

# The Exorbitant Tax Privilege\*

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## Abstract

Why does the United States, the world's largest net debtor, earn positive income from the rest of the world? We show that over the last half century, the United States has earned uniquely high returns on its foreign assets because U.S. multinational companies have paid low taxes to foreign countries. First, U.S. multinationals in the oil sector have made high after-tax returns because royalties and taxes paid to oil-producing States have been kept in check, especially after the first Gulf War. The favorable sharing of oil rents can be interpreted as a return on military protection granted by the United States to small oil-producing States. Second, U.S. multinationals have shifted more profits to tax havens than other firms, boosting the after-tax returns of the United States on its foreign assets. The higher profit shifting intensity of U.S. multinationals can be explained by the specific incentives contained in the U.S. tax code before 2018, and by U.S. Treasury policies adopted in the mid-1990s to facilitate this shifting—maybe because of the view that it would ultimately enhance U.S. tax collection. The tax reform enacted by the U.S. Congress in 2017 seals the exorbitant tax privilege of U.S. multinationals by taxing at reduced amnesty rate their past untaxed profits.

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\*Preliminary draft, comments welcome. Thomas Wright: Thomas.Wright@HMTreasury.gsi.gov.uk; Gabriel Zucman: zucman@berkeley.edu. This research does not represent the view of HM Treasury. An online appendix and all data are available online at <http://gabriel-zucman.eu/exorbitant>.

# 1 Introduction

One of the most fascinating puzzles in international macroeconomics is what has come to be known as the “exorbitant privilege” of the United States. Despite being by far the world’s largest net debtor, the United States earns sizable net income from the rest of the world. The puzzle has deepened in recent years: while the net foreign asset position of the United States has continued to deteriorate at a fast pace, the income balance has remained firmly positive (Figure 1). Is there some special feature of the United States that allows it to generate permanently higher returns on its foreign assets than on its foreign liabilities? And if yes, what is it exactly? This question matters for a host of core issues in international macroeconomics, including the sustainability of the U.S. current account deficit, the structure of the international monetary system, and global imbalances.

In this paper, we present new series suggesting that there has indeed been something unique to the United States over the last half century: U.S. multinational companies have paid low taxes to foreign countries relative to the profits they have made abroad. This “exorbitant tax privilege” can account for about half of the overall return differential enjoyed by the United States over the last five decades. It can be explained both by the geopolitical and military power of the United States, which has helped it earn high post-tax rents from oil-producing countries, and by the widespread shifting of profits by U.S. firms to tax havens. Many multinational companies avoid taxes by artificially shifting profits to low-tax locales. But U.S. multinationals have done it more than others—probably, we argue, because of the specific incentives contained in the U.S. tax code before 2018 and because this shifting has been facilitated by policies implemented by the U.S. Treasury in the 1990s.

Our contributions in this paper is twofold. First, we provide the first quantitative analysis of the role played by oil in U.S. foreign investments since the mid-1960s, uncovering the contribution that the oil sector, oil-producing countries, and the taxes paid to these countries, have made to the return differential enjoyed by the United States. Although there is a vast body of work on the exorbitant privilege, from which much has been learned, oil has received virtually no attention so far in this literature. This is surprising given that oil has played a major role for both outward and inward U.S. cross-border investments. From 1966 to 2016, oil has accounted for more than a third of all the pre-tax profit made by U.S. multinationals abroad each year on average (and on the liability side, oil-exporting countries have been some of the main holders of U.S. government bonds ever since the 1970s).

The most likely explanation for why the outsized role of oil had not been stressed until now

is probably that the key data source used in most of the studies of the exorbitant privilege—the international macroeconomic accounts of the United States—do not allow one to study the sectoral composition of U.S. investments abroad properly. More than half of U.S. direct investment abroad is intermediated through holding companies (many of which located in offshore tax havens). Following internationally-agreed guidelines, statistics reported in the international macro accounts are allocated to the industries and countries of the affiliates with which the U.S. parent companies have direct transactions and positions, and hence more than half of the foreign direct investment of the United States show up as investments in holding companies today. Oil is almost invisible.

To overcome this limitation, we combine the international macro accounts with two other data sources: IRS corporate income tax returns, and surveys of the foreign operations of U.S. multinationals conducted by the Bureau of Economic Analysis. These data provide information on the operations of the foreign affiliates of U.S. firms classified in the industry of the affiliate's primary activity. In addition to revealing the true sectoral distribution of U.S. investments, they allow us to study the amount of taxes paid by U.S. multinationals abroad (which is impossible with the international macro accounts, which are on an after-tax basis). Using these data, we conduct a systematic analysis of the profitability, rates of return, and tax rates of U.S. multinationals since the middle of the 1960s.

Our investigation reveals a number of striking results. First we find that U.S. multinationals in the oil sector have earned much higher post-tax rates of returns than multinationals in other sectors. The differential first became sizable in the 1970s, following the oil shock of 1973. But interestingly—and perhaps unexpectedly—it is in the 2000s and early 2010s that returns for U.S. oil multinationals abroad have been particularly high. As is well known, oil prices increased significantly in that period of time, from a low of \$13 in 1998 to a high of \$112 in 2012 (before collapsing in 2015). This increase was similar in size to the rise that occurred in the 1970s. But a key difference is that U.S. multinationals pay much lower tax rates to oil-producing states today than in the 1970s: while their rate averaged 70% from 1966 to 1990, it has averaged 45% since 1991. The foreign tax rates of U.S. oil multinationals fell significantly after the first Gulf War, during which the United States (and a number of other countries with significant foreign investments in oil) intervened to protect Kuwait, a major oil producer. Although it is not possible to know for sure what caused this decline, a possible interpretation of the fall in the taxes collected by oil-producing countries—and more broadly, of the favorable sharing of oil rents that U.S. multinationals have enjoyed in the long run—is that they reflect a return on

military protection granted by the United States to oil-producing States.

Our second contribution is to quantify the extent to which profit shifting by U.S. multinationals has contributed to the high return on U.S. direct investment abroad. To do so, we rely again on our combination of international macro accounts, BEA survey data, and IRS tax data. Using these data, we analyze how the location of the profits made by U.S. multinationals has changed in the long run, and we quantify how the shifting of profits to low-tax place matters in explaining the high post-tax returns of U.S. multinationals. We also put the United States in an international perspective, by drawing on new, improved balance of payments statistics across OECD countries.

Our findings suggest that U.S. multinationals shift more profits to tax havens than multinationals from other countries, which boosts the after-tax returns of the United States on its foreign assets. The higher profit shifting intensity of U.S. multinationals can be explained by the specific incentives contained in the U.S. tax code before 2018 and by U.S. Treasury policies adopted in the mid-1990s that facilitated this shifting. In contrast to most other OECD countries, the United States had, until 2017, a worldwide corporate income tax whereby the foreign profits of U.S. firms were taxable in the United States once repatriated there, with credits given for taxes paid to foreign governments. The perceived national interest of the United States was to let its multinationals shift profits out of foreign high-tax countries (such as France) towards low-tax countries (such as Ireland), because it would eventually enhance U.S. tax collection upon repatriation, since the U.S. would not have to grant much credits to offset taxes paid abroad. In 1996, the U.S. Treasury made it easier for U.S. multinationals to shift profits out of foreign high-tax countries by introducing “check-the-box” regulations (more on this in Section 5 below). We find that profit shifting by U.S. multinationals, which had been stable since the mid-1980s, rose sharply after the introduction of these regulations, leading U.S. multinationals to shift significantly more profits offshore than firms from other countries in recent years. But we also show that letting its multinationals avoid foreign taxes did not, in fact, enhance U.S. tax collection, because the tax law enacted at the end of 2017 allowed these firms to repatriate their foreign earnings at a low rate. This tax reform, in effect, seals the exorbitant tax privilege of U.S. multinationals.

