing $30 cash payment. These transactions resulted in former Covidien shareholders owning 50.5 percent of Mallinckrodt shares and prior Questcor shareholders holding the residual 49.5 percent of Mallinckrodt (Mallinckrodt plc 2014 Form S-4). This was a complicated multi-phase inversion. The diagrams shown in the three Figure 7 panels show how it occurred.

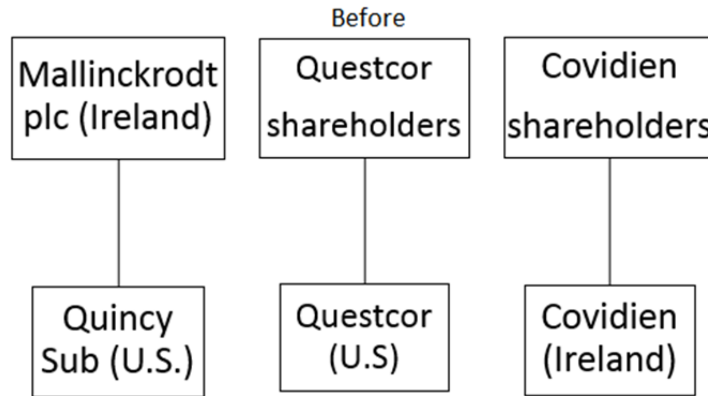


Figure 7: Questcor/Covidien Merger
Panel A—Pre-Inversion Structure

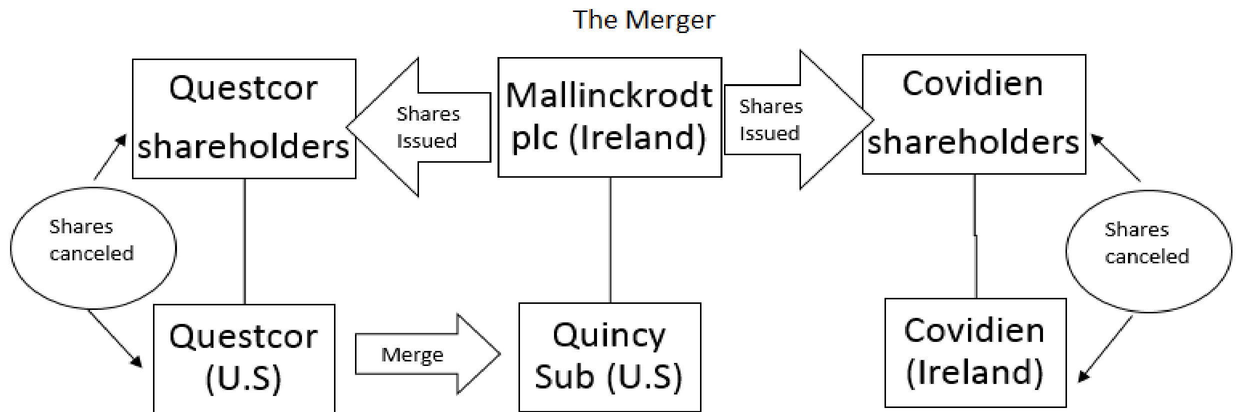


Figure 7: Questcor/Covidien Merger
Panel C—Post-Inversion Structure

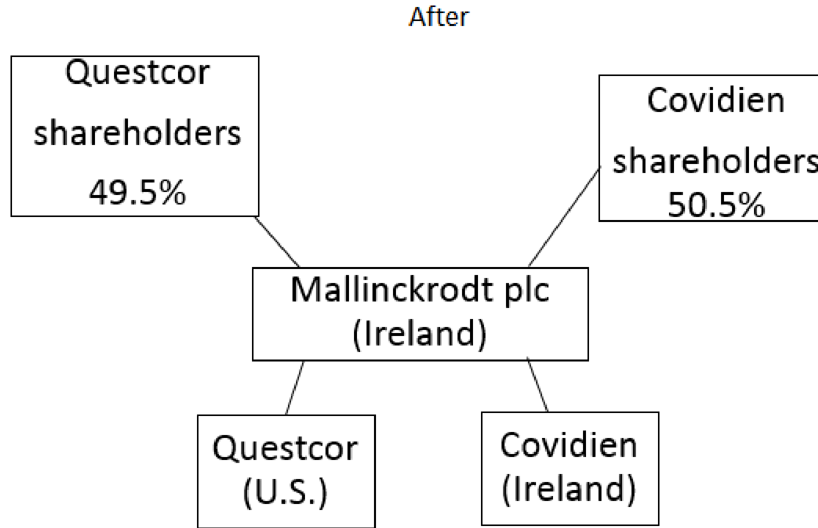


Figure 7: Questcor/Covidien Merger
Panel C—Post-Inversion Structure

Figure 8 displays financial metrics for Mallinckrodt plc before and after the inversion. In the inversion year, the return on assets was negative, indicative of a net accounting loss for the period. One year after inversion, though, the company reported a substantial increase in return on assets. This was due almost exclusively to a deferred tax benefit of $188.3 million that was realized when the company released its valuation allowance on certain deferred tax assets. This benefit is not connected in any way to the lower statutory tax rate; rather, it relates to an expectation of future tax benefits. There are no significant signs of improved retention of operating income, as can be seen by the consistent gap between net income and operating income.

