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CBO

An Analysis of Corporate Inversions

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Notes

Unless otherwise indicated, the years referred to in this document are calendar years.

Unless otherwise noted, all dollar amounts are converted to 2014 dollars to remove the effects of inflation, using the gross domestic product price index.

Numbers in the text, tables, and figures may not add up to totals because of rounding.

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Summary

U.S. multinational corporations—businesses incorporated and operating in the United States that also maintain operations in other countries—can use a variety of strategies to change how and where their income is taxed. One such strategy is a corporate inversion, which can result in a significant reduction in worldwide tax payments for a company. U.S. companies have engaged in corporate inversions since 1983, and public and government attention to them has varied over the years. Concern grew most recently in 2014 because the group of corporations that announced plans to invert that year included some that were very large: Their combined assets were $319 billion, more than the combined assets of all of the corporations that had inverted over the previous 30 years.

What Is a Corporate Inversion?

A corporate inversion occurs when a U.S. multinational corporation completes a merger that results in its being treated as a foreign corporation in the U.S. tax system, even though the shareholders of the original U.S. company retain more than 50 percent of the new combined company. An inversion changes the way that the income of the corporation is taxed by the United States because a multinational corporation's residence for tax purposes is determined by its parent company's country of incorporation. Multinational corporations with a U.S. parent company pay U.S. taxes on their U.S. and foreign income (although they are able to defer taxes on most foreign income until that income is brought back to the United States). In contrast, multinational corporations with a foreign parent company generally pay U.S. taxes only on income they earn in the United States. After an inversion, a multinational can effectively eliminate any U.S. taxes on its foreign income. Additionally, the existence of a new foreign parent can provide the multinational with new ways to move income to lower-tax countries and lower its worldwide tax liability. However, a corporate inversion also has a number of drawbacks for the company and its owners.

How Much Do Companies Benefit From Inversions?

Among companies that inverted from 1994 through 2014 and that reported positive income in the financial year both before and after the inversion, the amount of worldwide corporate tax expense reported on their financial reports fell, on average, by $45 million in the financial year after the inversion, the Congressional Budget Office estimates.[1] Those companies reduced their ratio of worldwide tax expense to earnings from an average of 29 percent the year before inversion to an average of 18 percent the year after inversion. However, individual corporations' experience varied widely, and some corporations were estimated to have a higher ratio of worldwide tax expense to earnings after inversion.

The reduction in companies' worldwide tax expense includes changes in both U.S. and foreign tax expense. One reason that the reduction in U.S. tax expense would not equal the reduction in worldwide tax expense is because of the new opportunities following an inversion to shift income from the United States to lower-tax jurisdictions. Because that shifting would increase a company's foreign tax expense, the resulting reduction in U.S. federal corporate tax expense would be larger than the reduction in worldwide tax expense. Consistent with that, among companies that inverted in the two decades before 2014 the average reduction in U.S. corporate tax expense was about $65 million, indicating that the companies' other corporate tax expenses increased by about $20 million, on average (for a net decline in worldwide tax expense of $45 million).

1. Tax expense is a concept used in financial accounting that can differ from a company's tax liability in a particular year. For example, tax expense can include liabilities that have not yet been paid. A financial year is the 12-month period used by a company for accounting purposes. The start date of the financial year varies among companies; it may not be the same as the first day of the tax year.

How Will Inversions and Other Strategies Affect Future U.S. Corporate Tax Revenue?

CBO projects that the U.S. corporate income tax base will be reduced because of further inversion activity and the expansion of strategies to move profits to lower-tax jurisdictions, causing corporate tax revenues in fiscal year 2027 to be approximately 2.5 percent ($12 billion in nominal dollars) lower than they would have been if tax-minimization strategies were effectively unchanged from those used in 2016.

Strategies to Reduce Worldwide Corporate Income Tax Liabilities

Tax rates and other provisions in the tax system influence multinational corporations' choices about how and where to invest, particularly as corporations assess whether it is more profitable to locate business operations in the United States or abroad.[2] Some of those responses to the tax system—such as companies' moving investment to low-tax foreign countries—also have a significant effect on their economic activity (production of goods and services) in the United States. Such effects are not considered in this report.

A country's tax system also can influence where a business incorporates or create opportunities for multinational corporations to use accounting or other legal strategies to report income and expenses for their U.S. and foreign operations in ways that reduce their overall tax liability but have a limited effect on economic activity.

This report focuses on two strategies—the relocation of profits to lower-tax jurisdictions and corporate inversions—that multinationals can use to reduce their tax liability. The effects of strategies to relocate profits to lower-tax jurisdictions are not separately quantified because they are incremental, and it is therefore difficult to identify the effect that those strategies have on a company's tax liability. In contrast, a corporate inversion—the major focus of this report—is a discrete event that results in a clear change in a company's tax treatment. Because of the discrete change, it is possible to estimate the benefit of an inversion for a company by comparing its tax expense before and after the event.

2. Multinationals are businesses that incorporate and operate in one country but that also maintain operations in other countries, often through separately incorporated foreign companies that are owned by the parent company of the multinational.

Profit Shifting

Given the relatively high U.S. corporate tax rate, corporations can lower their tax liabilities by moving profits that would be taxed in the United States to lower-tax jurisdictions.[3] Reports of growing stockpiles of foreign earnings and publicity about the complex tax strategies of several large corporations have brought increased attention to the ability of companies to relocate profits from high-tax countries to lower-tax jurisdictions.[4] That relocation of profits to lower-tax jurisdictions is referred to as profit shifting. Projects such as the base erosion and profit-shifting initiative of the Organisation for Economic Co-operation and Development indicate that the problem is perceived by many countries to be both large and growing.

Multinational corporations can use a variety of methods to move profits to affiliates in lower-tax jurisdictions. Two of the better-known methods are transfer-pricing manipulation and the strategic use of intercompany debt.

Transfer-Pricing Manipulation. A transfer price is the price established by a multinational corporation for goods and services that are sold from one of its affiliates to another. If a U.S. affiliate sells a good or service to an affiliate in a lower-tax jurisdiction at a price that understates the true value of the good or service, the transaction will reduce the reported profits of the U.S. affiliate and increase the reported profits of the lower-tax affiliate. That pricing strategy will reduce the total amount of taxes currently owed by the multinational corporation (although for U.S.-resident multinationals those profits will eventually be taxed when they are brought back to the United States). The United States and many other countries have rules that require that the price used for transactions between affiliates be equal to the price that would be set for a comparable transaction between unrelated parties, but those rules do not completely eliminate

3. See Congressional Budget Office, *International Comparisons of Corporate Income Tax Rates* (March 2017), www.cbo.gov/publication/52419 for an analysis of how the U.S. corporate tax rates compare to the corporate tax rates of other countries.

4. See, for example, Richard Rubin, "U.S. Companies Are Stashing $2.1 Trillion Overseas to Avoid Taxes," *Bloomberg* (March 4, 2015), http://tinyurl.com/pv2azxw, and James Kanter and Mark Scott, "Apple Owes $14.5 billion in Back Taxes to Ireland, E.U. Says," *The New York Times* (August 30, 2016), https://tinyurl.com/kfso6vj.

opportunities for profit shifting through transfer-pricing manipulation.