The rest of the paper proceeds as follows. We review the literature in Section 2. Section 3 puts the returns differential of the United States in an international perspective. We present our analysis of the foreign tax rates paid by U.S. firms since 1966 in Section 4, and discuss explanations for the relatively low tax rates they have enjoyed in Section 5. Section 6 studies

the contributions of these low rates to the cross-border returns differential of the United States. Section 7 concludes. There are many intricacies in the investment statistics that we exploit in this paper and in the ways that multinationals structure their activities to avoid taxes. The most important ones are discussed in the article; others are detailed in an Online Appendix and a set of Excel files that enable the reader to reproduce all our estimates step by step starting from publicly available data.<sup>1</sup>

## 2 Related Literature

### 2.1 Cross-Border Returns of the United States

A large literature studies the rate of return on U.S. foreign assets and liabilities. Among other things, this literature sets out to understand how the United States can be a net borrower to the rest of the world and yet earn positive net income from abroad (what is called the “income puzzle” in the literature). This question is closely related to the debate about the sustainability of the current account deficit, since the positive net income earned by the U.S. partly offsets its trade deficit (Obstfeld and Rogoff, 2005). The earliest strand of the literature aims to estimate the returns differential of the United States and which types of investments drive it (Lane and Milesi-Ferretti, 2005; Gourinchas and Rey, 2007; Curcuru, Dvorak and Warnock, 2008; Forbes, 2010; Gourinchas, Rey, and Govillot, 2010; Gohrbrand and Howell, 2010).

Recent studies narrow down the income puzzle to one specific component of U.S. international transactions and assets: foreign direct investments—investment in which a resident of one country owns at least 10 percent of the voting securities of a foreign corporation, i.e., essentially investments made by multinational companies into foreign affiliates. As shown by Appendix Figure F.A1b, the United States has a higher yield on its direct investment assets than on its direct investment liabilities—that is, the affiliates of U.S. multinationals operating abroad are more profitable than the affiliates of U.S. multinationals operating in the United States—and this yield differential has been the key driver of the overall return differential enjoyed by the United States (e.g., Curcuru, Thomas, Warnock, 2013).

In turn, a large body of work seeks to why U.S. firms earn more on their foreign operations than foreign firms earn on their U.S. operations.<sup>2</sup> Curcuru and Thomas (2012) summarize this literature, and point to the role of age (U.S. multinationals abroad are older than foreign firms

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<sup>1</sup>The Appendix and data are available online at <http://gabriel-zucman.eu/exorbitant>

<sup>2</sup>See Lupo et al. (1978), Landefeld et al. (1992), Grubert et al. (1993), Laster and McCauley (1994), Feldstein (1994), Mataloni (2000), Huang and Mascaro (2004), Gros (2006), Bosworth et al. (2008), Bridgeman (2008), McGrattan and Prescott (2010), Habib (2010).

operating in the U.S.), risk (investing outside of the United States is relatively more risky), and taxes (returns recorded in balance of payment statistics are net of corporate taxes, and the United States has tended to have a higher tax rate than its partners since the early 2000s).

Compared to this literature, our contribution is twofold. First, we uncover the role played by the oil sector in the high returns enjoyed by the United States abroad. Second, we show that tax avoidance by U.S. multinationals has been a key driver of these high returns. Importantly, the role of taxes that we uncover is different than the one stressed by previous authors. Curcuro, Thomas and Warnock (2013) argue that the direct investment yield differential as in part a mechanical “illusion of balance of payments accounting” (p. 13) due to the fact that in published statistics, taxes owed by the foreign affiliates of U.S. multinationals in the United States are not deducted, while the taxes paid by the U.S. affiliates of foreign multinationals are. The effect we uncover, by contrast, is not mechanical but behavioral: U.S. multinationals have, more than other firms, artificially shifted profits to low-tax countries, boosting their after tax return. This behavioral effect turns out to matter more than the mechanical statistical effect emphasized by Curcuro, Thomas and Warnock (2013), because the foreign affiliates of U.S. multinationals do not owe much tax to the United States as a result of the tax law enacted by the U.S. Congress in 2017.

## 2.2 Profit Shifting by Multinational Firms

A vast empirical literature documents that firms shift profits to low-tax places to reduce their tax liabilities. In a meta-study, Heckemeyer and Overesch (2013) find an average semi-elasticity of reported profits to the rate of corporate tax of -0.8: if the corporate tax rate increases by 10 percentage points in a country, then reported profits for affiliates in that country fall by 8%. Dharmapala (2014) summarizes the existing empirical evidence. Tørsløv, Wier, and Zucman (2018) estimate that close to 40% of multinational profits—defined as profits made by multinational companies outside of the country where their parent is located—are shifted to tax havens globally in 2015.

Perhaps surprisingly, the exorbitant privilege literature barely discusses the potential role of profit shifting in explaining the high returns of US multinationals abroad.<sup>3</sup> The main exception is

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<sup>3</sup>For instance, McGrattan and Prescott (2010) estimate that 60% of the U.S. DI return differential owes to differences in the timing of intangible investment made by the United States abroad and foreigners in the United States. Because investments in the United States are recent and intangible investments are expensed, these investments generate large costs today; by contrast, U.S. direct investments abroad are relatively old, so they do not generate costs but rents. They “assume that multinationals do not engage in transfer pricing to avoid taxation.” (p. 1499). In this paper we take a different perspective where we allow for tax avoidance. Our findings complement McGrattan and Prescott’s (2010) and contribute to explaining the part of the U.S. DI

Bosworth, Collins and Chodorow-Reich (2008), who use BEA survey data on US multinationals in 51 countries over the years 1999-2004 to estimate how effective tax rates in each country affect FDI income reported by affiliates. Their results are consistent with the hypothesis that U.S. multinationals artificially shift profits to low-tax places. From their estimates they conclude that over this period, income shifting could account for between 1–1.5pp of the D.I. return differential (roughly one-third of the differential). Our contribution here is to study this issue more systematically, using data back to 1966, combining the BEA data with the international macro accounts and IRS data, and putting the United States in an international perspective. The recent work by Guvenen et al. (2017) that studies the impact of profit shifting by U.S. multinationals on measured productivity in the United States is also closely related to our work.<sup>4</sup>

### 3 The United States in an International Perspective

This section puts the rates of returns on U.S. direct investment in an international perspective.<sup>5</sup> It establishes basic empirical patterns in global direct investment statistics, and provides evidence that profit shifting by multinationals from high- to low-tax places is key for understanding measured rates of returns on direct investment.

#### 3.1 Measuring Returns to Direct Investment

We start by defining the key concepts used in our analysis. Direct investment (DI) records cross-border investment associated with a resident in one economy having control, or a significant degree of influence, over the management of an enterprise resident in another economy. An immediate DI relationship is defined as owning equity that allows at least 10% of the voting power in the DI enterprise. It is distinct from portfolio investment (PI), where there is a largely anonymous relationship between the issuers and holders of PI equity and debt securities (less than 10% ownership).

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return differential that cannot be ascribed to differences in the timing of investments.

<sup>4</sup>A number of papers study profit shifting by U.S. multinationals using data from the Bureau of Economic Analysis on the activities of U.S. multinationals abroad (see, e.g., Desai et al., 2003, Clausing, 2009) and IRS data (e.g., Altshuler and Grubert, 2005; Dowd et al., 2017, and De Simone et al., 2017). Christian and Schultz (2005) studies the rate of return on assets across subsidiaries using U.S. tax return data for tax year 2001. However these studies do not discuss the implications of profit shifting for cross-border returns differentials, and they focus on the United States while we attempt to put the U.S. in the international perspective (e.g., to assess whether U.S. multinationals shift more profits than other multinationals).

<sup>5</sup>Habib (2010) examines the exorbitant privilege in a global perspective, showing that the US is indeed a special case amongst his sample of 49 countries. Habib (2010) estimates a total external return differential of 3.35pp over the years 1981-2007, of which one-third is attributed to the income yield differential and two-thirds capital gains.

To analyze rates of returns on direct investment and how they are affected by profit shifting, it is critical to decompose DI into equity and debt. DI equity represents the cross-border ownership of enterprise equity, whereas a DI debt instrument is a loan between two affiliated firms. In the balance of payments, DI equity income consists of dividends and reinvested earnings—profits that accrue to the owners of the direct investment enterprise. Income on DI debt instruments is the interest paid on intra-group loans.

We compute returns to direct investment in OECD countries using harmonized balance of payments and international investment position data. As emphasized by Curcuru et al. (2013), caution is needed when doing cross-country comparisons of direct investment yields. We leverage recent improvements in foreign direct investment statistics across OECD countries, following efforts coordinated by the IMF and the OECD to harmonize data in this area. As discussed in Appendix B, for most OECD countries data are now compiled following methods and concepts similar to those used in the United States. We calculate returns over the 2014–2016 period. 2014 was the first year that most OECD countries reported data in accordance with the fourth OECD Benchmark Definition for foreign direct investment and with the 6th edition of the IMF Balance of Payments Manual, making a meaningful comparison of direct investment yields possible.<sup>6</sup> To compute the returns to investments we divide the income they generate by the stock position at current cost at the end of the previous year. Income recorded in balance of payments is net of foreign income taxes and depreciation. Hence the rates of returns we compute are post-tax, net-of-depreciation returns.