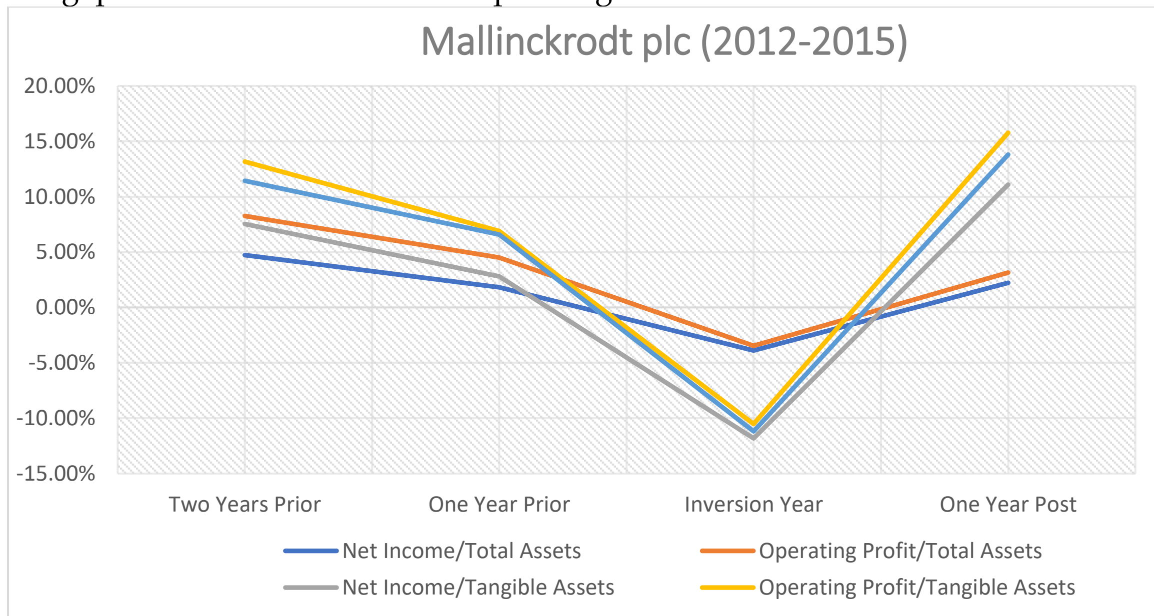


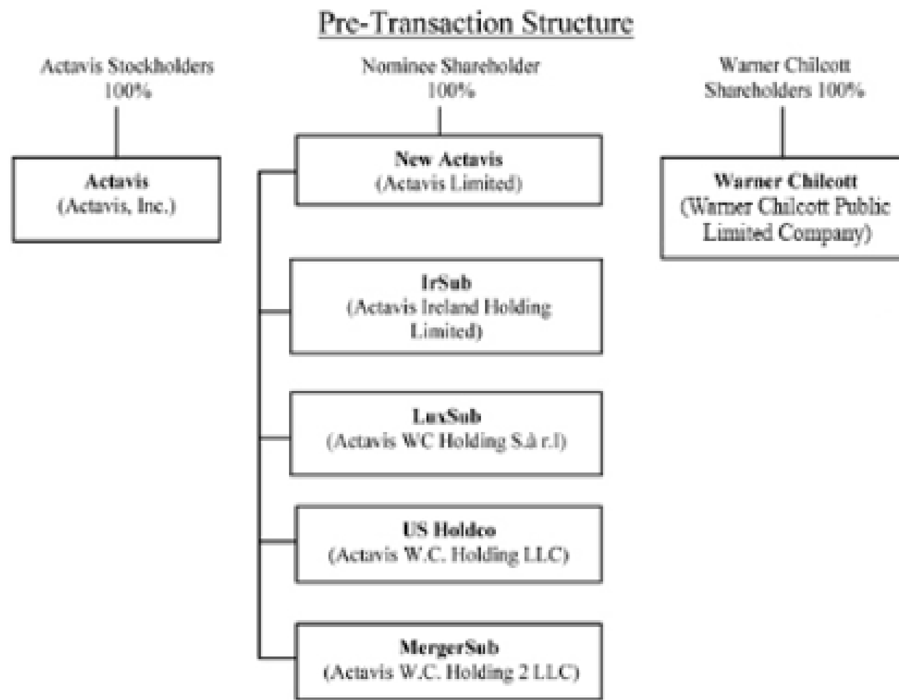
Figure 8: Mallinckrodt plc Financial Measures, 2012-2015

What is most peculiar about the Mallinckrodt case is that the company booked $356 million in impairment losses in the inversion year. This means that the company overvalued the intangible assets acquired in connection with the merger, and it cost the shareholders dearly. Obviously, the valuation process that occurs in transactions of this type is yet another factor that can have an impact on reported profitability after an inversion occurrence.

U.S. Target: Actavis Inc.

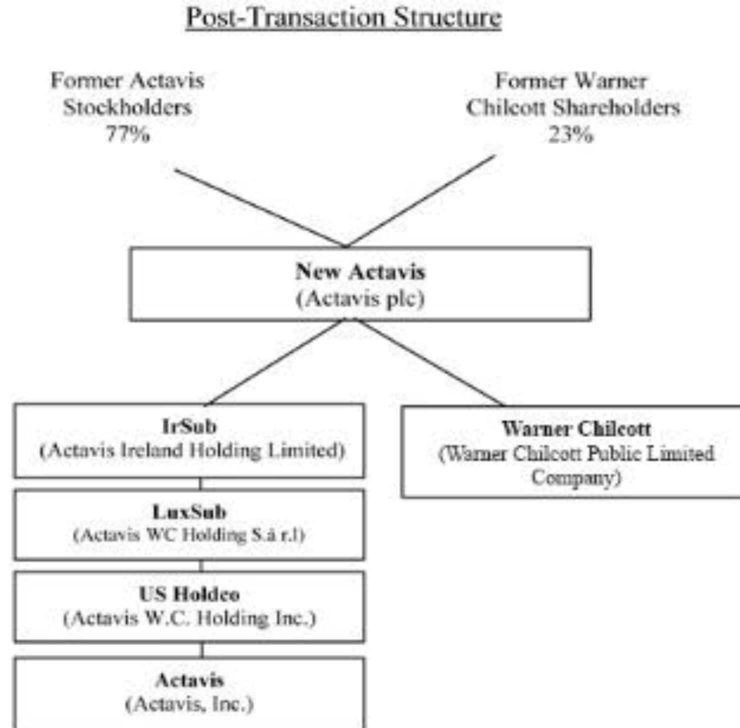
Watson Pharmaceuticals, Inc. was founded in 1985, and its headquarters location is in Corona, California. Actavis Group was a multinational pharmaceutical company founded in 1956 with a headquarters location in Parsippany-Troy Hills, New Jersey. In May of 2012, Watson acquired Actavis Group, renaming itself Actavis Inc. This merged company was engaged in all of the market spaces in the pharmaceutical sector, including development, manufacturing, marketing, and generics production. At the time of the inversion, the company sold more than 250 generic drugs and 40 branded pharmaceuticals. It operated in over 60 countries around the globe, with a market valuation of $9.4 billion on June 30, 2012 (Actavis Inc. 2012 Form 10-K).

Just a year after the Watson-Actavis combination, Actavis Inc. entered into a merger agreement with Warner Chilcott plc (Ireland), leading some commentators to suggest that this subsequent inversion was planned in 2011 before the first U.S. merger occurred (McKinnon and Thurm, 2012). According to the May 2013 agreement, New Actavis, formally known as Actavis plc, was formed for the purpose of acquiring and holding Warner Chilcott and Actavis Inc. Warner Chilcott shares were exchanged at a rate of 0.16 shares for every New Actavis share. At the same time, Actavis W.C. Holding 2 LLC, a wholly owned indirect subsidiary of New Actavis, merged with Actavis Inc., resulting in Actavis Inc. surviving the merger. Actavis shares were canceled through conversion into New Actavis shares. These activities resulted in Warner Chilcott shareholders owning 23 percent and Actavis shareholders holding 77 percent of Actavis plc (Actavis Limited 2013 Form S-4). Actavis later changed its corporate name to Allergan.



Source: Actavis Limited 2013 Form S-4

Figure 9: Watson/ Actavis Merger
Panel A—Pre-Inversion Structure



Source: Actavis Limited 2013 Form S-4

Figure 9: Watson/ Actavis Merger
Panel B—Post-Inversion Structure

The images in Figure 9 were extracted from the Actavis Limited Form S-4 and show the before and after corporate structures.

The obvious continuing trend revealed by Allergan (using the "final" name of the combined, inverted Irish entity) financial data graph in Figure 10 is a significant decline in operating efficiency. Return on tangible assets and operating margin fell during this five-year period.