Strategic Use of Intercompany Debt. The United States, like many countries, allows companies to deduct interest payments on debt as a business expense. That deduction can create an opportunity for profit shifting. If an affiliate located in a lower-tax jurisdiction makes a loan to a U.S. affiliate, then the U.S. affiliate can deduct its interest payments on that loan. Those interest payments lower the U.S. affiliate's taxable income and increase the taxable income of the affiliate located in the lower-tax jurisdiction. For that reason, an allocation of internal debt that places debt in the U.S. affiliate lowers the multinational corporation's total corporate tax liability. For U.S.-based multinational corporations, the ability to shift profits through intercompany debt is limited because, in most cases, the United States immediately taxes the interest income of foreign subsidiaries of U.S. companies.[5]

Corporate Inversions

In a corporate inversion, a multinational corporation engages in a transaction that changes the location of its parent company from the United States to a foreign country, often with little or no change to its operations. Multinational corporations with a U.S. parent company are considered U.S. residents for tax purposes and pay U.S. taxes on their U.S. and foreign income (although they are able to defer taxes on most foreign income until that income is brought back to the United States). In contrast, multinational corporations with a foreign parent company generally pay U.S. taxes only on their U.S. income. After an inversion, the multinational generally will not be taxed by the United States on its foreign profits.[6] Although the transaction associated with a corporate inversion can be motivated by a variety of factors, the shift in tax residence generally results in lower worldwide corporate tax liabilities for the multinational corporation and a reduction in corporate tax receipts for the Treasury. That change in tax treatment also increases the benefit of profit shifting because it eliminates any U.S. tax liability on profits that are shifted out of the United States. Additionally, the existence of the new foreign parent may make it easier for the corporation to lower tax payments through intercompany debt.

Before 2004, inversions typically involved a U.S. corporation setting up a new foreign subsidiary and then, through a series of transactions, being acquired by that foreign subsidiary—a process known as a pure (or naked) inversion. Those inversions had very little or no effect on the operations of the corporation. After the enactment of the American Jobs Creation Act of 2004, which altered the rules for certain inversion transactions, a company generally could no longer be considered foreign through a merger with its own subsidiary.

Currently, a U.S. corporation can be classified as foreign only if, after a merger with a foreign corporation, less than 80 percent of the value of the shares of the combined company is held by the former shareholders of the U.S. corporation.[7] Relative to pure inversions, such mergers are more likely to have a significant effect on the operations of the corporation. A corporation may also be classified as foreign in the U.S. tax system if it has substantial business activity in the place where it established residence.[8] Because more recent inversions often involve a merger with an existing foreign company, such transactions have many similarities to foreign takeovers of U.S. companies. Generally, recent media coverage and academic studies have identified a merger of a U.S. company and a foreign company as an inversion if it results in the company being treated as a foreign corporation in the U.S. tax system while the shareholders of the original U.S. company retain a controlling interest of the new combined company (that is, own more than 50 percent).

5. See Congressional Budget Office, *Options for Taxing U.S. Multinational Corporations* (January 2013), p.10, https://www.cbo.gov/publication/43764 for more detail on the immediate taxation of certain types of foreign subsidiary income.

6. The United States will still tax the foreign income of any U.S.-incorporated subsidiaries of the multinational. Because of that tax treatment, an inverted multinational corporation will generally try to reduce or eliminate ownership of foreign operations by U.S. subsidiaries (including the original U.S. parent company).

7. In the past, some inversions occurred through spin-offs, when a foreign corporation was created that did not acquire "substantially all" of the properties held by the U.S. corporation, as the Internal Revenue Code states. The Treasury issued guidance in 2014 that effectively prevents such transactions. (Those transactions, along with transactions where a spun-off business segment of a U.S. corporation merged with a foreign company, were sometimes referred to as spinversions.)

8. The Treasury has periodically either eased or tightened its interpretation of "substantial." Under the most recent guidance, issued in 2012, a qualifying company must have 25 percent of its tangible assets and employees (as measured by both the number of workers and their compensation) located in the country of incorporation and one-fourth of its income derived from that country.

Why Do Corporations Invert?

Discussions of inversions often focus on the potential for tax reductions for the corporation and the resulting loss of tax revenue for the Treasury. Because pure inversions do not involve a merger with an existing company, the tax effects are likely the main motivation for those transactions. However, the enactment of the American Jobs Creation Act resulted in more inversions occurring through a merger with an existing foreign company. For those inversions, a corporation must consider the nontax benefits and costs of the merger in addition to the tax consequences of the change in tax residence. In addition, a corporation must consider other potential effects of changing tax residence, such as changes in regulatory requirements and access to government contracts.

Tax Effects

The United States has a worldwide tax system. As a result, profits earned by U.S. corporations within the United States and in other countries are subject to the U.S. corporate income tax. That tax liability is limited by two other features of the tax system:

- Companies can generally claim a credit for foreign taxes paid on profits earned abroad.
- Companies defer taxes on most types of foreign profits until that income is brought back (repatriated) to the United States.

Despite the benefits associated with the foreign tax credit and the deferral of U.S. taxes, U.S. companies still have tax-based incentives to invert, including the relatively high corporate income tax rate in the United States, the fact that U.S. companies will eventually pay taxes on foreign income, and the ease of changing tax residence. Changes other countries make to their tax laws can alter the tax benefit of an inversion or affect where a company establishes its new tax residence after an inversion. However, those tax-based incentives to invert are partially offset by the imposition of additional taxes as a consequence of inversion.

Tax Incentives. Corporations realize two major tax benefits from inversion. First, because the United States taxes only U.S. corporations on their worldwide profits, the future foreign profits of the new corporation will not be taxed by the United States. That advantage is particularly important for corporations that expect high foreign profits. Second, an inversion increases the benefit of using certain accounting or legal strategies to move profits earned in the United States to other countries with lower corporate tax rates, because foreign earnings will no longer be subject to the U.S. corporate income tax.

Beyond those benefits, the existence of a new foreign parent company after an inversion may facilitate profit shifting through intercompany debt.[9] One study found that a substantial portion of the tax benefit of inversions that occurred in 2002 seemed to come from using debt to move profits from the United States to lower-tax countries.[10] After a number of large companies proposed inversions in 2014, the Treasury announced that it was considering ways to limit the ability of inverted companies to shift profits through debt. It eventually issued regulations in April 2016 that would potentially impose some limits, reclassifying some tax-deductible interest payments as taxable dividend payments. Going forward, if those regulations are successful in limiting profit shifting through debt, they will probably affect both the number of corporate inversions and the types of companies that choose to undertake a merger that results in a corporate inversion.

Another advantage of an inversion for some corporations has been the ability to avoid paying U.S. taxes on foreign earnings that have not yet been brought back to the United States. That benefit can be important for corporations that have foreign subsidiaries with a large amount of unrepatriated profits. For such businesses, an inversion creates the opportunity to avoid paying U.S. taxes on those profits either by moving that income through the new foreign parent to the United States (through a process often referred to as hopscotch loans) or by allowing the corporation to shift ownership of a foreign subsidiary from the U.S. corporation to the new foreign parent. As described below, the Treasury took actions in 2014 that limited such access to existing foreign profits without paying U.S. taxes.

9. The United States limits the ability of U.S. corporations to use that method of tax minimization by immediately taxing the interest income of most foreign subsidiaries. After inversion, the most significant restrictions on using interest payments to shift profits are the interest expense limitations put in place by section 163(j) of the Internal Revenue Code.

10. See Jim A. Seida and William F. Wempe, "Effective Tax Rate Changes and Earnings Stripping Following Corporate Inversion," *National Tax Journal*, vol. 57, no. 4 (December 2004), pp. 805–28.

Tax Disincentives. Although an inversion can lower a corporation's overall tax liabilities, those reductions may be partially offset by additional U.S. and foreign taxes triggered by the event. For example, any portion of the inversion transaction structured as a transfer of assets from the U.S. corporation to the new foreign parent is treated as a sales transaction, and taxes are imposed on the corporation on any net capital gains resulting from that transaction. For any portion of the transaction structured as a sale of stock, shareholders are treated as though they sold their shares of the U.S. corporation and then bought shares of the new foreign corporation. Because that sale is treated as a realization event for gains, shareholders must pay capital gains tax on any increase in the value of the U.S. corporation from the date that they originally purchased the shares. However, shareholders are not allowed to claim losses attributable to those shares. Additionally, since 2005, officers and directors of inverting companies have generally faced a 15 percent excise tax on stock-based compensation in the six months before and the six months after the inversion.[11]

Nontax Effects of Merging With a Foreign Corporation

Many recent inversions have involved a U.S. corporation combining with an established foreign corporation to establish a new foreign corporation. Corporations that invert through a merger can benefit from the gains that are typically associated with a merger, such as reduced costs (through the consolidation of facilities and workforces) and diversification. However, merging two corporations is often costly. Substantial fees may be owed to lawyers and financial advisers, and severance payments may be owed to workers who are laid off as a result of the merger. Companies must also consider whether the funds used to execute the merger could be diverted to more profitable uses. Merging with another corporation also means that the executives of the original U.S. business may have less control over the direction of the combined corporation.