### **3.2 Direct Investment Yield Differentials, 2014–2016**

As shown by Appendix Table B.1, among OECD countries the United States has the largest DI yield differential: 2.9 percentage points over 2014-2016<sup>7</sup> The differential over 2014-16 is driven by an even higher equity yield differential of 3.3 percentage points. For debt, the yield differential is negative: U.S. parents lend at relatively low interest rates to their foreign affiliates, while foreign parents lend at relatively high interest rates to their U.S. affiliates.

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<sup>6</sup>The new OECD and IMF guidelines harmonized compilation methods, addressing most of the concerns outlined by Curcuru et al. (2013). In particular, the current operating performance concept for measuring DI earnings is now applied in almost all OECD countries, with the exception of Mexico and Turkey. See Appendix B for a detailed discussion.

<sup>7</sup>We measure equity positions at current cost in all countries (including the United States) to ensure comparability. As shown by Table B.1, the DI yield differential of the United States would be larger (3.4pp) if we used the BEA's market value estimate of equity positions. We use data compiled on an asset-liability basis (rather than a directional basis) as this is the more relevant concept for studying the exorbitant privilege and the one traditionally used in the literature. Gohrbrand and Howell (2013) find a U.S. DI yield differential (equity plus debt) of 4.8pp over the years 1990-2005.



Figure 2 compares the DI equity yield differential among OECD countries. The United States has the highest equity yield differential. By contrast, Ireland has the largest negative DI equity return differential. Foreign firms in Ireland report a rate of return 7.9pp higher than Irish firms operating abroad. Ireland is the lowest tax jurisdiction in our sample, with a headline corporate tax rate of 12.5%, while the United States is the highest tax country in 2014–2016 (35% rate for the federal corporate tax, plus an average of 4% for State corporate taxes). As is apparent in Figure 2, there is a strong correlation between corporate tax rates and measured DI equity yield differentials.

When we decompose the DI equity yield differentials into the contributions from assets and liabilities, we find that what makes the United States stand out is mostly its high return on assets (Appendix Figure B.1). Over 2014–2016, the U.S. has earned a 8.1% return on its direct equity investments abroad, while other OECD countries earned 5.0% on average. By contrast, the return on U.S. DI equity liabilities (4.8%) is in line with the return on DI equity liabilities recorded in most other large OECD countries. The return on foreign direct investment in the United States is low—in particular, and as already documented in the literature, it is lower than the return on all U.S. corporate capital (see Appendix Figure A.1d). But it is no lower than in other high-tax OECD countries; if anything, the DI equity liability yield of the United States is in fact a bit higher than in these countries (e.g., 4.3% in Canada, 4.5% in Germany, 3.5% in France).

### 3.3 The Profit Shifting Hypothesis

Why does the United States earn such high returns on its direct investment assets, and why do the United States and other high-tax countries record low returns on their DI liabilities? One plausible explanation—and indeed, one of our key findings in this paper—is that this pattern largely owes to profit shifting by multinational firms to low-tax places. To understand why, we start by explaining how multinationals can shift profits to tax havens, and how this affects measured rates of returns.

There are three ways multinational shift profits to tax havens. First, they can manipulate intra-group exports and import prices: subsidiaries in high-tax countries export goods and services at low prices to related firms in low-tax countries, and import from them at high prices.<sup>8</sup> Such transfer price manipulations reduce reported profits in high-tax countries and increase them in tax havens. Second, multinationals can shift profits using intra-group in-

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<sup>8</sup>There is extensive evidence of such transfer price manipulations in the literature; see, e.g., Clausing (2003); Bernard, Jensen and Schott (2006), Cristea and Nguyen (2016).

terest payments: affiliates in high-tax countries borrow money (potentially at relatively high interest rates) from affiliates in low-tax countries, which reduces taxable profits in high-tax countries (because interest payments are typically tax-deductible) and increases them in tax havens.<sup>9</sup> Last, multinationals can locate intangibles—such as proprietary trademarks, logos, and algorithms—in tax haven affiliates. These affiliates then receive royalties, reducing taxable profits in non-havens countries.

Profit shifting affects rates of returns on the asset side of the international investment position of countries, because income statistics in the balance of payments are measured on an after-tax basis. If, say, U.S. multinationals shift all their foreign profits to zero-tax places, then for a given pre-tax real economic profitability of their foreign operations, their after-tax returns will be high. Second, profit shifting affects measured rates of returns on the liability side, because DI equity income in the balance of payments measures profits as reported by firms (not their true economic profits). Whether firms manipulate transfer prices, use intra-groups loans, or move intangibles, no tangible assets move across borders—only paper profits do—and thus profit shifting distorts rates of returns to tangible capital. For instance, if French firms operating in the United States avoid U.S. taxes by shifting profits to Ireland, then U.S. statistics will record artificially low rates of returns on U.S. DI equity liabilities; conversely, Irish statistics will record artificially high rate of returns on Irish DI equity liabilities.

In the top panel of Figure 3 we plot the correlation between statutory corporate tax rates and returns on DI equity liabilities, as recorded in balance of payments statistics. Consistent with the view that profit shifting matters for understanding cross-border returns, countries with high tax rates have low DI equity liability returns and vice versa. It is this correlation that drives the overall correlation between DI return differentials and corporate tax rates shown in Figure 2.<sup>10</sup> One caveat, however, is that DI income statistics are after foreign corporate income taxes. To study how profit shifting may distort DI returns, we would like to see how *pre-tax* returns correlate with tax rates. To address this issue, the bottom panel of Figure 3 compares pre-tax and after-tax returns on DI equity liabilities. We compute pre-tax returns by assuming that affiliates of foreign multinationals in each country face the same effective tax rate as U.S. affiliates, as measured by the BEA survey of the foreign operation of U.S. multinationals abroad.<sup>11</sup> As shown by Figure 3, whether one looks at pre-tax or post-tax returns, there is a

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<sup>9</sup>For instance, Desai, Foley, and Hines (2016) show that U.S.-owned affiliates in low-tax countries use trade credit to lend, whereas those in high-tax countries use trade credit to borrow.

<sup>10</sup>On the asset side, there is a very mild positive correlation between after-tax returns and corporate income tax rates, but it is much smaller than the negative correlation on the liability side; see Appendix Figure B.3.

<sup>11</sup>We compute effective tax rates consistent with balance of payments statistics as the ratio of foreign income

strong correlation between DI liability equity returns and the corporate tax rate.

Other data suggest that profit shifting is key for understanding differences in measured profitability in direct investments across the world. Tørsløv, Wier, and Zucman (2018) use global national accounts and foreign affiliates statistics to study how the ratio of pre-tax profits to wages varies in each country across local vs. foreign corporations (i.e., firms more than 50% owned by a foreign parent). As already mentioned, in the United States foreign firms are less profitable than local firms. Tørsløv, Wier, and Zucman, 2018 (Figures 4 and 5) show that this pattern is not specific to the United States: in all non-haven OECD countries, the capital share of corporate value-added is lower in foreign than in local firms. In tax havens, by contrast, foreign firms are systematically more profitable than local firms, and hugely so. In Ireland for instance, foreign firms have pre-tax profits to wage ratios as high as 800%. This corresponds to a capital share of corporate value-added of 80%–90% (vs. around 25% in local firms). There is a clear trace in global macro data of shifting from high- to low-tax affiliates, in such a way that profitability is systematically over-stated in tax havens and under-stated elsewhere.

To summarize, foreign firms operating in the United States report low rates of returns. This is consistent with the facts that (i) high tax rates generally lead affiliates of foreign multinationals to report artificially low profits; (ii) the United States had a high corporate tax rate before 2018. Tax avoidance by foreign firms operating in the United States appears in line with what one would expect based on the U.S. corporate tax rate and the relationship between corporate tax rates and profit shifting observed among OECD countries (Figure 3). On the asset side, U.S. multinationals report very high rates of returns on their investments abroad. One hypothesis is that U.S. multinationals pay less in taxes to foreign governments than multinationals from other countries, boosting their after-tax returns. In what follows, we investigate this hypothesis by conducting a forensic examination of the taxes paid by U.S. multinationals since 1966.