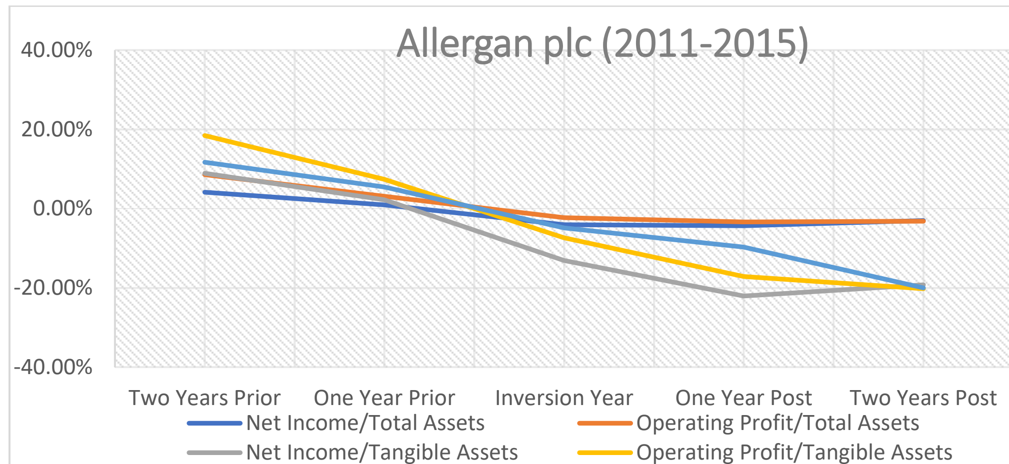


Figure 10: Allergan plc Financial Measures, 2011-2015

Notably, with the impact shown in 2015, Allergan sold its Global Generics business—the biggest piece of activity from the original Warner (U.S.) company—to Teva Pharmaceutical Industries Limited, the largest U.S. generics manufacturer. This created an enormous difference between the operating loss and net income (technically, the disposed of subsidiary results are denoted as income and gain from discontinued operations). The net operating loss was $3 billion, while net income, bolstered by the sale of the huge generic drug division, was $3.7 billion, with a $6.8 billion gain on the Teva transaction making up the bulk of the swing from large operating loss to large net profit. To make sense of the inversion outcome, net income—after tax—from *continuing operations* was used for this analysis instead of total net income.

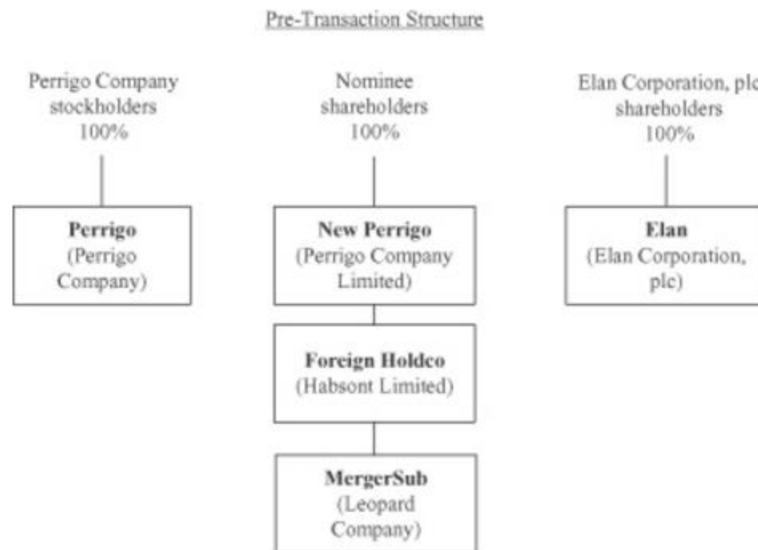
On the surface, it appears that there might have been a tax benefit from the inversion. The gap between net income and operating profit converged, with tax costs being one of many factors involved. However, on closer examination, it appears that the overall decline in return on tangible assets suggests more correctly that, here again, the inversion did not create value for shareholders when standard financial metrics are considered.

U.S. Target: Perrigo Company

Perrigo Company was founded in 1887 in Allegan, Michigan, and for more than 75 years was a small, local proprietorship selling patent medicines to regional grocery stores in the American Mid-West. The company transformed itself over several decades into a vast global manufacturer and distributor of a full line of pharmaceutical products. Its consumer healthcare segment manufactured dozens of over-the-counter pharmaceuticals. The nutritional segment developed infant products, vitamins, minerals, and dietary supplements. The Rx segment created "extended topical" generics, including creams, ointments, lotions, gels, shampoos, foams, and similar products. The active pharmaceutical ingredients division of the firm segment specialized in synthesizing fewer common molecules for use in drug formulations that were used by other multinational drug companies. At the year-end of 2011, the company was valued in the marketplace at $8.4 billion (Perrigo Company 2012 Form 10-K).

In July 2013, Perrigo Company and Elan plc (Ireland) engaged in a merger. New Perrigo was formed as an Irish holding company to own both Perrigo and Elan. Elan shares were exchanged for $6.25 in cash and 0.08 shares of New Perrigo. Leopard Company, an indirect subsidiary of New Perrigo, merged into Perrigo Inc., with Perrigo as the merger survivor. Perrigo Company shares were canceled and converted on a one-for-one basis into shares of New Perrigo ($0.01 cash per share also went to exchanging stockholders). New Perrigo was officially named Perrigo plc. This transaction resulted in 29 percent ownership by former Elan shareholders and 71 percent ownership by former Perrigo shareholders in Perrigo plc (Perrigo Limited 2013 Form S-4).

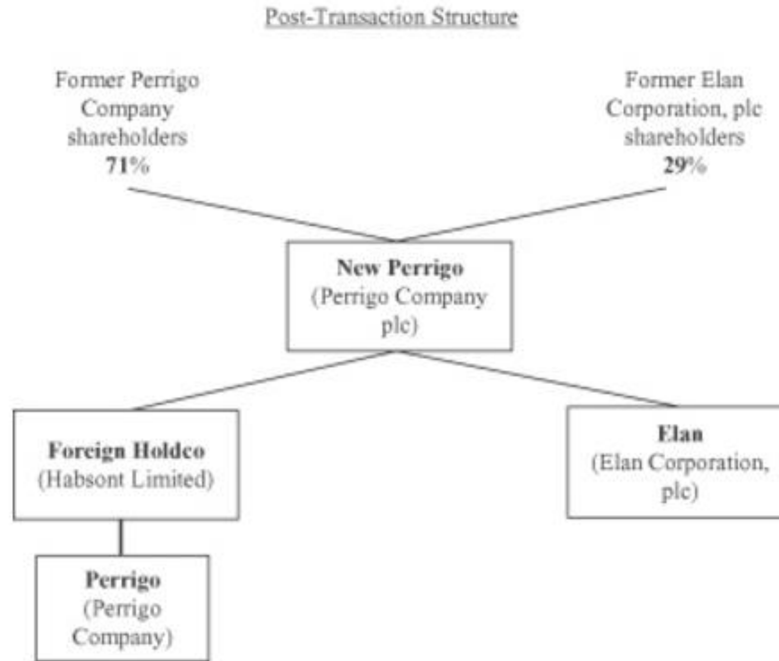
Extracted directly from the Perrigo Limited 2013 Form S-4, the diagrams in Figure 11 portray the pre- and post-transaction structures of the entities involved in the inversion transaction.



Source: Perrigo Limited 2013 Form S-4

Figure 11: Perrigo/Elan Merger

Panel A—Pre-Inversion Structure



Source: Perrigo Limited 2013 Form S-4

Figure 11: Perrigo/Elan Merger
Panel B—Post-Inversion Structure

The analysis for Perrigo Company is based on the graph shown in Figure 12, with data ranging from two years before the inversion through a year post-inversion. As in other cases previously described, Perrigo Company added significant intangible assets to its balance sheet in the inversion year. These assets were recognized on the balance sheet in 2014. Consequently, the return on total assets declined rather significantly. Because operating margin and return on tangible assets declined in the inversion year, and these metrics remained lower post-inversion than pre-inversion, it is not unreasonable to conclude that the indicated reduction in operating efficiency was not due to the large addition of intangible assets but, rather, to the diminished profitability.