Other Effects of an Inversion

Reincorporation outside the United States can have benefits and costs that are unrelated to taxes or to the merger itself. A different country of incorporation can bring a company closer to its customer base or can provide better access to markets that are important for the future growth of the corporation. It is also possible that the different regulatory environment will make it easier for the company to conduct business. However, the publicity surrounding an inversion can damage the reputation of a corporation, leading to a loss of customers. Inverted corporations also risk losing U.S. government contracts because a variety of rules restrict government agencies from doing business with inverted companies. For example, the Homeland Security Act of 2002 banned the Department of Homeland Security from contracting with inverted companies. Corporate governance laws may be different in the corporation's new home country and may result in reduced shareholder rights or increased corporate liability. Additionally, some countries have weaker takeover protection rules than the United States, so inverted companies may face an increased risk of hostile takeover.

Overview of Past Inversions

The first identified inversion of a U.S. corporation occurred in 1983, when McDermott International (a company specializing in engineering and construction) moved its tax residence from Texas to Panama. Its headquarters remained in Houston. In the three decades since, the number of completed inversions has fluctuated—from none in some years to a high of seven in others. In 2014, the proposed inversions of several large companies attracted renewed attention to corporate inversions. That activity contributed to Treasury's issuance of a notice intended to curb inversions in September 2014.

How Are Inversions Identified?

CBO identified 60 inversions that were completed from 1983 through 2015. CBO compiled the list of inversions using information from several sources: news media coverage of inversions, an academic study, and companies' financial reports filed with the U.S. Securities and Exchange Commission.[12] For this report, a merger of a U.S. company and a foreign company identified in one of those sources is classified as a corporate inversion if two conditions apply. First, the newly formed corporation has its tax residence outside of the United States.

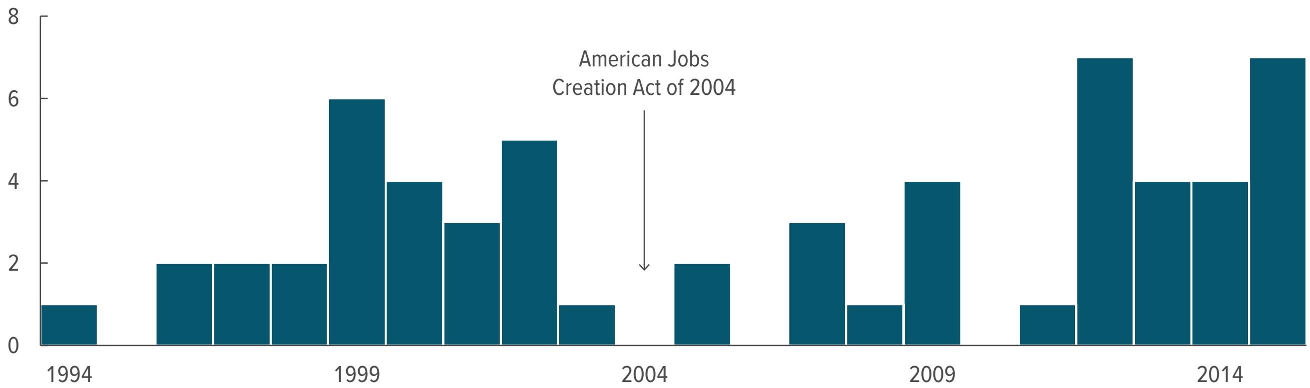
11. The excise tax applies if 60 percent to 80 percent of the new corporation is held by shareholders of the former U.S. corporation. That tax was enacted in the American Jobs Creation Act of 2004.

12. The academic study is Mihir A. Desai and James R. Hines Jr., "Expectation and Expatriations: Tracing the Causes and Consequences of Corporate Inversions," *National Tax Journal*, vol. 55, no. 3 (December 2002), pp. 409–440.

Figure 1.

Completed Inversions, 1994–2015

Number of Companies



Source: Congressional Budget Office, based on financial reports filed with the Securities and Exchange Commission, a study of inversions (Mihir A. Desai and James R. Hines Jr., "Expectation and Expatriations: Tracing the Causes and Consequences of Corporate Inversions," *National Tax Journal*, vol. 55, no. 3 (December 2002), pp. 409-40), and news media coverage of inversions.

The year of the inversion indicates the year in which it was completed. Bankruptcy transactions and transactions that occurred when a U.S. company was acquired by a private equity firm and then moved overseas are excluded. Transactions in which a new foreign corporation is created when a previously inverted company spins off a division also are excluded.

Only one corporate inversion is known to have occurred before 1994, in 1983.

Second, after the transaction, the shareholders of the original U.S. corporation retain a controlling interest of the new combined corporation (that is, more than 50 percent of the shares of the new corporation).[13] Consistent with those transactions being motivated by tax considerations, many inverted corporations have headquarters that remain in the United States, and the name of the new corporation is often the same as or similar to that of the inverted U.S. corporation.

Unlike CBO, some researchers have also classified as inversions transactions that were associated with other significant changes to the corporation. CBO's list does not include such transactions because their main purpose was probably not a reduction in tax liability. For example, transactions in which a U.S. company was acquired by a private equity firm and then moved overseas are excluded from CBO's list of inversions because, in those cases, corporate structure has been substantially revised. For the same reason, the list also does not include inversions resulting from the bankruptcy of the original U.S. corporation. If the set of inverting corporations is extended to include private-equity acquisitions and bankruptcy inversions, the number of completed inversions from 1983 through 2015 would increase to 73.[14] CBO also excluded transactions in which a new foreign corporation is created when a previously inverted company spins off a division, because in such cases the inversion was counted when the company originally inverted.

Inversion Activity Before 2014

Inversion activity grew slowly at first. After McDermott inverted in 1983, the next identified inversion did not occur until 1994, and the first period of concentrated inversion activity was between 1999 and 2002 (see Figure 1). Inversions slowed in 2003 in anticipation of legislation that was expected to contain retroactive provisions that would make it more difficult to be classified

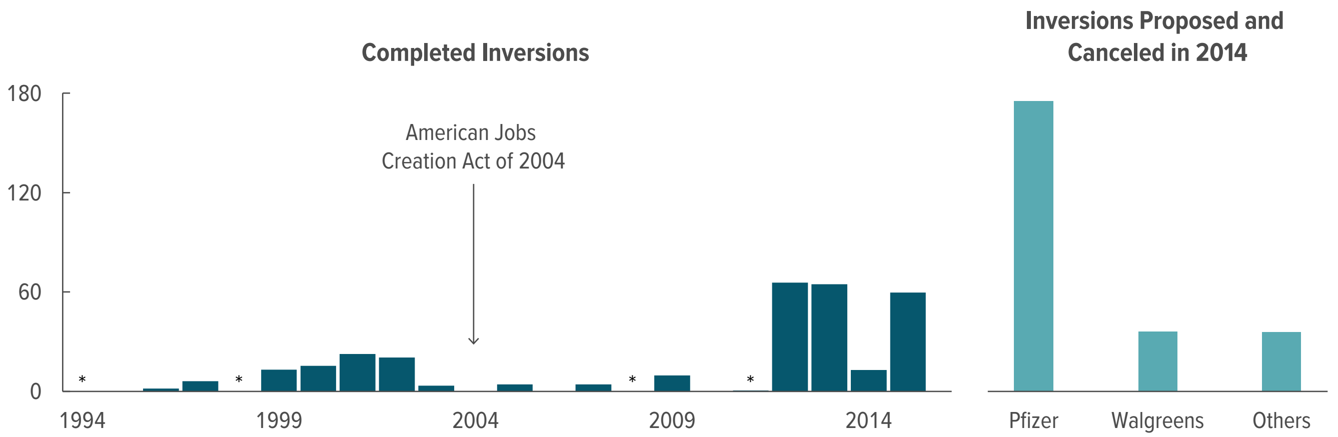
13. The transactions that are identified as inversions by researchers have evolved. Before 2004, when pure inversions were still possible, mergers with an existing foreign company would not necessarily have been identified as inversions. Because the sources CBO used did not generally identify those transactions as inversions when they occurred, they are not included in CBO's list of inversions.