## 4 Taxes Paid by U.S. Multinationals: 1966-2016

### 4.1 Data and Methodology

We estimate the tax rates paid by U.S. multinationals to foreign countries by combining IRS corporate income tax returns, the BEA surveys of the foreign operations of U.S. multinationals, and the international macroeconomic accounts of the United States. The international macro

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taxes paid to (net income + foreign income taxes paid – capital gains – income earned from equity investment), as reported in the BEA survey Table II.D.1. “Income from equity investments” in the BEA’s survey is mostly intra-company dividend flows, which are typically not taxable. See below and the Online Appendix for a detailed discussion of these data.

accounts alone do not allow one to study this issue because they are on an after-tax basis—they do not contain information about the amount of foreign corporate income taxes paid.

**BEA survey data.** The United States has a sophisticated statistical system to monitor its multinationals. A large sample of representative multinationals must report detailed data annually to the Bureau of Economic Analysis since 1982. An exhaustive, benchmark census-like survey is conducted every five years (the latest benchmark survey was conducted in 2014). Similar benchmark surveys were conducted in 1950, 1957, 1966, 1970, and 1977; see Appendix Section A.1 for a detailed description of these data. Reporting is mandatory; the BEA has decades of experience with this survey, which has been used by many researchers; there is extensive cross-checking and error-spotting. This dataset provides information about the unconsolidated operations of U.S. multinationals abroad, in contrast to the international macro accounts which show consolidated data by immediate counterpart. Unconsolidated data make it possible to study the sectoral composition of U.S. foreign investments. The BEA survey data, critically, also report on the amount of taxes paid by U.S. multinationals to foreign countries. Similar surveys are conducted for foreign multinationals operating in the United States. The BEA survey data includes two measure of profits: a financial accounting measure (“net income”) and economic measure (“profit-type return”). We use the economic measure of profits, which avoids double-counting of the profits of indirectly-held affiliates and excludes capital gains and losses (consistent with the way profits are recorded in the national accounts). We refer to Appendix A for a detailed discussion (see in particular Appendix Table A.0 for a comparison of the different profit measures available).

**IRS data.** In addition to the BEA data, we rely on detailed tabulations of corporate income tax returns published by the Statistics of Income Division of the IRS. Because the United States had a worldwide corporate income tax 78, income earned abroad by U.S. firms was taxable in the United States, and to administer the tax the IRS collected detailed information about this foreign income. One key advantage of the IRS data is that they are available annually since 1913 (the creation of the federal corporate income tax).<sup>12</sup> Another advantage is that they reveal the sectoral composition of the foreign activities of U.S. multinationals (corporate tax returns are tabulated by industry of affiliates’ primary activity or parents’ primary activity.) One limitation compared to the BEA data is that income earned by branches or “check-the-box” subsidiaries

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<sup>12</sup>This is particularly important to study taxes and profits before 1982, when the BEA survey are only available every five years or less.

of U.S. affiliates abroad (i.e., entities disregarded for tax purposes in the United States) are reported on a consolidated basis in the financial information of the controlling subsidiary. As a consequence, income and taxes may be reported in one country but be earned and paid in a different country (Dowd et al., 2017). We refer to Appendix Section A for a description of these data and reconciliation with the BEA survey and international macro accounts.

## 4.2 The Industry and Country Composition of U.S. Direct Investment Abroad

Figure 4 shows the prominent role played by affiliates in the oil sector in the profits made by U.S. multinationals abroad. Through to the 1980s, according to the BEA survey and IRS data, oil accounted for more than a third of all the after-tax profits made by U.S. multinationals abroad, close to 50% during the first oil shock of 1973–1974, and 40% during the second oil shock of 1979. The share of the oil sector in U.S. multinationals’ foreign profits is strongly correlated with oil prices. It receded with the decline in oil prices in the 1980s, and made a comeback in the 2000s, when the oil sector accounted for 25% of the after-tax foreign profits of U.S. firms. It receded again in 2014 and 2015 with the collapse in oil prices.

For comparison, we report the share of after-tax foreign income made by U.S. multinationals in tax havens (Ireland, Luxembourg, Netherlands, Switzerland, Singapore, Bermuda and Caribbean havens), excluding tax haven affiliates in the oil sector. Since 1966 oil and tax havens together have accounted for about half of all the after-tax profits of U.S. multinationals abroad. Oil was initially key; tax havens are now key. Among tax havens, Ireland plays a particularly important role today: 18% of all the after-tax profits of U.S. multinationals are booked there. Switzerland and Bermuda plus Caribbean tax havens come next, with around 8%–9% each. The share of tax havens first rose from the mid-1970s (5%) to the mid-1980s (20%–25%), then stabilized at that level through to the mid-1990s, and rose again starting in the mid-1990s. It increased particularly quickly in the 2010s.<sup>13</sup>

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<sup>13</sup>Note that the share of haven profits in U.S. multinationals’ foreign profits reported here are based on the BEA survey data, not the international macro account. The international macro accounts somewhat overestimate the level and rise of tax havens in the foreign profits of U.S. firms, because of the growing use of intermediate holding companies in tax havens. That is, if a U.S. parent owns an affiliate in France through a holding in the Netherlands, then all income is assigned to the Netherlands in the balance of payments, even if the only thing the Dutch holding does is to collect dividends from France. By contrast, in such a case all income is assigned to France (where the profits have actually been made and taxed) in the BEA survey data we use here (Table II.F.1., “profit-type return”). See Appendix A for a detailed discussion and reconciliation between the international macro accounts and the BEA survey data. In Appendix Figures A.1 to A.4 we show the evolution of the share of tax havens in direct investment income earned by the United States, as reported in the international macro accounts. In 2016, this share reached 63% vs. about 50% in the BEA data. The difference can be interpreted as reflecting dividends earned by holding companies located in tax havens.

The rise of haven profits from the mid-1970s to the mid-1980s and the stabilization in the mid-1980s can be linked to specific U.S. policies. Before 1984, U.S. law made it relatively easy for U.S. firms to shift profits abroad. The literature identifies three main shifting channels used during this period. First, U.S. firms could transfer intangible capital developed in the United States to tax haven affiliates without triggering U.S. tax liability if the goods produced by the intangibles were sold abroad (Hines and Rice, 1994). Second, U.S. multinationals could sell receivable accounts to offshore finance subsidiaries below the actual value of these receivables without triggering tax liabilities at home (Joint Committee on Taxation, 1984). Last—and perhaps more importantly—U.S. firms used affiliates in the Netherlands Antilles to borrow money from foreign (e.g., European) lenders and lent it back to the U.S. parent at high rates. This made it possible for U.S. firms to both avoid the 30% withholding tax levied by the United States on cross-border payments of interest, and to shift profits out of the United States towards the Netherlands Antilles, where the income was untaxed.<sup>14</sup> As we show in Appendix A, such shifting through intra-group interest was quantitatively significant in the late 1970s and first half of the 1980s. Foreign subsidiaries lent money to their U.S. parent at a rate more than twice higher than the rate at which U.S. parents lent money to their foreign subsidiaries, e.g., 8.3% vs. 3.5% in 1983 (Appendix Figure A.6). The Deficit Reduction Act of 1984 closed these loopholes.<sup>15</sup> Between 1984 and the mid-1990s the use of offshore tax havens by U.S. multinationals stabilized and the affiliates-to-parents vs. parents-to-affiliates interest rate differential vanished.<sup>16</sup> Profit shifting rose again in the late 1990s, which, as we shall see below, can also be explained by changes in U.S. tax regulations.

### 4.3 The Decline in the Taxes Paid by U.S. Multinationals Abroad

We now turn to our main statistic of interest, the ratio of foreign taxes paid to the foreign pre-tax profits of U.S. multinationals. Figure 5 shows the evolution of this rate separately for oil (top panel) and non-oil multinationals (bottom panel). A number of striking results emerge.

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<sup>14</sup>In principle the interest margin was taxable in the United States by virtue of the Internal Revenue Code subpart F rules (see, e.g., Hines and Rice, 1994). But in practice these rules could be avoided, e.g., by establishing a foreign finance affiliate as a joint venture with a foreign partner (to escape the 50 percent ownership requirement triggering the application of the subpart F rules), or by having offshore subsidiaries perform real service in addition to profit shifting; see Hock (1983) and Crandall (1988).

<sup>15</sup>It also abolished the 30% withholding tax on payments of interest by U.S. firms to foreign lenders.

<sup>16</sup>Since the early 2000s, the opposite differential has showed up in the data: foreign subsidiaries lend money at particularly low rate to their U.S. parent. One possible interpretation is that such loans have been used by U.S. multinationals to repatriate their untaxed offshore profits (which started growing in the late 1990s) without triggering taxation in the United States.