Looking at the tax metrics, there are no clear tax benefits evident in the post-inversion period. In the first three years of this period, the effective tax rates were 23.24 percent, 27.28 percent, and 24.69 percent in 2012, 2013, and 2014, respectively. The effective tax rate in 2015 (a year post-inversion) was actually negative. That is because the company realized a loss before income tax when interest expense and other income were included in the calculation. In the same year, the company benefited from deferred tax assets, resulting in a positive net income and a negative effective tax rate. Overall, then, there is rather weak/limited evidence of benefit from the lower statutory Irish tax rate and quite strong evidence for an overall major decline in operating efficiency.

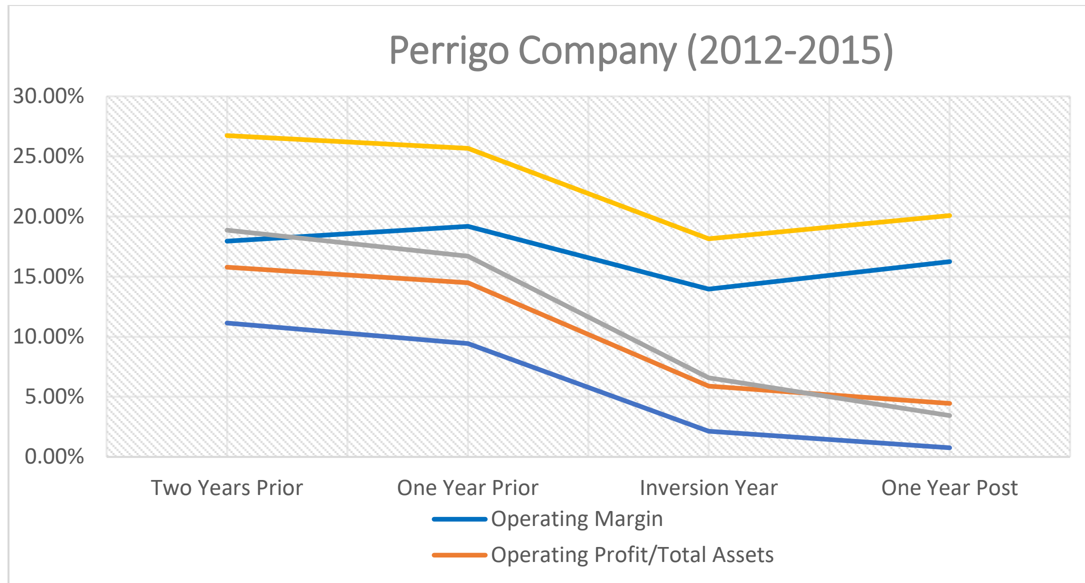


Figure 12: Perrigo Company Financial Measures, 2012-2015

U.S. Target: Pentair Company

Pentair Company was founded in 1966 in Arden Hills, Minnesota. The company operated in two major segments—the Water & Fluid Solutions division specialized in the movement, storage, treatment, and consumption of water; the Technical Products unit, certainly a nonhomogeneous one, which designed protective enclosures for sensitive electronics. As of July 2011, the company's stock was worth $3.9 billion (Pentair Company 2011 Form 10-K).

To begin a somewhat contorted series of transactions that generated the tax inversion, in May of 2012, Pentair Inc. and Tyco International Ltd. (Switzerland) entered into a merger agreement. Tyco Flow Control Business (TFCB) was spun off from Tyco International. Freed from Tyco, this company was incorporated in Switzerland as New Pentair and was formally known as Pentair Ltd. Pantho Merger Sub, a merger subsidiary wholly owned by New Pentair, merged with the American firm Pentair Company. New Pentair shares were exchanged on a one-for-one basis for Pentair Company shares. Tyco then distributed New Pentair shares to its own shareholders on a special formula—purported to equalize valuations—calculated as the product of the number of Pentair shares multiplied by 1.11 divided by the number of Tyco shares. After this transaction was completed, former Pentair Company shareholders owned 47.5 percent, and Tyco shareholders owned 52.5 percent of Pentair Ltd. (Tyco Control Business 2012 Form S-4). Later, in April of 2014, Pentair Ltd., the Swiss firm, merged with Pentair plc (Ireland) to move the legal tax jurisdiction to Ireland ("Pentair Ltd. and Pentair plc," 2014).

The diagrams in the four panels of Figure 13 show how this extraordinarily complex and somewhat drawn-out "double" inversion occurred.