14. Some researchers also classify as inversions transactions where a U.S. company was created to acquire a foreign company and the merged company incorporated outside the United States. That type of transaction is not included in the count of 73 inversions.

Figure 2.

Total Assets of Inverting Companies, 1994–2015, and of Companies That Proposed and Then Canceled Inversions in 2014

Billions of Dollars



Source: Congressional Budget Office computations based on financial reports filed with the Securities and Exchange Commission.

* = between zero and $500 million.

Total assets are taken from the company's financial report in the financial year prior to the inversion transaction.

as a foreign corporation. They briefly stopped after the enactment of the American Jobs Creation Act of 2004, which placed new restrictions (applied retroactively to 2003) on the ability of U.S. corporations to invert. In 2005, however, inversion activity began again. The highest annual number of inversions was seven in 2012.[15]

The size of the corporations that invert is probably a more revealing indicator of the inversions' economic significance than is the number of inverted corporations. In 1999, for example, inversion activity looked high relative to most years because six corporations inverted, but those corporations had total assets of only $13 billion in the financial year before the inversion transaction (see Figure 2). In contrast, the three corporations that inverted in 2001 had total assets of $22 billion. Using assets as measure of inversion activity, inversions increased steadily before the American Jobs Creation Act. After that law was enacted, there was little activity until a larger wave began in 2012.

Inversion Activity in the First Nine Months of 2014

The size of the corporations proposing inversions in 2014 contributed to the increased attention paid to such transactions and the issuance of the Treasury Notice in September. Before that notice, 10 corporations—with assets totaling approximately $300 billion—announced that they were considering inversions in 2014.

The inversions proposed in the first nine months of 2014 differed in two key regards from those in earlier years. Among corporations proposing inversions, the total reported amount of untaxed foreign earnings that the

15. The pace of inversion activity can be influenced by a number of factors. Some analysts have suggested that inversion activity is higher during economic downturns—for example, in 2009—because the value of the company's stock is lower, reducing the amount of capital gains tax that shareholders must pay when inversions occur relative to what they would pay otherwise. See David L. Brumbaugh, *Firms That Incorporate Abroad for Tax Purposes: Corporate "Inversions" and "Expatriation,"* Report for Congress RL31444 (Congressional Research Service, July, 13, 2007), p. 1, and Paul Oosterhuis, "The Inversion Experience in the United States" (presentation at the Brookings Institution event on Corporate Inversions and Tax Policy, Washington, D.C., January 23, 2015), http://tinyurl.com/jw4cs2u. It is also possible that inversion activity is higher just before an anticipated increase in the capital gains tax rate, as was also the case in 2009 and 2012, with the scheduled expiration in the following year of the rate reductions that had been enacted under the Jobs and Growth Tax Relief Reconciliation Act of 2003. The rate reductions were temporarily extended in 2010 and then (with the exception of the top rate) made permanent in 2013.

businesses did not intend to bring back to the United States—known as permanently reinvested earnings (PRE)—was substantially larger relative to total assets than it had been for earlier inversions.[16] Another difference was that the amount of total assets involved was remarkably high: The 10 corporations that proposed inversions in 2014 before the issuance of the Treasury notice had higher combined total assets in the year before inversion than the combined assets in the comparable period of the 48 corporations that completed inversions from 1994 through 2013. (In particular, a single large corporation, Pfizer—which had proposed a merger with AstraZeneca, a British pharmaceutical company—was responsible for 57 percent of the total assets of the companies considering inversions in 2014 and 61 percent of all PRE held by those businesses.)

The Treasury's September 2014 notice made it more difficult for an inverted corporation to meet the U.S. ownership thresholds and to access existing foreign profits without paying U.S. taxes. That notice also announced that the Treasury was considering taking action to limit corporations' ability to use interest payments to shift profits earned in the United States to lower-tax jurisdictions (which it subsequently did in 2016).[17]

Ultimately, only four of the ten inversions announced before the Treasury Notice were completed—two in 2014 and two in 2015. Many of the companies responsible for the atypically high amounts of assets and PRE either canceled or delayed their inversions by the end of 2014. Some of the slowdown in inversion activity was a direct response to press scrutiny, the increasingly negative public reaction to inversions, and the actions by the Treasury.[18] However, some deals, such as the Pfizer merger with AstraZeneca, were canceled because the two sides could not reach agreement.

Inversion Activity After the Treasury Notice

The Treasury's actions and public scrutiny in 2014 did not completely halt corporations' actions to reduce the amount of taxes they owed. Some of the companies that called off their inversions changed strategies and found other ways to reduce their overall tax liability. Of the six canceled inversions, three of the companies were instead acquired by foreign corporations. (Although a more extensive reorganization than an inversion, a foreign takeover has a similar tax effect because it results in foreign incorporation. The resulting loss of U.S. control is more likely to result in economic activity being moved out of the United States.)

In addition, corporations have continued to pursue new mergers that would result in inversions. At least 14 new inversions were proposed between the release of the 2014 Treasury notice and January 2017. (Those new inversions included another proposed inversion by Pfizer through a merger with Allergan, a pharmaceutical company.) Five of the 14 were completed in 2015 (bringing the total in 2015 to 7).

The Treasury has continued to discourage inversions through regulatory action. In April 2016, the Treasury issued temporary regulations on inversions and proposed other regulations to address the use of intercompany loans to shift profits out of the United States.[19] (Those temporary regulations included reclassifying some deductible interest payments as taxable dividends.) Those actions curtailed some inversion activity. For example, Pfizer's proposed merger with Allergan, which would have resulted in the combined company being located in Ireland, was called off in April 2016.[20] Nonetheless, some inversion activity was relatively unaffected. Among the inversions proposed after September 2014, an additional six were completed in 2016.

Clustering of Inversions by Industry

Inversions have tended to be clustered in specific industries. Of the 60 inversions from 1983 through 2015, almost 40 percent occurred in 3 industries:

16. There were exceptions among the individual companies—Walgreens, for example, had significant assets but no PRE.

17. Department of the Treasury, "Fact Sheet: Treasury Actions to Rein in Corporate Tax Inversions" (press release, September 22, 2014), https://go.usa.gov/xRMeR.

18. When Walgreens, for example, announced in August 2014 that it would complete its merger with Switzerland-based Alliance Boots but keep its tax residence in the United States, its chief executive officer referred to the public and political pressure to halt the inversion. See Alexander C. Kaufman, "How Americans Scared Walgreens Out Of A $4 billion Tax Dodge," *Huffington Post* (August 8, 2014), http://tinyurl.com/qxlwj8x.

19. U.S. Department of the Treasury, "Treasury Announces Additional Action to Curb Inversions, Address Earnings Stripping" (press release, April 4, 2016), https://go.usa.gov/xNKV9.

20. Pfizer, "Pfizer Announces Termination of Proposed Combination with Allergan" (press release, April 6, 2016), http://tinyurl.com/h7estq4.