**Tax rate in the oil sector.** First, we find that the taxes paid by oil multinationals have varied considerably over time. From 1966 to 1989, the foreign tax rate faced by U.S. oil multinationals averaged 70%. It reached as much as 90% in the mid-1970s, in the context of the first oil shock and the Arab-Israeli war of 1973. Such high tax rates significantly redistributed oil rents away from the shareholders of U.S. multinationals and towards oil-producing countries. By contrast, from 1990 to 2016, the foreign tax rate faced by U.S. oil multinationals has averaged 45%. The rate fell sharply in the early 1990s, at the time of the first Gulf War, during which the United States (and allied countries with significant foreign investments in oil, such as the United Kingdom and France) intervened to protect Kuwait, a major oil producer.

One possible interpretation of the massive change that occurred in the early 1990s is that it reflects a return on military protection granted by the United States to small oil-producing States. However, we stress that the available evidence does not prove that the first Gulf War had a causal impact on tax policy in oil producing countries. There are other potential explanations for the decline in the foreign tax rate of U.S. oil multinationals, and the available data do not allow us to quantify their relative importance precisely. First, it is possible that some of the low tax rates—especially in the early 1990s—reflect the consequences of tax incentives introduced by some oil-producing states in the mid-1980s to encourage investment in response to the slump in oil prices. As reported in Appendix Figure A.10, while the tax rate paid to countries from the Organization of the Petroleum Exporting Countries (OPEC) fell dramatically after the first Gulf War (from 70% in 1990 to 43% in 1999), initially it fell even more in non-OPEC countries, with rates as low as 20%–30% in the early 1990s (driven by very low rates in the United Kingdom).

More broadly, the decline in tax rates could reflect the rise of tax competition among oil producers. After the oil shocks of the 1970s (and the high tax rates imposed by Gulf producers), U.S. multinationals attempted to diversify their operations. While in the 1970s the bulk of U.S. multinationals' oil profits came from affiliates in the OPEC (88% in 1977), since the mid-1980s between 50% and 75% have originated from non-OPEC countries (Appendix Figure A.9), primarily Canada, Norway, the U.K., a number of former USSR countries (especially Kazakhstan), Indonesia (which left OPEC in 2006), a number of African countries (especially Angola), and Brazil. In these non-OPEC countries, the marginal cost of production can be relatively high (e.g., close to \$45 in the United Kingdom vs. less than \$10 in Saudi Arabia in 2016<sup>17</sup>), which might have led them some of them to cut taxes to attract investment. Following the collapse of the USSR, new entrants might also have offered low rates to boost investment.<sup>18</sup>

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<sup>17</sup>See <http://graphics.wsj.com/oil-barrel-breakdown/>.

<sup>18</sup>Unfortunately, the BEA tabulations are not detailed enough to analyze the evolution of tax rates at the

Last, it is possible that the decline in effective rates in the oil sector is due to the rise of profit shifting to tax havens. Although market prices for oil are readily available (which should limit the possibility to manipulate transfer prices, one of the key shifting channels) and the data show that oil affiliates pay little interest (Appendix Table A.13), U.S. oil companies might have found ways to shift taxable profits out of oil-producing countries and into tax havens. More research is needed to quantify the importance of these various potential explanations.

Whatever the exact mix of factors, it is interesting to note that the new foreign rate faced by U.S. oil multinationals after the first Gulf War, 45%, has been close to the statutory—federal plus State—rate applicable in the United States. In other words, the new rate imposed by oil-producing countries has been close to the one that maximize tax revenue for these countries under the constraint of minimizing tax payments by U.S. oil multinationals—as any rate below 40% would have been offset by higher taxes owed in the United States.

Taxes paid by U.S. oil multinationals have been contained enough to leave them with high after-tax profits ever since the mid-1960s. Figure 6 shows this by computing a simple profitability metric, the ratio of post-tax profits to wages paid. The advantage of this metric (as opposed to profits divided by assets) is that is not affected by how one chooses to value assets (e.g., historical cost, current cost, or market value), making comparisons over time and across sectors more robust.<sup>19</sup> As we report in Appendix Figure A.11, the patterns are similar if we divide profits by equity assets (at current cost) instead. Three findings are notable. First, U.S. oil multinationals have been extremely profitable ever since the mid-1960s. Except during the oil slump of the 1980s, their after-tax to wage ratio is an order of magnitude higher than in the non-oil sector. They made high after-tax profits even in the 1970s despite paying up to 90% of their pre-tax profits in foreign taxes. Second, profitability sky-rocketed in the 2000s, when oil prices rose again but in a different geopolitical context, in which U.S. oil multinationals faced a 45% only tax rate. Thanks to the fall in taxes, post-tax profitability was much higher than in the 1970s, despite the fact that pre-tax profitability was similar as during the oils shocks of the 1970s.<sup>20</sup> Third, for comparison, in Figure 6 we show the profitability of the tax haven affiliates of U.S. multinationals. Haven affiliates have gradually become more and more profitable. Their ratios of after-tax profits to compensation reached 350%–400% in the 2010s,

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country-level: for many country-years, taxes paid and/or profits made are confidential.

<sup>19</sup>Disregarding net interest payments, the profit-to-wage ratio  $\pi$  is equal to  $\alpha/(1-\alpha)$  where  $\alpha$  is the net-of-depreciation capital share of net corporate value-added. If firms pay  $p\%$  of their net operating surplus in net interest, then  $\pi = (1-p)\cdot\alpha/(1-\alpha)$ . If all sectors have the same Cobb-Douglas production function  $Y = K^\alpha L^{1-\alpha}$  and pay no net interest, then they all have the same profit-to-wage ratio  $\alpha/(1-\alpha)$ .

<sup>20</sup>That is, as shown in Appendix Figure A.12, in both cases the pre-tax profits to wage ratio was in range of 1,000%–1,500%, corresponding to a net-of-depreciation capital share of corporate value-added of 90%–95%.



an order of magnitude higher than for non-haven, non-oil affiliates, and a level comparable to the after-tax profitability seen in the oil sector during the first oil shock.

**Tax rate in all sectors, excluding oil.** Our second key result is that the tax rate paid by non-oil U.S. multinationals has fallen by half since the start of the 21st century, from 32% in 2000 to about 16%-17% in 2016. This decline reflects both the fall in statutory corporate tax rates abroad and the rise in the fraction of profits shifted by U.S. multinationals to tax havens, in roughly equal proportions according to our series. In the 8 countries where U.S. multinationals have the largest real activity—as proxied by wage bills—in 2016 (namely, the United Kingdom, Canada, Germany, France, China, Australia, Japan, Brazil, and Mexico) the average statutory corporate tax rate has fallen by 8 points since 2001, from 36% to 28% in 2016, which can account for about half of the 16 points decline in the effective foreign tax rate over this period of time.<sup>21</sup> As shown in Appendix Figure A.7, the effective rate of 16%–17% paid by U.S. multinationals on their non-oil foreign profits in 2016 can be decomposed as follows: about half of these profits are booked in tax havens where they face effective rates of about 7%, and about half in non-haven countries where they face effective rates of about 27% (close to the statutory rate in the top 8 partner countries).

Profit shifting by U.S. multinationals is an across-the-board phenomenon. As shown by the top panel of Figure 7, in 2015 the ratio of pre-tax profits to wages is about an order of magnitude higher for the haven affiliates of U.S. multinationals than for their non-haven affiliates within each sector. The phenomenon is not limited to industries that use intangible capital a lot, such as information or pharmaceutical industries; it is also apparent in wholesale trade or manufacturing. As shown by the bottom panel of 7, there is very strong correlation between affiliates' profitability (as measured by the ratio of pre-tax profits to compensation of employees) and the effective tax rates they pay. In Ireland, Bermuda and Caribbean tax havens, Luxembourg, and Switzerland, the effective tax rate of U.S. affiliates is in range of 0% to 10% and the reported pre-tax profits to wage ratio is in a range of 300% to 800% (which corresponds to a net-of-depreciation share of capital in net corporate output of 75% to 90%). By contrast, where effective tax rates are relatively high (such as in France, Germany, and Italy), U.S. affiliates report very little profit. In sum, the BEA data paint a picture of rising, extensive profit shifting towards low- or zero-tax countries and across all sectors of the economy since

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<sup>21</sup>However, the fall of statutory corporate tax rates (especially in Europe) can itself be analyzed as a response to the rise of profit shifting and the failure of European tax authorities to protect their tax base from such shifting (Tørsløv, Wier, and Zucman, 2018). From that perspective, all the decline in the effective foreign rates of U.S. multinationals can be ascribed to the rise of profit shifting.

the start of the twenty first century, with first-order effects on the effective tax rate of U.S. multinationals.