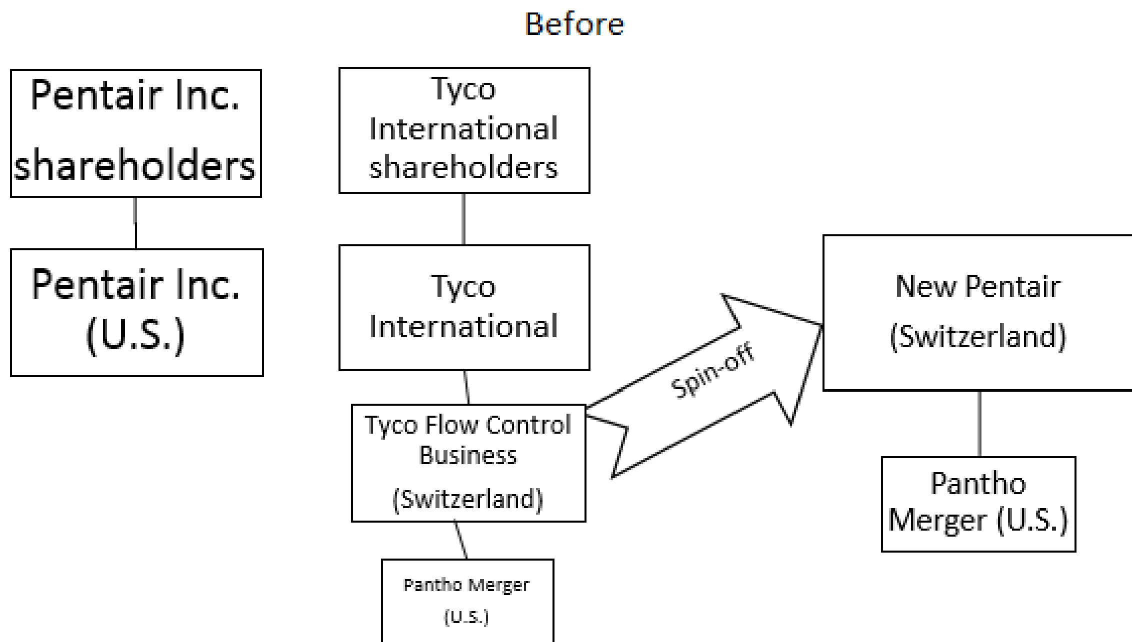


Figure 13: Pentair/Tyco Merger
Panel A—Initial Pre-Inversion Structure

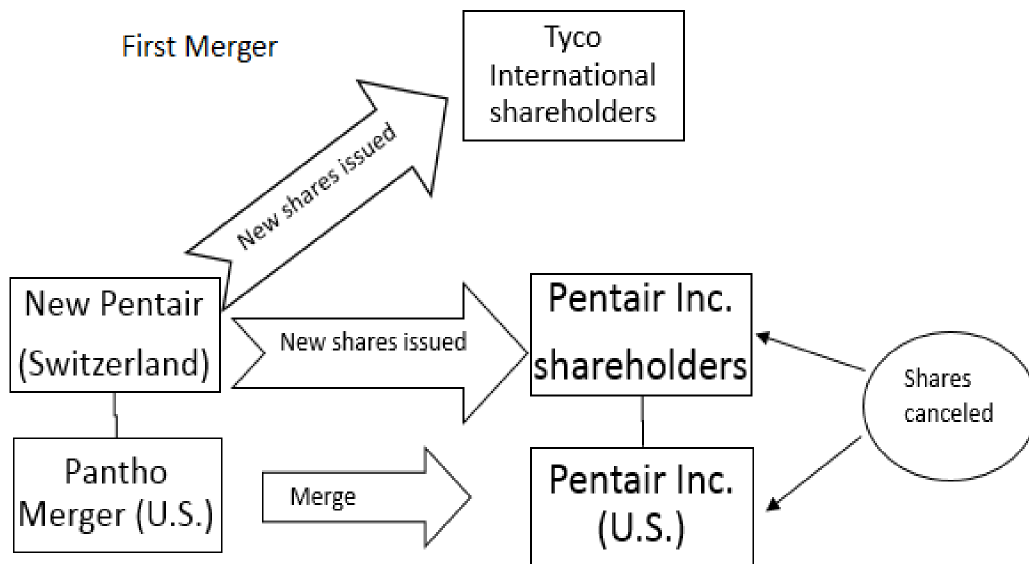


Figure 13: Pentair/Tyco Merger
Panel B—First Merger Event and Altered Pre-Inversion Structure

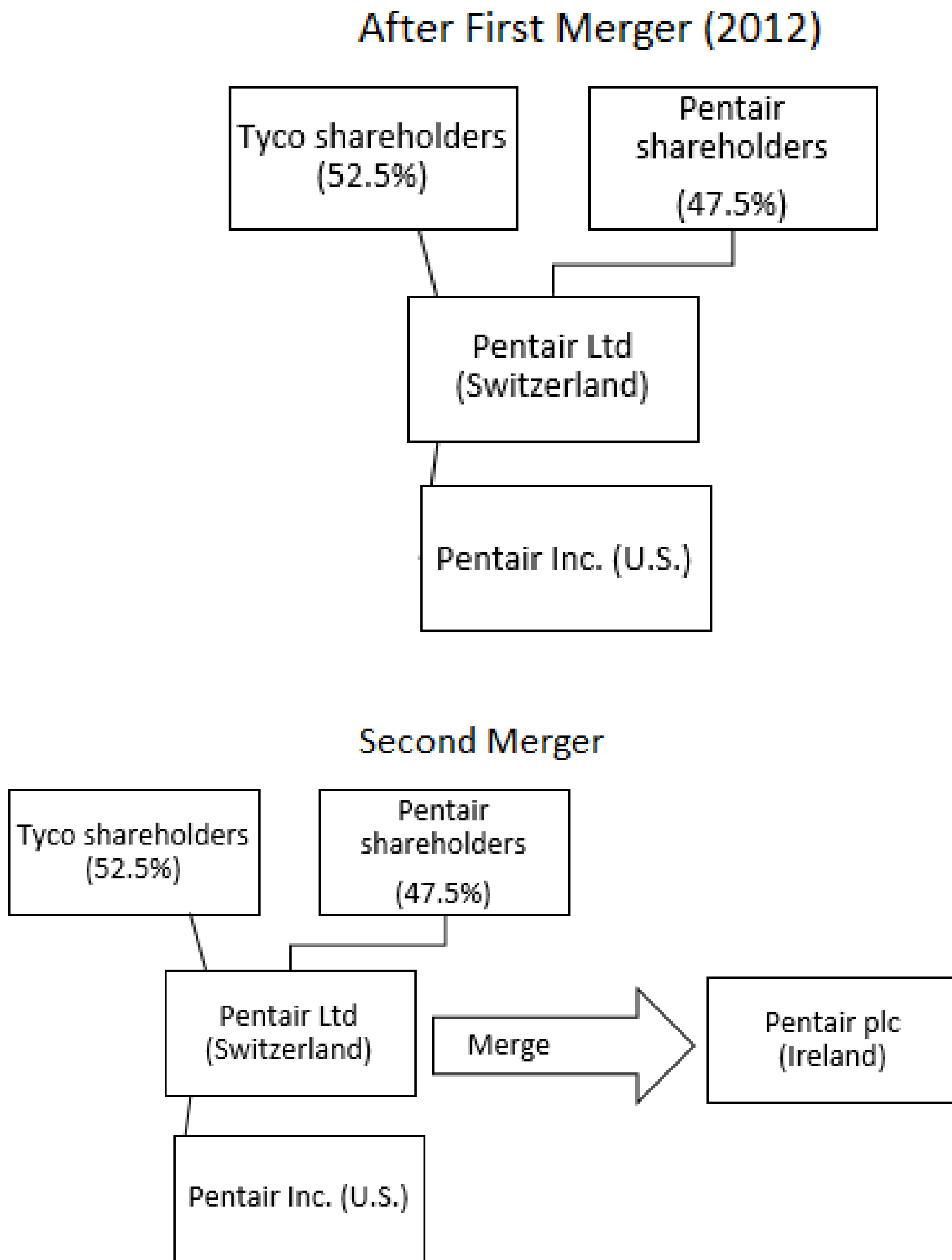


Figure 13: Pentair/Tyco Merger
Panel C—Second Merger Transaction

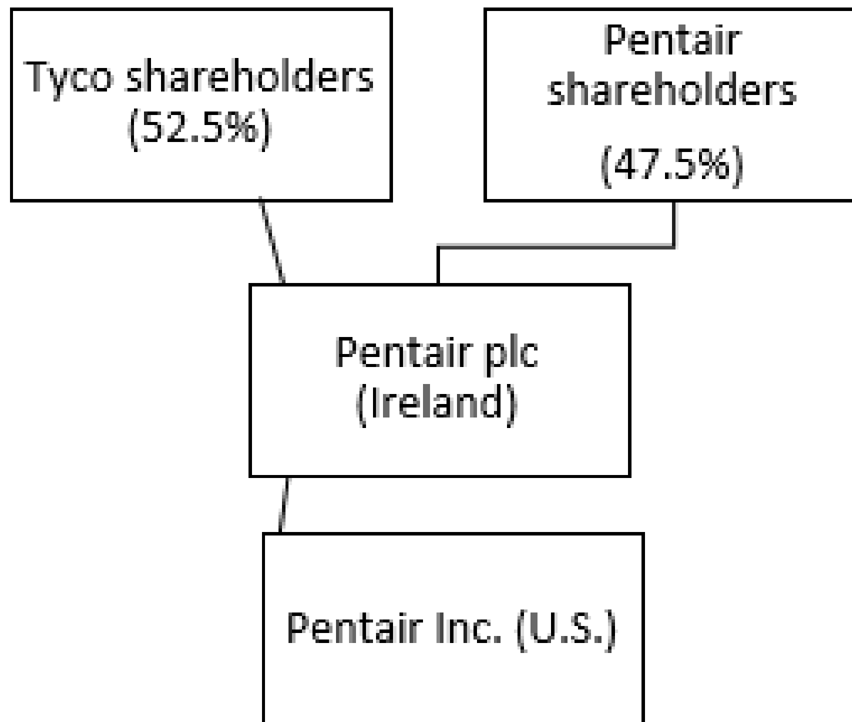


Figure 13: Pentair/Tyco Merger
Panel D—Post-Inversion Structure

The timeline of graphical data in Figure 14 displays Pentair's financial metrics over five years, with the initial inversion in the year that coincided with the company's move to Switzerland. There was a subsequent inversion to Ireland in 2014.