Table 1.

Comparison of Inversions in the Pharmaceutical Industry, 1998–2015, to Inversions Proposed and Canceled in 2014

Status of Inversion	Number of Companies	Companies' Combined Assets in 2011[a] (billions of 2011 dollars)	Companies' Share of Total Industry Assets: Pharmaceutical and Medicine Manufacturing (percent)	Companies' Share of Total Industry Assets: All Industries (percent)
Completed	9	30	2.9	0.04
Canceled in 2014	4	209	20.0	0.26

Source: Congressional Budget Office computations based on information on the total assets in 2011 of pharmaceutical companies that have been involved in an inversion from their U.S. Securities and Exchange Commission filings. Also based on information on the total assets in the pharmaceutical and medicine manufacturing industry and across all industries from the 2011 Internal Revenue Service, *Statistics of Income Corporate Sourcebook*, https://go.usa.gov/xRMuv.

The Internal Revenue Service business code 325410 includes all corporations in pharmaceutical and medicine manufacturing. Corporations in pharmaceutical preparations (Standard Industrial Classification code 2834) are a subset of that category.

a. All but one inversion in the pharmaceutical industry occurred in 2011 or later. The inversion before 2011 was a pure inversion (a transaction in which the U.S. corporation set up a new foreign subsidiary and then, through a series of transactions, was acquired by that foreign subsidiary), so the assets of that company in 2011 should accurately reflect the size of the inverted corporation itself.

pharmaceutical preparations (9); fire, marine, and casualty insurance (7); and oil and gas well drilling and servicing (7). It is possible that those clusters occurred because companies observed and followed the actions of their competitors. However, inversions might also have been attractive to corporations in those specific industries for reasons related to the way foreign profits are taxed in those industries.

The global nature of pharmaceutical sales means that many pharmaceutical companies have substantial foreign profits. The higher foreign profits are, the greater the benefit of not paying U.S. corporate taxes on them. Moreover, the value of intellectual property in the pharmaceutical preparations industry can generate large streams of royalties. Unlike most other payments to foreign subsidiaries, royalties received by most foreign subsidiaries are not eligible for deferral and are taxed immediately by the United States, even if that income has not yet been repatriated. Because a significant share of the foreign profits of pharmaceutical companies may not be eligible for deferral, reincorporating outside of the United States may be especially beneficial for those companies.

Just as the United States immediately taxes royalties paid to foreign subsidiaries, it also taxes certain types of insurance income and oil-related income in the year in which that income is earned. Those exceptions to deferral probably make inversions especially attractive to insurance companies and oil and gas well drilling and servicing companies because a large share of the income of their foreign subsidiaries is immediately subject to the U.S. corporate income tax. By reorganizing with a foreign parent, companies in those industries can avoid paying U.S. corporate taxes on those sources of foreign income.

Despite the tax benefits of inversions in the pharmaceutical, insurance, and oil and gas industries, however, inversion activity has been small relative to the size of those sectors. Even among pharmaceutical corporations—the industry that has experienced the most inversion activity—inverting corporations are a relatively small share of the industry (see Table 1). In 2011, the nine pharmaceutical companies that would eventually complete an inversion by the end of 2015 held only 3 percent of the total assets of corporations classified by the Internal Revenue Service (IRS) as pharmaceutical and medicine manufacturing businesses.[21] The four pharmaceutical companies that proposed inversions in the first nine months of 2014 but ultimately called off their inversions accounted for a significant portion of the industry's assets. In particular,

21. All but one inversion in the pharmaceutical preparations industry occurred in 2011 or later. The one before 2011 was a pure inversion that did not involve an inversion with an existing foreign company, so the assets of that company in 2011 should accurately reflect the size of the inverted corporation itself.

Table 2.

Average Annual Reduction per Company in Tax Expense After Inversion

Millions of Dollars

	One-Year Period After Inversion[a]		Three-Year Period After Inversion[b]	
	Worldwide Tax Expense	U.S. Tax Expense	Worldwide Tax Expense	U.S. Tax Expense
Overall	45	65	70	97
Before American Jobs Creation Act of 2004	54	79	91	117
After American Jobs Creation Act of 2004	33	46	41	50

Source: Congressional Budget Office computations based on financial reports filed with the Securities and Exchange Commission.

a. The estimated reduction in the tax expense is the difference between the estimated tax expense in the year after the inversion if the inversion had not occurred and the company's actual tax expense in the year after inversion. The estimated tax expense is calculated by multiplying earnings in the year after inversion by the ratio of tax expense to earnings in the year before the inversion.

b. The estimated reduction in the tax expense is calculated by taking the difference between the estimated tax expense for the three years after the inversion if the inversion had not occurred and the company's actual tax expense for the three years after inversion and dividing that difference by three. The estimated tax expense is calculated by multiplying earnings in the three years after inversion by the ratio of the tax expense for the three years before the inversion to earnings for the three years before the inversion.

The one-year reduction in worldwide tax expense was calculated from data on 26 companies that inverted from 1994 through 2014. The three-year reduction in worldwide tax expense was calculated from data on 21 companies that inverted from 1996 through 2012. For the computations of the U.S. tax expense, the computations of one-year and three-year reductions were based, respectively, on 21 and 17 companies.

Total tax expense is a concept used in financial accounting that can differ from the amount of taxes owed by a company in a particular year. For example, tax expense can include liabilities that have not yet been paid. As a result, worldwide tax expense is not equal to a company's total worldwide tax liability, and U.S. tax expense is not equal to a company's U.S. tax liability.

in 2011 Pfizer owned 18 percent of the total assets in that category and 0.2 percent of total assets in the entire corporate sector.

Changes in Companies' Tax Expense From Inversion

To better understand a company's tax-based incentives to invert, CBO estimated the change in corporations' corporate tax expense based on information reported on their annual filings with the Securities and Exchange Commission. CBO used data from financial filings both because it includes information on worldwide tax expense that is not available from U.S. tax returns and because companies give substantial weight to how transactions affect their financial statements.[22]

Estimating the change in a corporation's tax expense from inversion is not equivalent to estimating the overall effect of the company's inversion on the government's tax receipts. Those measures are not identical for two reasons. First, although there is a relationship between a company's tax expense for financial purposes and its tax liability, there are also significant differences. Second, an inversion results in noncorporate tax payments that would need to be included in an estimate of the effect on tax receipts.

CBO computed the change in corporations' total worldwide and total U.S. corporate tax expense following inversions that occurred from 1994 through 2014 for corporations with positive earnings both before and after inversion. CBO estimates that, on average, corporations reduced both their worldwide corporate tax expense and their U.S. corporate tax expense after inversion (see Table 2). The estimated average reduction in U.S. tax expense is larger than the average reduction in worldwide tax expense.

22. Researchers surveyed nearly 600 tax executives and found that many responded that the top management at their companies cares at least as much about the measure of taxes based on financial accounting standards as they do about actual tax payments to the IRS. See John R. Graham and others, "Incentives for Tax Planning and Avoidance: Evidence from the Field," *The Accounting Review*, vol. 89, no. 3 (May 2014), pp. 991–1023, http://dx.doi.org/10.2308/accr-50678.

How Changes in Tax Expense Differ From Changes in Tax Receipts

Total tax expense is a measure used to determine financial liability rather than the actual tax owed to the tax authorities in a particular year. There can be large differences between a company's financial liability and what it actually pays in taxes in a particular year. Most differences between the amounts of tax expense listed on financial reports and tax liabilities reported on tax returns concern timing: The year that certain types of income and expenses are reported on financial reports differs from the year those items appear on tax returns. For inverting companies, an especially important difference is that a company's total tax expense includes the tax expense on unrepatriated foreign earnings that have not been declared to be permanently reinvested. That tax expense does not reflect the current payment of U.S. taxes on those foreign earnings, but instead a future tax liability when the earnings are brought back to the United States. If an inversion enables a company to eliminate that U.S. tax expense, then the company's total tax expense will fall, but that reduction would not correspond to any change in the company's current U.S. tax liability. Because of those differences, the change in a company's U.S. tax expense after inversion does not equal the change in U.S. tax liability.