Non-oil multinationals used to pay sizable tax rates to foreign countries. The effective rate was around 40% up to the 1980s (when foreign statutory rates were higher, and a smaller fraction of profits were shifted to tax havens), and in a range of 30% to 40% in the 1980s and 1990s, with a gradual but—up to the late 1990s, relatively mild—downward trend. The foreign rate paid by U.S. multinationals has always been lower than the statutory U.S. rate (and the average statutory foreign rate ).<sup>22</sup> Since the United States taxed the global profits of its firms until 2017, with credits given to offset taxes paid to foreign countries, this means that U.S. multinationals were typically liable for extra taxes in the United States (above and beyond what they had already paid abroad). In practice, U.S. taxes were only payable once foreign profits were repatriated in the United States via a dividend payment from foreign affiliates to U.S. parents. Firms had incentives to retain their foreign profits abroad where they remained free of U.S. taxes.

In December 2017, Congress passed and President Trump signed into law a bill that taxes the un-repatriated profits of U.S. multinationals at a rate of in between 8% and 15.5% (depending on the nature of the assets held abroad, cash or non-cash, with credits available for foreign taxes paid), as opposed to the headline rate of 35% in force until 2017. Repatriation of these past untaxed profits is mandatory and will happen gradually from 2018 to 2025. The repatriation is back-loaded: U.S. firms must repatriate (for tax purposes) 8% of their offshore profits each year between 2018 and 2022, 15% in 2023, 20% in 2024, and 25% in 2025.<sup>23</sup> Following the enactment of this law, we can compute the total tax rate on the foreign profits of U.S. firms—adding foreign taxes paid and U.S. taxes owed by virtue of the mandatory repatriation. Because the U.S. repatriation rate is low, it increases the total tax burden only modestly. As shown by the top panel of Figure 5, all included, U.S. multinationals will pay in total around 22–23% in taxes on the profits they have made abroad from 2010 to 2017, more than 6 points below the headline rate of the 8 largest host countries.

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<sup>22</sup>The U.S. rate was similar to the average OECD rate up to the mid-1990s, see Figure A.8.

<sup>23</sup>Because profits repatriated in the future are not capitalized (no penalty or interest charge applies), this back-loading in effect reduces the effective rate they face. Taking into allowable tax credits, the fraction of assets in cash vs. non-cash, and discounting future tax payments at an annual rate of 4%, we estimate that the effective U.S. tax rate on the repatriated profits is 7.6%. This is consistent with independent estimates by the Joint Committee on Taxation produced in the context of estimating the revenue effects of the December 2017 Tax Cuts and Jobs Act.

## 5 Explaining The Exorbitant Tax Privilege

How have U.S. multinationals been able to shift so much profits to offshore tax havens in recent years? In this Section we relate the high profit shifting intensity of U.S. multinationals to specific incentives faced by U.S. multinationals and specific U.S. policies adopted in the mid-1990s.

As we have seen, in contrast to most other OECD countries, the United States had, until 2017, a worldwide corporate income tax whereby the foreign profits of U.S. firms were taxable in the United States once repatriated there, with credits given for taxes paid to foreign governments. The perceived national interest of the United States was to let its multinationals shift profits out of foreign high-tax countries (such as France) towards low-tax countries (such as Ireland), because it would eventually enhance U.S. tax collection upon repatriation, since the U.S. would not have to grant much credits to offset taxes paid abroad.<sup>24</sup>

In 1996, the U.S. Treasury made it easier for U.S. multinationals to shift profits out of foreign high-tax countries by introducing “check-the-box” regulations. The United States, like other high-income countries, has a number of anti-avoidance rules—known as “controlled foreign corporations” provisions—designed to immediately tax in the United States some foreign income, such as royalties and interest, which are particularly conducive of profit shifting. In 1996, the Internal Revenue Service issued regulations that enabled U.S. multinationals to avoid some of these rules by electing to treat their foreign subsidiaries as if they were not corporations but disregarded entities for tax purposes. This move is called “checking the box” because that is all that needs to be done on IRS form 8832 to make this work (see, e.g., Zucman, 2014 for a description in the context of tax avoidance by Google Alphabet; see also Mutti and Grubert, 2009).

Profit shifting by U.S. multinationals rose gradually after the introduction of the check-the-box regulations. As shown by Figure 4, close to 50% of U.S. multinationals’ pre-tax foreign profits are booked in tax havens in 2016, vs. about 25% in the mid-1990s. By contrast, the share of foreign profits shifted offshore was relatively stable from the mid-1980s to the mid-1990s at about 20%–25%. Although this evidence does not prove that the check-the-box regulations had a causal impact on profit shifting, it suggests they likely played a role. Profits shifted to Ireland rose particularly fast immediately after the introduction of the check-the-box regulations, from 5% of all (non-oil) pre-tax foreign profits in 1996 to 15% in 2002, before stabilizing at 15%

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<sup>24</sup>See for instance Hines and Rice (1994) who argue that since low tax rates encourage American companies to shift profits out of high-tax foreign countries, it is possible that tax havens ultimately enhance U.S. tax collections.

ever since then. A number of prominent cases of profit shifting by U.S. multinationals involve Irish subsidiaries and schemes (such as the Double-Irish) that would not have enabled U.S. multinationals to avoid taxes absent the check-the-box regulations; see for instance Kleinbard (2011, p. 707–714).

Whatever caused the rise in profit shifting, the data show that U.S. multinationals use tax havens significantly more than other multinationals in the 2010s. First, no other non-haven OECD country records as high a share of foreign profits booked in tax havens as the United States. As shown by Appendix Figures B.4a and B.4b, over 2014-16, income earned in Ireland, Luxembourg, Netherlands, Singapore, and Switzerland accounts for 47.5% of direct investment income received by the United States; the comparable figure is 21.9% for the European countries for whom the data is available to make such a calculation, and 14.5% for other OECD countries.<sup>25</sup> Second, Damgaard and Elkjaer (2017) present bilateral direct investment statistics on an ultimate ownership basis (exploiting data recently made available by OECD countries following the implementation of the 6th edition of the IMF (2009) Balance of Payments Manual) showing that U.S. multinationals use tax havens more than other firms. In these data, about half of all the direct investment income paid by tax havens ultimately accrues to U.S. parents, suggesting that about half of all the profits globally shifted to tax havens are shifted by U.S. multinationals. By contrast, about 25% accrues to E.U. countries, 10% to the rest of the OECD, and 15% to developing countries.<sup>26</sup>

Contrary to the view that it would ultimately enhance tax collection, letting its multinationals avoid foreign taxes did not, in fact, enhance U.S. tax collection significantly, because the tax law enacted at the end of 2017 allowed these firms to repatriate their foreign earnings at a low rate. In Appendix Table A.19, we compute the amount of tax revenue that the United States would have collected if its multinationals had not been able to shift profits to low-tax places and all foreign profits had been taxed in the U.S. with credits given for foreign taxes. We find that it would have generated about as much revenue as what the United States will

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<sup>25</sup>Note that these data are based on balance of payments statistics, which are compiled on an immediate counterpart basis (contrary to the series we report in Figure 4 and elsewhere in this paper, which are based on the BEA survey and assign profits to the countries where they have been made and taxed). To the extent that multinational firms use intermediate holding companies located in tax havens, balance of payment statistics over-estimate the share of taxable foreign profits that are shifted to tax havens. Ideally we would like to use data on the activities of multinational companies (similar to the BEA survey data) to compare OECD countries to the United States, a task we leave to future research. Note that we know that disregarding holding companies, U.S. multinationals report close to 50% of their economic foreign profits in tax havens (Figure 4). This is higher than the share of DI income from havens reported by other OECD countries, a share which might itself be upwards biased.

<sup>26</sup>See Tørsløv, Wier, and Zucman (2018) for a detailed discussion.

ultimately collect after the mandatory repatriation. Tax avoidance by U.S. multinationals has not redistributed tax revenue across high-tax countries: it has instead redistributed income to the benefit of their shareholders (many of which are foreigners).

## 6 Implications for the U.S. Returns Differential

In this Section, we quantify the contribution of the oil sector and of profit shifting to the DI yield differential enjoyed by the United States.