For Pentair, the most appropriate approach to assessing value creation is to examine the return on tangible assets. The company added significant goodwill to its balance sheet in the year of the first inversion (2012), and that asset recordation strongly skews the return on total assets metric. The company's operating return was considerably impacted by a goodwill impairment charge (discussed below). In the two years after inversion, it seems that Pentair "recovered" from the inversion impact rather quickly, improving its operating return on tangible assets in a substantial manner. Since operating return appears to improve after the inversion, there is a need to analyze the tax impact. The company saw a decrease in the effective tax rate during this period. The effective tax rate was 32.4 percent in 2010, 65.5 percent in 2011, 43.1 percent in 2012, 25.3 percent in 2013, and 22.6 percent in 2014. Therefore, it does appear that there was an authentic tax benefit garnered from the lower effective rate.

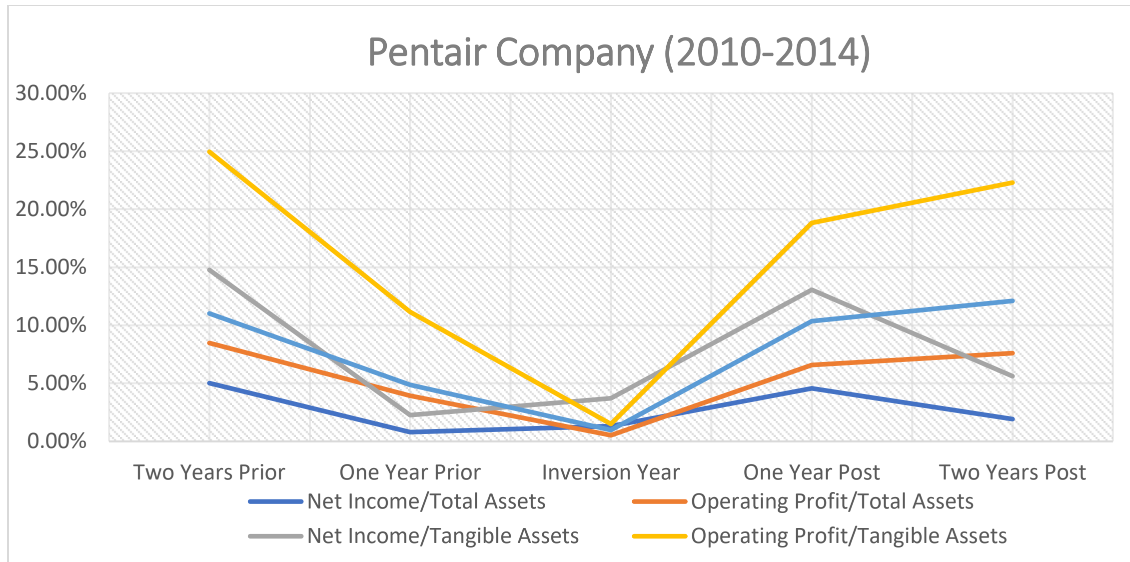


Figure 14: Pentair Company Financial Measures, 2010-2014

As Mallinckrodt previously discussed, Pentair Company's operating profit was impacted in a significant way by a large goodwill impairment charge. One year before the inversion, the company recorded a $200 million write-down on intangible assets; as a result, there was a much lower operating profit. The impairment, it should be noted, was related to a previous acquisition that Pentair made. However, all impairments should be incorporated into the analysis since every acquisition was part of an apparent overall serial-inversion strategy. Not shown in this graph (Figure 14), but also important, the company recognized a $555 million impairment for 2015 that occurred three years post inversion. As a result, between 2014 and 2015 return on tangible assets declined from a healthy 12.1 percent to a paltry 2.7 percent.

While Pentair did appear to benefit from a lower effective tax rate post-inversion, the tradeoff was the loss on impairment realized, first in the inversion year and then three years after the inversion. It is not unreasonable to conclude that this long, drawn-out serial inversion activity, no matter how carefully it might have been planned, did not lead to any significant enhancement in the value-creation attempts by company management.

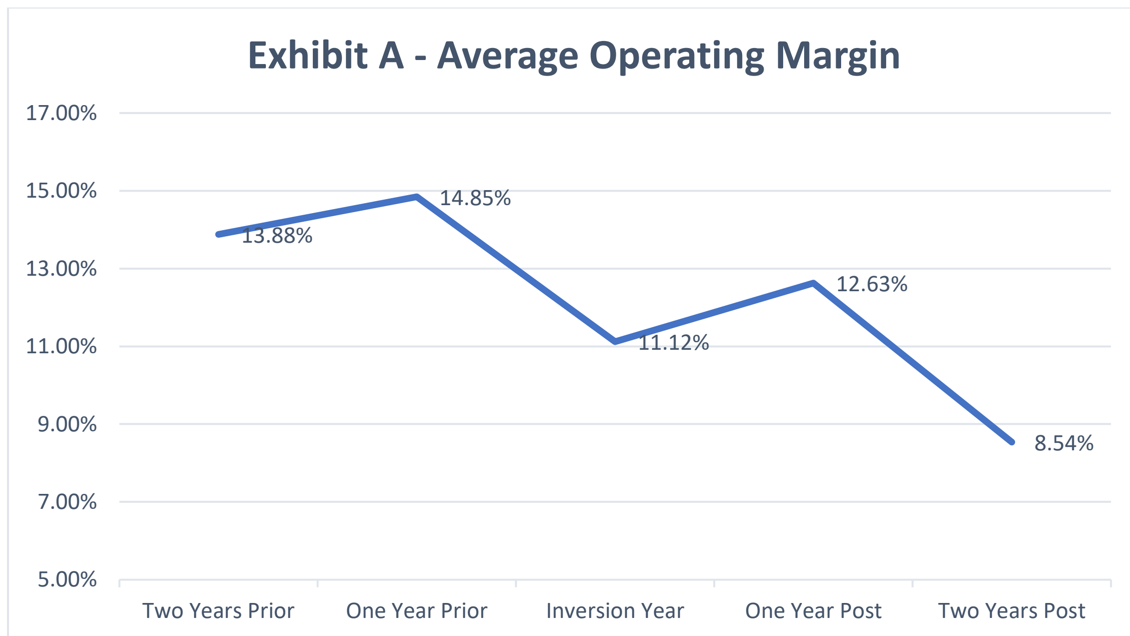
Discussion of the Seven-Case Value Creation Analysis

To further the investigation begun above with respect to these seven separate inversion events, the financial metrics from each firm were averaged and placed on the same timeline. For example, all the ratios from the year prior to inversion were averaged. The end result of this process is a timeline graphic displaying the average financial measures for years before an inversion, for the inversion year, and the years after the inversion was consummated. If the inversions added or destroyed value, this normalized timeline will show evidence of a discrepancy in metrics before and after the transaction.

Analyzing the data in this aggregated form makes it possible to detect trends emerging from the seven separate case examples that were described in detail above.