Additionally, the overall effect of an inversion on U.S. tax receipts would include noncorporate taxes—for example, the capital gains tax liabilities of shareholders and the amount of excise taxes owed by officers and directors. Those onetime tax payments are not included in tax expense but are potentially large for some inversion transactions.[23] Including those taxes, the overall net reduction in total tax liabilities from inversions would be smaller than the reduction in the companies' corporate income tax liabilities.

Estimates of the Change in Tax Expense

CBO computed the average change in corporations' tax expense from inversions by taking the difference between each company's actual tax expense in the financial year after inversion and an estimate of what its tax expense would have been that year if the transaction had not occurred and then computing the average of those amounts. To estimate the tax expense in the absence of the inversion, CBO used information from the financial year before the inversion. (Box 1 describes CBO's methodology.) Those estimates will understate or overstate the tax benefits received by the corporations if there are significant onetime tax charges or refunds in that period that are not associated with the inversion transaction. Therefore, CBO also computed each company's change in tax expense using information from the three years before and after an inversion.

The change in corporate tax expense after a corporate inversion captures not just the change in net tax rates but also indirect effects, such as adjustments in the composition of the company's output or an increase in total earnings because of the merger. The estimates also reflect other changes—including fluctuations in the economy—that occurred between the preinversion period and the postinversion period.[24]

Worldwide Tax Expense the Year After Inversion. CBO estimates that inverted companies, on average, experienced a reduction in the ratio of worldwide tax expense to earnings of 11 percentage points. The rate the year before inversion averaged 29 percent and the rate in the year after inversion averaged 18 percent. That reduction in the rate was associated with an average reduction of $45 million in tax expense in the financial year after inversion. However, the actual change in tax expense varied greatly, ranging from a reduction of $237 million to an increase of $45 million (see Figure 3). In total, seven corporations were estimated to have a higher tax expense after inversion.

The average reduction in tax expense was higher for corporate inversions that occurred before the passage of the American Jobs Creation Act. Companies that inverted before 2004 experienced an average drop of $54 million. Those that inverted after 2004 experienced an average

23. In the case of the Medtronic inversion, for example, long-time shareholders faced large capital gains tax liabilities, and some shareholders sued because they were forced to pay capital gains taxes on the sale of their Medtronic shares. See Jennifer Bjorhus, "Medtronic Deal Could Sting for Long-Time Shareholders," *Star Tribune* (July 6, 2014), https://tinyurl.com/y8eaerrr; and Laura Davison, "Medtronic Suit Shows Tension in Inversion Tax Savings," *Bloomberg BNA* (October 7, 2016), https://tinyurl.com/y8dtvsuk.

24. Jim A. Seida and William F. Wempe, "Effective Tax Rate Changes and Earnings Stripping Following Corporate Inversion," *National Tax Journal*, vol. 57, no. 4 (December 2004), pp. 805–28. The authors find that average tax rates also fell over the sample period for companies in their sample that did not invert. The reduction for inverted companies, however, was approximately three times larger.

Box 1.

Estimating the Change in Tax Expense From Inversion

The Congressional Budget Office estimated the change in corporations' corporate tax expense resulting from inversions based on information reported on corporations' annual filings with the Securities and Exchange Commission (SEC) both before and after an inversion. Because of data availability, CBO focused on inversions that occurred from 1994 through 2014 for the analysis of the change in tax expense.

CBO's Method of Analysis

CBO computed the change in each corporation's tax expense by taking the difference between its actual tax expense in the financial year after inversion and an estimate of what its tax expense would have been that year if the transaction had not occurred. CBO estimated the tax expense without inversion by first taking the ratio of tax expense to worldwide earnings—an accounting measure of the company's tax rate—for the inverting U.S. company in the financial year before the inversion. Next, CBO multiplied that rate by the worldwide earnings of the inverted company in the postinversion period. The measure of estimated tax expense after inversion incorporates the expectation that, in the absence of the inversion, the company would have had the same ratio of tax expense to earnings in the period after the inversion that it had in the period just before the inversion. The year of the inversion was not included in those calculations because inversions are likely to be associated with costs that could affect both tax expense and earnings.

CBO applied the same method to a corporation's reported total worldwide corporate tax expense and its reported total U.S. corporate tax expense, using the ratio of tax expense to worldwide earnings for both calculations.[1] CBO then computed the average tax change across all corporations that inverted. The reduction in worldwide tax expense will be smaller than the reduction in U.S. tax expense if a corporation reduces its U.S. corporate tax expense after an inversion but increases its corporate tax expense in other lower-taxed jurisdictions.[2]

CBO's estimates of the change in tax expense in the year following inversion will understate or overstate the tax benefits received by a corporation if there are significant onetime tax charges or refunds in the year immediately before or after the inversion. Therefore, CBO also calculated the estimated average changes in tax expense using the three financial years before and the three financial years after the inversions. For the three-year method, the estimated change in the tax expense was calculated by taking the difference between the estimated tax expense for the three financial years after the inversion if the inversion had not occurred and the company's actual tax expense for the three financial years after inversion, and dividing that difference by three. The estimated tax expense was calculated by multiplying earnings in the three financial years after inversion by the ratio of the tax expense for the three financial years before the inversion to earnings for those years.

For inversions that occur through a merger with an existing foreign company, the tax expense and earnings after an inversion reflect the operations of both the U.S. company and the foreign company. The effect of such an inversion on the overall tax liability of the two companies would compare the postinversion tax expense of the merged company with the combined tax expense of both companies in the preinversion period. Rather than focusing on changes to overall tax liability, CBO focused on the change in tax expense of just the U.S. company, a better indicator of the U.S. company's motivation to invert. However, from the perspective of the U.S. company, the benefit of the inversion could be measured based either on the combined companies' postinversion earnings or on just the U.S. company's share of those earnings. CBO's method of estimating the change in tax expense after inversion, which multiplies the change in the tax rate by the total earnings of the merged company, may overstate the tax benefit. That would occur if the relevant measure for the U.S. company is its share of postinversion earnings. To account for that possibility, CBO reestimated the change in worldwide tax expense using an alternative approach. CBO first calculated the ratio of the U.S. company's preinversion earnings to the combined preinversion earnings of the U.S. company and its foreign merger

1. Companies are not always required to report U.S. federal tax expense separately from U.S. state and local tax expense on their financial statements. For more than 75 percent of companies, the measure of U.S. corporate tax expense includes only the reported U.S. federal corporate tax expense. However, if that level of detail was not available, the U.S. tax expense also includes the state and local tax expense.

2. Consider a corporation that lowers its corporate tax liabilities by $10 million by moving $50 million of profit from the United States (where it is taxed at 35 percent at the federal level) to a country with a corporate tax rate of 15 percent. The reduction in the company's worldwide tax expense is $10 million, but the reduction in U.S. federal tax expense is $17.5 million.

Continued

Box 1. Continued

Estimating the Change in Tax Expense From Inversion

partner. CBO then applied that ratio to assign a share of the postinversion earnings to the U.S. company. Depending on the treatment of foreign merger partners with negative earnings, that alternative approach lowered CBO's estimate of the average reduction in worldwide tax expense after inversion by as much as $7 million.

Data

CBO used publicly available data on earnings and total worldwide and total U.S. tax expense from inverted companies' SEC filings.[3] Because full data were not available for the single inversion completed in 1983 and the 6 inversions completed in 2015, CBO's analysis of the change in tax expense focused on the 52 inversions that were completed over the period from 1994 through 2014.