### 6.1 Adjustments to Asset Returns

We first compute the counter-factual rate of return on U.S. DI equity investments abroad if the oil sector had the same rate of return as the non-oil sector. This can be seen as a scenario in which oil-producing countries choose their corporate income tax rates so as to fully appropriate oil rents for themselves (leaving U.S. multinationals with the average rate of return to capital seen in other sectors of the world economy), and investments by U.S. oil companies is unaffected. As reported in Appendix Table A.7, removing the above normal returns of the oil sector reduces the return on U.S. direct equity investments abroad by 0.8 percentage points on average over the 1966–2016 period. The effect is particularly large in the 1970s (1.6 percentage point) and in the 2000s (1.2 percentage point). This adjustment erases almost 20% of the DI equity yield differential enjoyed by the United States over the last half century.<sup>27</sup>

We then compute the counter-factual rate of return on U.S. DI equity investments in sectors other than oil if there had been no profit shifting to tax havens. We assume that absent profit shifting, all non-oil profits would have been taxed at the same rate as profits booked in non-haven countries (e.g., 27% in 2015, which is close to the statutory corporate tax rate of the U.S.’s main partners, see Section 4 above). This can be seen as a scenario where all countries (other than the United States) have harmonized corporate income tax rates (e.g., all apply a rate of 27% in 2015) and the decision of U.S. multinationals to invest abroad vs. in the United States is unaffected.<sup>28</sup> Equivalently, this can be seen as a scenario where profit shifting is made impossible (for instance, through the use of an apportionment formula that allocates

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<sup>27</sup>Note that foreigners also invest in the U.S. oil sector. But the key difference is that the return on U.S. oil is no higher than the return on other foreign direct investments in the United States (essentially due to relatively high costs of U.S. oil production). As shown in Appendix Figure A.11b, foreign investments in U.S. oil are an order of magnitude less profitable than U.S. investments in foreign oil.

<sup>28</sup>Note that in such a scenario, the after-tax rate of return on U.S. non-oil foreign investments remains higher than the average of return on U.S. domestic corporate capital: 7.7% on average over 1966-2016, vs. 5.6% in the United States; see Appendix Tables A.7b and A.8.

the global profits of multinational firms proportionally to where they make their sales; see, e.g., Zucman, 2014), and U.S. foreign real investment decisions are left unaffected. As reported in Appendix Table A.7, removing profit shifting to tax havens reduces the return on U.S. direct equity investments abroad by 0.6 percentage points on average over the 1966–2016 period. The effect is about as high in the 1980s and 1990s as since the start of the 21st century. Although a smaller fraction of profits were shifted offshore in the 1980s–1990s, the difference in tax rate between havens and non-havens was larger (about 30 percentage points vs. 20 points in recent years) as tax rates in non-havens were high.

A third adjustment involves applying the U.S. tax rate to the foreign (non-oil, non-haven) profits of U.S. multinationals. This corresponds to a counter-factual world in which the countries where U.S. multinationals invest had kept the same tax rate as the United States after the 1990s (as shown by Appendix Figure A.8, the average OECD tax rate was similar to the U.S. rate up to the mid-1990s and then gradually declined). One interpretation of the decline in corporate income tax rates throughout the world since the 1990s—and the one we favor—is that it is a result of the rise of profit shifting to tax havens and of the inability of tax authorities to curb it (Tørsløv, Wier, and Zucman, 2018). From that perspective, this adjustment can be seen as part of the scenario in which profit shifting had been made impossible and real foreign investment decisions are left unaffected. It can also be seen as a scenario where the United States had enforced its own worldwide corporate income tax, instead of allowing U.S. firms to defer taxation by retaining profits in lower-tax jurisdictions and mandating a repatriation at reduced amnesty rates in December 2017. As reported in Appendix Table A.8, this adjustment further reduces the DI equity yield differential by 0.6 percentage points. Taken together, oil and tax avoidance by U.S. multinationals account for half of the U.S. DI yield differential of 4.5 points over the 1966–2016 period.

## 6.2 Adjustments to Liability Returns

So far we’ve only adjusted returns on the asset side. But profit shifting also affects returns on the liability side, because foreign multinationals operating in the United States also avoid taxes.

One clear indication of profit shifting by U.S. affiliates is their peculiar capital structure. As shown by the top panel of Figure 8, U.S. firms that are part of a multinational group have a particularly high share of debt in their liabilities. Moreover, as shown by the bottom panel of Figure 8, while U.S. parents lend at low interest rates to their foreign affiliates, foreign parents lend at high interest rates to their U.S. subsidiaries, with a constant differential of about 3

percentage point. That is, in contrast to DI equity, for DI debt there is a *negative* return differential that makes U.S. affiliates look particularly unprofitable. This cannot be explained by risk—in fact the literature has argued that foreign operations of U.S. multinationals are more risky than U.S. operations of foreign multinationals, so we should expect a positive interest rate differential, the opposite of what we observe.

We consider two adjustments to the returns on foreign direct investments in the United States. First, we compute the extra profits that U.S. affiliates of foreign multinationals would have reported if they had the same capital structures as foreign affiliates of U.S. multinationals (i.e., the same share of debt vs. equity). As reported in Appendix Table A.9, this increases U.S. DI equity liability returns by 0.3 point on average since 1966. Second, we consider the effect of reducing the interest rate charged by foreign parents to their U.S. affiliates to the level of the interest rate charged by U.S. subsidiaries to their foreign parents. This further increases the U.S. DI equity liability returns by 0.3 point. Combining adjustments on the asset and liability side, the 1966-2016 DI equity yield differentials shrinks from 4.5 points to 1.6 point.<sup>29</sup> There is barely any differential anymore since the mid-2000s. Our adjusted series only leave a sizable residual differential in the 1980s, which in line with the literature can be explained by the fact that foreign investments in the U.S. were quite recent at that time—hence plausibly relatively unprofitable.

## 7 Conclusion

What have we learned from this paper? In our view the main lesson is that the hegemon of the world monetary system may indeed have a unique ability to generate high returns on its net international investment position. But this capacity manifests itself in different contingent historical forms. In the case of the United States post-World War II, military and geopolitical power were key in generating high rates of returns in oil-producing countries. After financial liberalization in the 1980s, offshore finance took over from oil: U.S. multinationals shifted an outsized fraction of their profits towards tax havens, allowing them to generate high post-tax returns.

What is the future of the exorbitant privilege? Our analysis suggests that a lot will depend on the extent to which U.S. multinationals will keep access to foreign natural resources and on

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<sup>29</sup>Note that profit shifting is likely to bias measured U.S. DI equity liability returns in other ways (e.g., if foreign multinationals operating in the United States use intra-group imports and exports to shift profits out of the United States). We do not attempt to quantify the impact of these other forms of profit shifting, which in any case would lead to reduce the DI equity yield differential even more.

whether they will be able to enjoy a favorable sharing of the rents these resources generate. How these rents are split is not primarily governed by natural economic forces but is inherently shaped by politics in resource rich countries and international power relations. As we have seen, the tax rates imposed by oil-producing states have varied dramatically over time, from quasi-confiscatory rates following the Arab-Israeli war of 1973, to favorable rates following the first Gulf war in 1990. Looking forward, how the bounty of natural resources will be split will continue to be shaped by geopolitical forces and domestic politics.

Whether tax avoidance will continue to give an edge to U.S. multinationals is also an open question. Just like for the sharing of oil rents, it is ultimately a political issue. As we have seen, U.S. policies adopted in the 1990s facilitated profit shifting by U.S. multinationals. At the same time, policy failures in foreign high-tax countries prevented them from curbing this shifting (Tørsløv, Wier, and Zucman, 2018). In the future, if U.S. policies make profit shifting harder, or if European governments find a way to protect their tax base (e.g., through the use of a formulary apportionment system), the exorbitant tax privilege of U.S. multinationals could vanish. It could even reverse if the United States becomes a tax haven itself, and foreign profits start being shifted towards the United States, generating high reported rates of returns on inward investments—as currently happens in a country like Ireland. The tax reform adopted in December 2017, however, maintains incentives for multinationals to shift profits out of high-tax countries (including the United States) towards low-tax locales. If anything, these incentives might be stronger than ever for U.S. multinationals, since their foreign profits will not be taxable in the United States anymore (except for abnormally high foreign profits which will remain in part taxable but at a reduced rate). The existing empirical evidence, coming from studies of countries like the United Kingdom that have shifted in the past towards territorial tax systems, suggests that the U.S. tax reform of 2017 might increase profit shifting (Liu, Schmidt-Eisenlohr, and Guo, 2017).<sup>30</sup> The big unknown is whether the rest of the world will let its corporate tax base vanish.