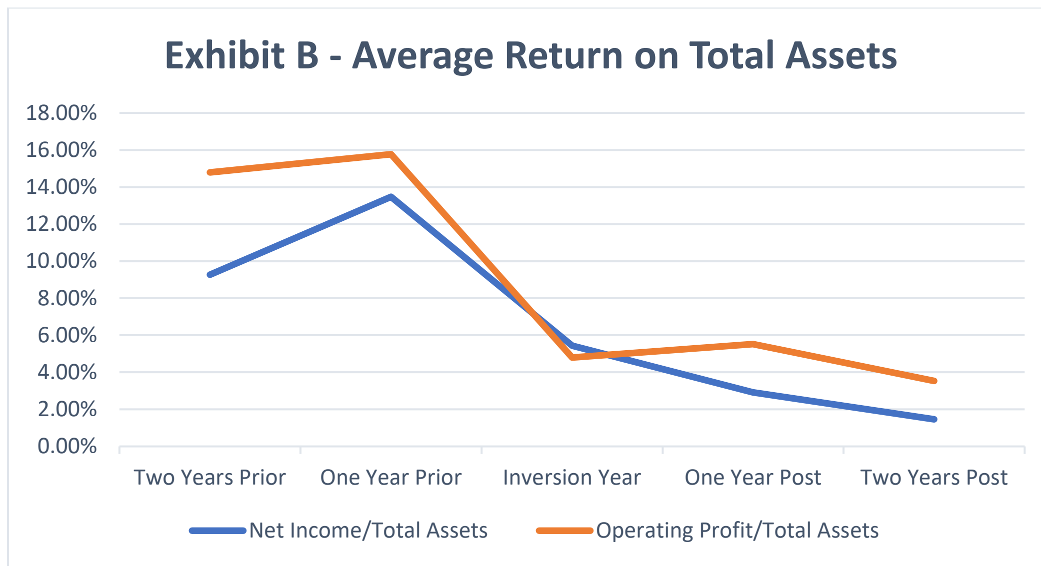
A further point about applying this unique aggregation method is needed to demonstrate its usefulness. Since the actual date ranges varied due to different inversion years, the data are protected from macroeconomic biases in any particular year.

To begin with, the operating margin was analyzed over the normalized timeline to gauge whether operating efficiency was sacrificed to obtain tax avoidance. Exhibit A below displays the operating margin over the normalized timeline. The graph reveals a decidedly negative movement for operating margin as time elapsed subsequent to the inversion event. In the year prior to each inversion, these companies averaged 14.85 percent for an operating margin. This metric declined to 11.12 percent during the year of inversion. It never rebounded to the level attained prior to the inversion transaction. This outcome appears to confirm that mergers instigated for tax reasons may cause a decline in net revenue retention.



The data plotted in Exhibit A show a decline in operating profit relative to revenue. While this implies that there was a reduction in efficiency after the inversion-inducing merger, the decline in operating margin is of insufficient absolute size to conclude that inversions *cannot* create value. To gather further insight, given this seemingly inconclusive initial finding, the return on assets metric was analyzed to assess overall operating efficiency. In addition, operating return on assets and net income return on assets were compared to assess the below-the-line impact of taxation more directly.

Exhibit B depicts a comparison between these two metrics. The major takeaway from this graph is that operating returns declined dramatically in the two years after the inversion. As a result, the net income ROA measure fell as well. This is even more telling: The variance between net profit rate and operating return did not improve after inversion. That conclusion is egregiously counterintuitive as an outcome of transactions that are expected to create a wider gap between the intermediate profit indicator of operating margin and the bottom line after-tax indicator of return on sales. By all these indications, inversions do not appear to enhance the value that might be available for shareholder distributions.



With so few observations generating these two data series, it is possible that an extreme value (or two) might divert the outcome from its "true" path. For example, Jazz Pharmaceutical realized far more extreme swings in its metrics than any of the other six merged entities described above. Jazz's general trend may align with the overall view seen in this graph (i.e., Exhibit B), but the aggregated data surely are skewed, in one direction or the other and over time, by this outlier firm. Yet even an arbitrary exclusion of the Jazz data will not change the generalized result that is portrayed in the data series.

Another *potential* misleading factor in Exhibit B is the impact of goodwill. Goodwill is added to the balance sheet after a merger/acquisition to incorporate acquired intangible assets that are not indicated by the net book value of the acquired entity. Goodwill is, supposedly, a sign of inherent (although unbooked, or off-balance sheet) value-creating efficiencies. This means that actual booking of goodwill, as is done to given recognition to the merger event, should have a positive effect on profit, the accounting measure indicating efficiency. But, when goodwill is added to the merged-entity balance sheet, the return on total assets calculation is impacted after the inversion because of a significantly larger ratio denominator. To avoid this bias, which cannot be adjusted for using accounting data, operating return on tangible assets has been

compared to net income return on tangible assets. Given the nature of the merger transactions described here, this is a very important reframing of the analytical viewpoint.

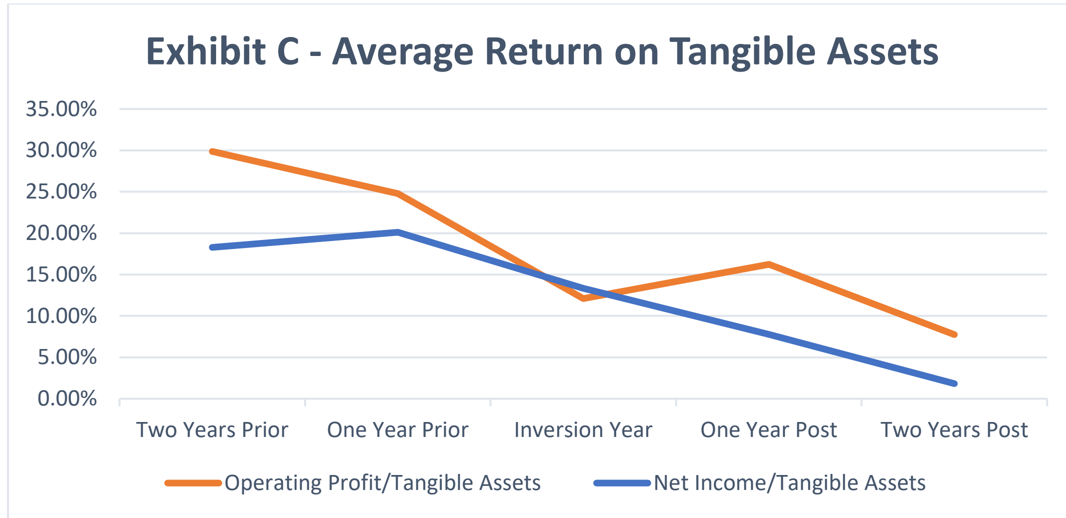


Exhibit C is a fair measurement of efficiency because it is free of the bias introduced by bolstering the balance sheet with acquired intangibles and the book-balancing goodwill asset. Exhibit B shows a significant variance in operating return on assets and net income return on assets before and after the inversion occurrence. For the inversion year, average net income actually exceeded operating income. This, in itself, is a seriously misleading result because Jazz Pharmaceutical, Alkermes, and Penair all saw financial factors wholly unconnected with taxation create an increase in bottom-line net income. Jazz Pharmaceutical was the most significant influencer in this outcome because of its extreme return rates. Nonetheless, the operating return on tangible assets declined by 11.77 percent in the year of the inversion, and the metric remained significantly lower in the two years after the merger event.

Importantly, no significant evidence exists that more operating profit was retained after the inversion events. The average operating income over net income ratio was 61.2 percent two years before the inversion, 81.2 percent one year before the inversion, 110.5 percent for the inversion year, 47.9 percent one year after the inversion, and 23.5 percent two years after the inversion. This indicates a surprising reduction in the retention of operating income that coincided specifically with the inversion period. Except in the inversion year, when net income exceeded operating profit, there are very few signs of measurable bottom-line benefits from the inversions examined here.