When computing changes in corporations' tax expense, CBO needed to drop a large portion of the 52 inversions completed in the period from 1994 through 2014. Only 26 of the 52 inverted companies were used to calculate the change in worldwide tax expense the year after inversion. Another five inverted companies were dropped to calculate the change in U.S. tax expense the year after inversion.

Most of the excluded corporations had losses in the period before inversion, the period after inversion, or both.[4] The companies with losses were excluded because the tax rates that they face in periods with losses generally are not a good approximation for the rates they would face in periods with positive earnings.[5] Those companies differ in some regards from the companies that were included in the analysis. For example, the value of the total assets owned by those companies was, on average, much smaller than that of the companies included in the analysis and also much smaller than the assets held by companies that proposed inversions in 2014. Additionally, among the eight companies that were excluded because they had positive earnings the year before the inversion but losses the year after the inversion, the average tax expense the year before the inversion was approximately $29 million. For companies included in the analysis, the average tax expense the year before the inversion was $124 million. That difference suggests that companies that were excluded from the analysis probably experienced a smaller dollar change in tax expense after inversion.

The prevalence of losses the year before and after an inversion reflects, to some extent, costs related to the inversion. If those costs are large, then calculating the estimated change in tax expense using the averages of taxes for the three financial years before and the three financial years after the inversions would more accurately capture the effect of the inversion. However, the number of inversions included in the estimates is further reduced under that alternative method. Only 21 of the 52 inverted companies reported the information needed to calculate the change in worldwide tax expense, and just 17 of the inverted companies reported the necessary information required for the computations of the change in U.S. tax expense.

3. Total tax expense includes both current and deferred tax expense.

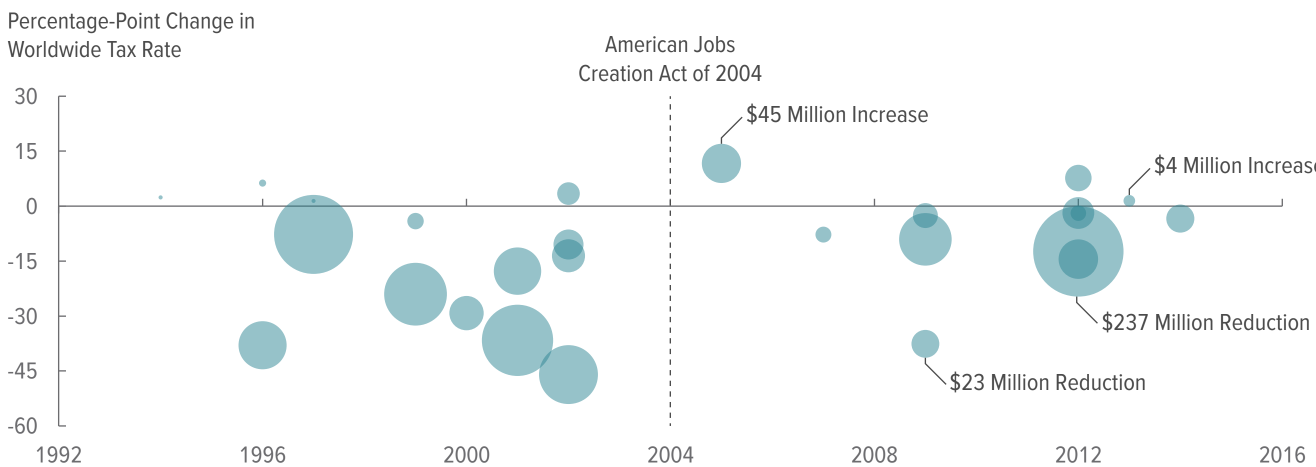
4. Of the 26 companies excluded from the calculation of the reduction in worldwide tax expense, 9 were dropped because they had losses in both the year before and the year after the inversion, 5 were dropped because they had losses in the year before the inversion, and 8 were dropped because they had losses in the year after the inversion. The remaining 4 were dropped because the necessary information on tax expense was not available. For the calculation of U.S. tax expense, another 5 companies were dropped because the necessary information on tax expense was not available.

5. It is not uncommon, for example, for a company to have losses and a positive tax expense. The negative tax rate that would be estimated from taxes and earnings in that period is probably not an accurate approximation of the rate the company would face in a period with positive earnings. If, for example, a company has negative earnings and faces a negative rate in the year before an inversion and that ratio is used to estimate the tax expense in the year after inversion if the transaction had not occurred, then that estimate would overstate the effect of the inversion.

Figure 3.

Change in Worldwide Tax Rate and Expense After Inversion, by Company

Each of the 26 bubbles below represents a company that inverted from 1994 through 2014. Bubble area represents the magnitude of change in worldwide tax expense (in dollars).



Source: Congressional Budget Office computations based on financial reports filed with the Securities and Exchange Commission.

Tax expense is a concept used in financial accounting that can differ from the amount of taxes owed by a company in a particular year—for example, tax expense can include liabilities that have not yet been paid. As a result, a company's worldwide tax expense is not equal to a company's total worldwide tax liability.

The percentage point change in worldwide tax rate is calculated by taking the difference between the ratio of worldwide tax expense to worldwide earnings in the year after inversion and in the year before inversion. The estimated change in tax expense is calculated by multiplying worldwide earnings in the year after inversion by that percentage point change.

drop of $33 million. The tax benefits of pre-2004 inversions were probably greater because early transactions were relatively simple and companies could easily relocate to countries with a corporate tax rate of zero. For pre-2004 inversions, companies reduced their ratio of worldwide tax expense to earnings by an average of 15 percentage points. By comparison, for inversions after 2004, companies reduced their ratio of worldwide tax expense to earnings by an average of 6 percentage points.

The estimates above effectively give the same weight to tax changes regardless of a corporation's size. An alternative way to understand the scale of the tax expense reduction after inversion is to compare the aggregate reduction in tax expense (the sum of all individual companies' changes in tax expense) in the period after inversion with the aggregate tax expense that would have been expected for that period in the absence of an inversion. By that measure, including the same sample of companies used to calculate the averages shown in Table 2, the aggregate worldwide tax expense in the financial year after inversion was 33 percent lower than would have been expected in the absence of the inversions.

U.S. Tax Expense in the Year After Inversion. Companies that invert probably consider the effect that it will have on their worldwide tax expense. However, the change in their U.S. tax expense provides more information about the effect of inversions on their U.S. corporate tax liability. From 1994 through 2014, the average reduction in U.S. corporate tax expense was almost 46 percent larger than the average reduction in worldwide corporate tax expense.

The larger reduction in U.S. tax expense is consistent with inverted corporations' moving income that would have been taxed by the United States to lower-tax countries. CBO estimates that an inverted company's U.S. tax expense in the financial year after inversion was, on average, $65 million lower than it would have been in the absence of the inversion. However, the actual change in tax expense again varied greatly, and four corporations had a U.S. corporate tax expense after inversion that was higher than estimated in the absence of the inversion. The reduction in U.S. tax expense was larger for companies that inverted before the American Jobs Creation Act. Companies that inverted before 2004 experienced an average reduction in U.S. corporate tax expense of approximately $79 million. Those that inverted after 2004 experienced an average reduction of $46 million. One possible explanation for that difference is that the companies inverting after 2004 had already lowered U.S. tax payments through alternative strategies before inversion.

The estimates of the average again effectively give the same weight to tax changes regardless of a corporation's size. In the aggregate, for inversions from 1994 through 2014, the U.S. tax expense in the financial year after inversion was 77 percent lower than would have been expected in the absence of the inversions.

Tax Expense in the Three Years After Inversion. Because there may be significant onetime tax charges or refunds in the year after an inversion, CBO also calculated the change in tax expense for the three years before and after an inversion. The three-year method results in estimated reductions in tax expense per year that are higher in dollar terms (see Table 2 on page 10). That larger dollar value is partially due to higher levels of earnings per year in that period.