Table 2 shows an overall summarization of all five financial measures and each of the seven inversions included in this case study. The original issue posed for resolution was whether these transactions appeared to create value. The table was created to show all 35 measurement points in a way that this straightforward question can be answered

in a binomial fashion. In just six instances—and half of these were generated by the Questcor-Covidien merger—does it seem that the accounting measures of value creation moved in a positive way from two years before the inversion to two years after the transaction? It seems not inappropriate to say that for the companies and times studied here, the intervention of an inversion transaction was not value-enhancing.

Table 2: Pre- and Post-Inversion Directional Comparison of Acquiring Firms' Profit Measure

	Change in Earnings Metric from Pre- to Post-Inversion Period						
Earnings Metric	Alkermes	Jazz	Eaton	Questcor	Actavis	Perrigo	Pentair
Net Income/Total Assets	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease
Net Income/Tangible Assets	Decrease	Decrease	**Increase**	**Increase**	Decrease	Decrease	Decrease
Operating Income/Total Asset	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease
Operating Income/Tangible A	Decrease	Decrease	Decrease	**Increase**	Decrease	Decrease	Decrease
Operating Income/Net Sales	Decrease	**Increase**	Decrease	**Increase**	Decrease	**Increase**	Decrease

Pre-inversion = second year *prior* to inversion

Post-inversion = second year *after* inversion

One last, possibly tangential, item requires short discussion and recognition before the conclusions are drawn. Deferred tax was a significant factor in its impact on net income available to shareholders. Unfortunately, little information is provided in the Form 10-Ks regarding the composition of the deferred tax account. Theoretically, a decline in deferred tax liabilities previously booked that is related to the change in jurisdiction should explain the below-the-line inversion benefits. Contrary to this conceptual view, though, is the actual fact that most companies claimed to be releasing their valuation allowance in the year of inversion, and such a reason for the valuation change certainly is not connected in any direct way to the tax jurisdiction choice for which an inversion is expected to have been undertaken. So, the deferred tax change impact that was discovered remains a conundrum for the companies and time periods studied here and, therefore, must be left for detailed investigative study by future researchers.

Limitations of this Study

The sample size of seven is an obvious limiting factor in this research. More inversion cases will have to be analyzed to demonstrate the statistical significance of the

metrics described in this paper. Essential control in the analysis, though, will be lost were that to occur. Specifically, the single-country focus will disappear if other inversions are to be considered. The added complication of multiple tax regimes could well enhance realism and generalizability but at the great cost of injecting a myriad of potentially conflicting tax system operational factors. No two countries have the same procedural development of either tax base or tax liability. It is entirely uncertain that conclusions from a similar study involving U.S. company inversions in multiple tax jurisdictions can lead to clear and unequivocal outcomes, as when just one tax regime is the exclusive focal study domain.

This inquiry about inversion outcomes compared operating income to net income. Other factors, in addition to taxes on profit, can influence discrepancies in the behavior of operating income and net income. As a means to isolate the impact of taxes on income, a better comparison may be pre-tax income to net income. Even so, it is operating profit that is the best choice to examine the impact of an inversion on management's effectiveness in dealing with a company's internal value creation.

This research analyzed value creation utilizing accounting statement data from a purely internal perspective. It did not consider the impact of investment returns based on the market valuation of shares. Certainly, that would be a useful extension of this study. However, such an alternative view does not in any way obviate the fact that management's objective must remain internal value creation through the effective and efficient deployment and usage of the resources placed in their charge.

Finally, the study was limited to a five-year timeline, with only two years of post-inversion data observed. This project provided great insight into the short-term impacts of an inversion. Assessing these companies for a greater number of years, or observing inversions from earlier periods, might provide a better understanding of longer-term consequences. Data and model specification limits, along with significant subsequent changes in the U.S. tax laws, effectively precluded taking such a broader point of view.

Conclusions

The prominence of pharmaceutical firms' inversions is unmistakable in this research. Five of the seven U.S. targets were pharmaceutical corporations. These companies' most critical assets are their intangibles—resources such as patents and trademarks. Since intangible assets can be easily transferred across national borders, it remains unremarkable that inversions in the pharmaceutical industry would be facilitated based on their general asset composition. Foreign revenues compose a significant portion of total sales for pharmaceutical companies. This international revenue generates significant tax avoidance with a low-tax-rate Irish headquarters location (Rockoff, 2014).

In every case studied here, a U.S. merger subsidiary was formed to combine with the U.S. target, and that target survived the merger. This is often referred to as a "reverse triangular merger." The other two major types of mergers are " direct" and "forward triangular." The direct merger occurs when the target becomes a blended part of the purchaser. The target corporation does not survive the combination in a forward triangular merger. The advantages of a reverse triangular merger over a forward triangular merger include contract continuity, faster execution, separation of liabilities, and ease of sale ("Benefits of Reverse Triangular Merger," 2013). On the other hand, direct mergers pose consolidation complications and offer few advantages. The advantages of a reverse triangular merger surely outweigh its disadvantages.

In most cases studied here, the two parties agreed to form a holding company to acquire domestic and foreign entities. Many business benefits regarding holding companies exist, including additional tax advantages, access to new resources, higher transparency, parent flexibility, the neutrality of parents, flat hierarchies, and reduction of control cost (Eicke, 2008). There is fundamental reasoning behind the choice of the corporate structures observed in this research. As predicted by the background research, the former shareholders of the U.S. corporation always owned less than 80 percent of the new corporation and, except in two cases, held more than 50 percent so as to maintain control. All of this argues that tax effects simply might not drive the inversions observed. That conclusion is important given that basic value enhancement was not observed.

It was evident from the research results that operating margin and operating efficiency declined at a time that coincided with the inversion event. However, the research showed that the companies attempted to avoid these losses by harnessing a horizontal combinatorial strategy. They went to great lengths to find counterparts in the same line of business. For example, Tyco International spun off Tyco Flow Control Business because it was a part of the same niche water industry as its merger partner Pentair. There was a pursuit for synergies that could justify these strategic partnerships. So, maybe "value" in the context of inversions can have different meanings to the actors involved. That being said, possibly the "hunger" for lower relative tax payments via reduced tax rates is not the principal or overriding rationale for these cross-border mergers.

Nonetheless, the companies realized a decline in operating efficiencies during and after the inversion. Furthermore, as examples, Pentair Company and Mallinckrodt realized significant impairment losses related to the merger event itself. Therefore, partnering with the right company would seem crucial to implementing continuing profit and a successful inversion.

While the current research did not provide significant evidence of value creation from a financial analysis perspective, further research needs to be completed to determine if these inversions added value to shareholders through the market valuation of shares.

A market-based focus can assist in a broader determination of the usefulness of inversions as a tactic.

Two giants, the United States, and the European Union will determine the future of inversions and the low-rate tax regime in Ireland. Both are battling to control the regulation of U.S. corporations' outreach. The IRS asserted plans to curtail U.S. corporate inversions decades ago by not recognizing serial inversions and ignoring passive assets during the valuation of acquired companies. The European Union has drastically changed its approach to identifying what constitutes state aid, presumably changing the incentive for Irish tax benefits. Moreover, now there is significant and serious worldwide recognition that taxes make a difference in international trade and that some minimum rate of income taxation may be required among developed nations to "level the playing field."

Corporate tax-centered inversions are like cockroaches, a species that never seems to perish regardless of the eradication remedy applied. This has been true for inversions in general over the past four decades. Now, European-country inversions will face the wrath of two powerful governmental bodies, which will determine the viability of this technique for adjusting corporate legal domiciliary for tax purposes. Still, if inversions are not value-creating events, they may "die" alone.

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