CBO estimates that an inverted company's worldwide tax expense declined, on average, by $70 million per year in the three-year period after an inversion. The average reduction in the companies' U.S. corporate tax expense was larger, at $97 million per year. Although the dollar values for the three-year method are larger than those for the one-year method, the aggregate reductions in tax expense after inversion are similar in magnitude. For the three years after inversion, the worldwide tax expense of inverted companies was 35 percent lower and the U.S. tax expense was 64 percent lower than would have been expected in the absence of the inversions.

Effects of Inversions and Other International Tax Avoidance Strategies on the Corporate Income Tax Base Over the Next Decade

This report focuses on the change in corporate tax expense reported by multinational corporations after an inversion. CBO's estimates of the sizable average reduction in worldwide and U.S. corporate tax expense of multinational corporations following an inversion indicate the incentives that companies have to engage in such strategies. To the extent that multinationals respond to those incentives and choose to invert, U.S. corporate tax receipts will be lower than they would be otherwise.

Several factors, however, are projected to constrain the effect of inversions on total U.S. tax receipts over the next decade. As one example, the reduction in corporate income taxes is partially offset by the higher taxes on capital gains owed by shareholders and the excise taxes that may be owed by the company's officials and directors after the transformation of the corporation. In addition, recent Treasury actions aimed at curbing inversions have increased their costs relative to the period before September 2014. The higher costs that result from those administrative actions will, to some extent, discourage inversions.

Although administrative actions will dampen incentives to invert, companies are likely to continue to pursue other strategies of tax minimization. That is because as one method of tax minimization becomes more costly or is no longer available, corporations will seek out alternative methods of tax minimization. New methods of tax avoidance driven by cross-country differences in taxation also are likely to emerge.

CBO estimates that if current policy does not change, new actions by multinational corporations to reduce their worldwide tax liabilities through inversions and certain other strategies will reduce U.S. corporate tax receipts by approximately 2.5 percent in 2027 ($12 billion in nominal dollars).[25] That estimate is intended to capture a continued growth of international tax-minimization strategies that reduce U.S. tax payments without significantly altering where real economic activity occurs. The projected 2.5 percent reduction in U.S. corporate tax receipts in 2027 relative to receipts that year if additional shifting did not occur is the cumulative effect of such new tax-minimization activities undertaken by multinational corporations from 2017 through 2027. In CBO's judgment, corporations substitute between strategies for lowering the total amount of taxes they owe, choosing the method that yields more benefits relative to costs—both tax and nontax—than alternative

25. For more information on the factors affecting CBO's projections for corporate income taxes, see Congressional Budget Office, *The Budget and Economic Outlook: 2017 to 2027* (January 2017), p.22, www.cbo.gov/publications/52370.

approaches. As a consequence, CBO's estimate does not distinguish between the amount of the tax reduction due to inversions or to alternative strategies.

CBO's estimate of a 2.5 percent reduction in U.S. corporate tax receipts in 2027 is informed by academic studies that found an increase in the income reported in lower-tax countries by multinational corporations over the past three decades. Many researchers have found that tax rates and other features of a tax system appear to influence where companies report their income.[26] Only two researchers, however, estimate the amount of U.S. corporate tax revenue lost over time because of the adoption of those strategies.[27] One researcher estimates that annual revenue losses increased from zero in 1983 to more than 30 percent in 2012.[28] In another study, the estimated annual revenue loss grew from 2 percent in 1983 to 17 percent in 2013.[29]

Although both researchers found that the growth of profit shifting fluctuated over time, their estimates suggest respectively that, on average, an additional 1 percent or an additional 0.5 percent of U.S. corporate tax revenue was lost to profit shifting each year. CBO's projection of a 2.5 percent reduction in U.S. corporate tax receipts in 2027 implies that, on average, an additional 0.25 percent of U.S. corporate tax revenue would be lost to international tax avoidance each year.

CBO projects a lower rate of growth for two reasons. First, the studies of profit shifting over time potentially identify changes in economic activity that led to reductions in tax revenue as profit shifting.[30] Those changes in economic activity would not be included in CBO's estimate of past growth of international tax avoidance.

Second, CBO anticipates that the future growth of international tax avoidance will be slower than past growth. In CBO's view, over the next ten years some corporations will find ways to shift more profits out of the United States; others will embark on international tax-minimization activities for the first time. However, many corporations that have not already pursued tax-minimization strategies will be unable to use such strategies. For example, some companies do not have affiliates located in lower-tax jurisdictions. In other cases, transfer-pricing manipulation is not possible because the true value of goods and services a company would transfer to affiliates is easily established. For still others, the benefits of engaging in tax-minimization strategies are not large enough to offset the costs of those strategies. Additionally, the costs of tax-minimization strategies will probably increase as the United States implements regulations and other countries implement regulations and legislation to prevent the use of existing strategies. As corporations move toward fully applying the strategies that are available to them, CBO projects that the rate of growth in international tax-minimization activities will level off.

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26. For an overview of that literature, see Jost H. Heckemeyer and Michael Overesch, *Multinationals' Profit Response to Tax Differentials: Effect Size and Shifting Channels*, Working Paper 13-045 (Centre for European Economic Research, 2013), http://tinyurl.com/lnf54de.

27. Other studies include estimates of the magnitude of profit shifting in a single year. See, for example, Charles W. Christian and Thomas D. Schultz, "ROA-Based Estimates of Income Shifting by U.S. Multinational Corporations," *IRS Research Bulletin* (2005), pp. 55–72, http://www.irs.gov/pub/irs-soi/05christian.pdf (47 KB).Those authors estimate that, on net, $87 billion was shifted out of the United States in 2001.

28. Kimberly A. Clausing, "The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond," *National Tax Journal*, vol. 69, no.4 (December 2016), pp.905–934, http://dx.doi.org/10.17310/ntj.2016.4.09, and "Multinational Firm Tax Avoidance and Tax Policy," *National Tax Journal*, vol. 62, no. 4 (December 2009), pp.703–725, http://dx.doi.org/10.17310/ntj.2009.4.06.

29. Gabriel Zucman, "Taxing Across Borders: Tracking Personal Wealth and Corporate Profits," *Journal of Economic Perspectives*, vol. 28, no. 4 (Fall 2014), pp. 121–148, http://dx.doi.org/10.1257/jep.28.4.121.

30. The studies by Clausing attempt to eliminate the effects of changes in economic activity on the profits of U.S. foreign affiliates by controlling for changes in variables such as assets and employment in each country. However, standard indicators of economic activity such as assets may be less appropriate for capturing economic activity in lower-tax countries if, for example, the activity is less focused on the production of goods and more focused on the provision of services. The study by Zucman examines the share of profits of U.S. corporations reported in a set of countries with either low corporate taxes or no corporate tax at all. That study does not control for the effects of economic activity in those countries.

List of Figures and Tables

Figures

Tables

About This Document

In preparing its annual report on the budget outlook and updates to that report during the year, the Congressional Budget Office projects revenues from the federal corporate income tax. This document provides background information about how the corporate tax base—the amount of income subject to the federal corporate tax—is affected by strategies undertaken by multinational corporations to lower their worldwide tax. Although the main focus of this document is on corporate inversions—a strategy that enables corporations to change their tax residence—it also contains a description of CBO's adjustments to the corporate tax base to reflect both inversions and strategies used by multinational corporations to shift their income to lower-taxed jurisdictions. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Molly Saunders-Scott wrote the report with guidance from Janet Holtzblatt and John McClelland. Daniel Fried of CBO, Michelle Hanlon of the Massachusetts Institute of Technology, James R. Hines Jr. of the University of Michigan, and Eric Toder of the Urban-Brookings Tax Policy Center provided comments. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Jeffrey Kling and Wendy Edelberg reviewed the report; Elizabeth Schwinn edited it; and Casey Labrack prepared it for publication. The report is available on CBO's website (www.cbo.gov/publication/53093).

Keith Hall
Director
September 2017