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<sup>30</sup>One caveat is that there is little evidence on how the move to a territorial tax system combined with sharp tax rate reductions may affect profit shifting. Liu, Schmidt-Eisenlohr, and Guo (2017) study the UK from 2005 to 2011, at the time of the transition to a territorial tax system (2009), but before the country significantly cut its corporate tax rate (from 26% in 2011 to 19% in 2018). Some profits might have been shifted back to the U.K. after 2011.



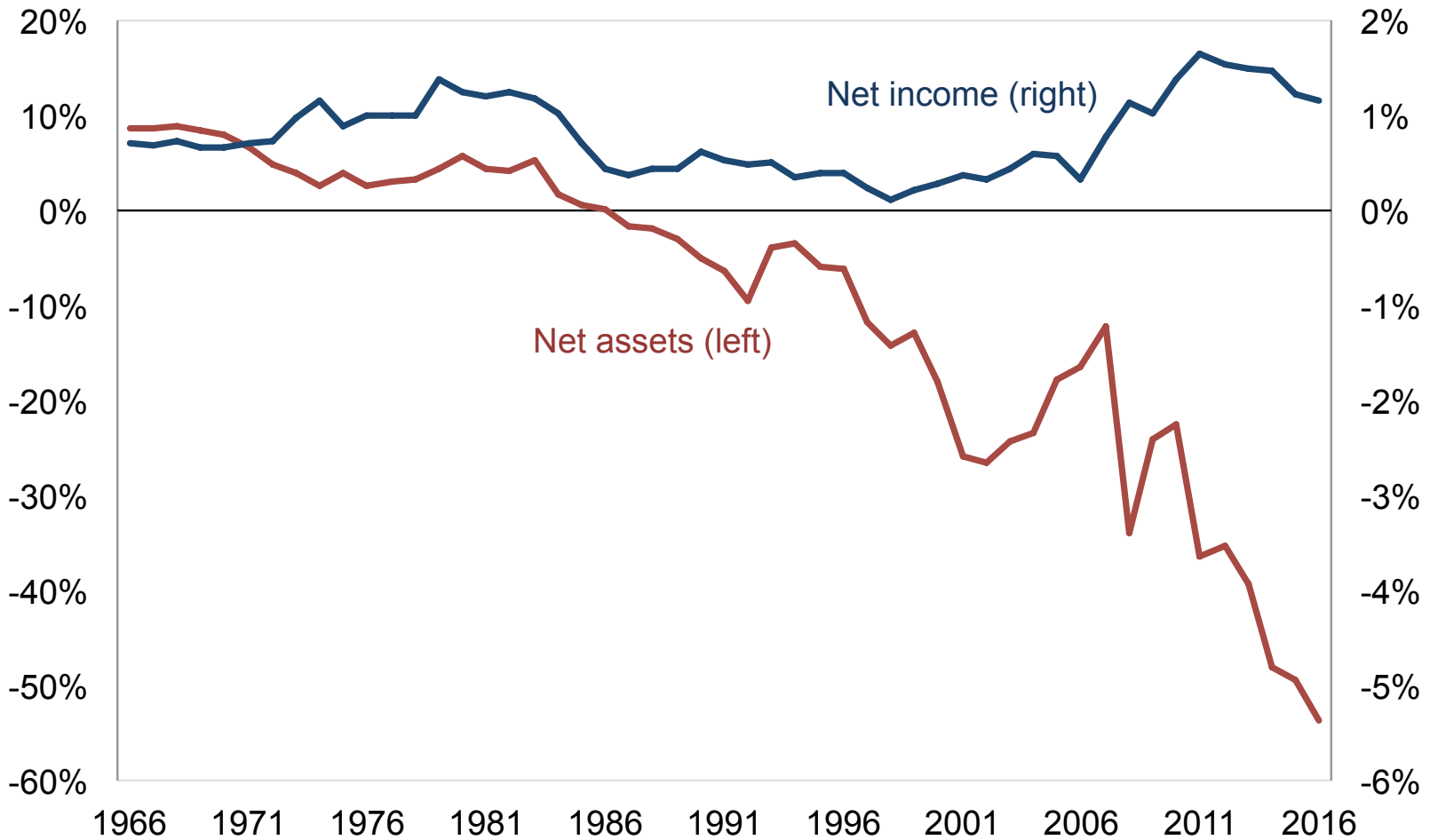
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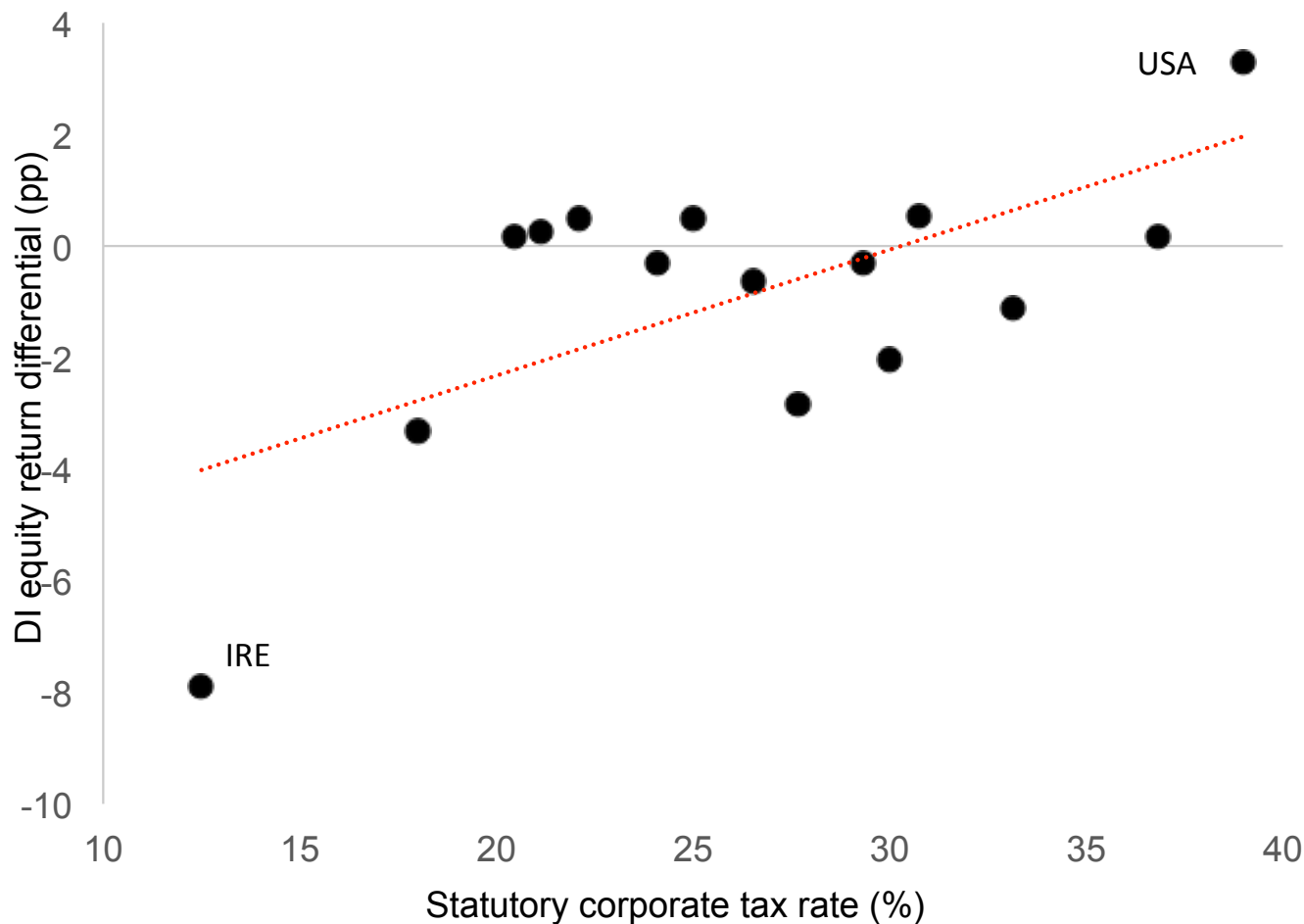
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**Figure 1: The net foreign assets and income of the United States  
(% of U.S. national income)**



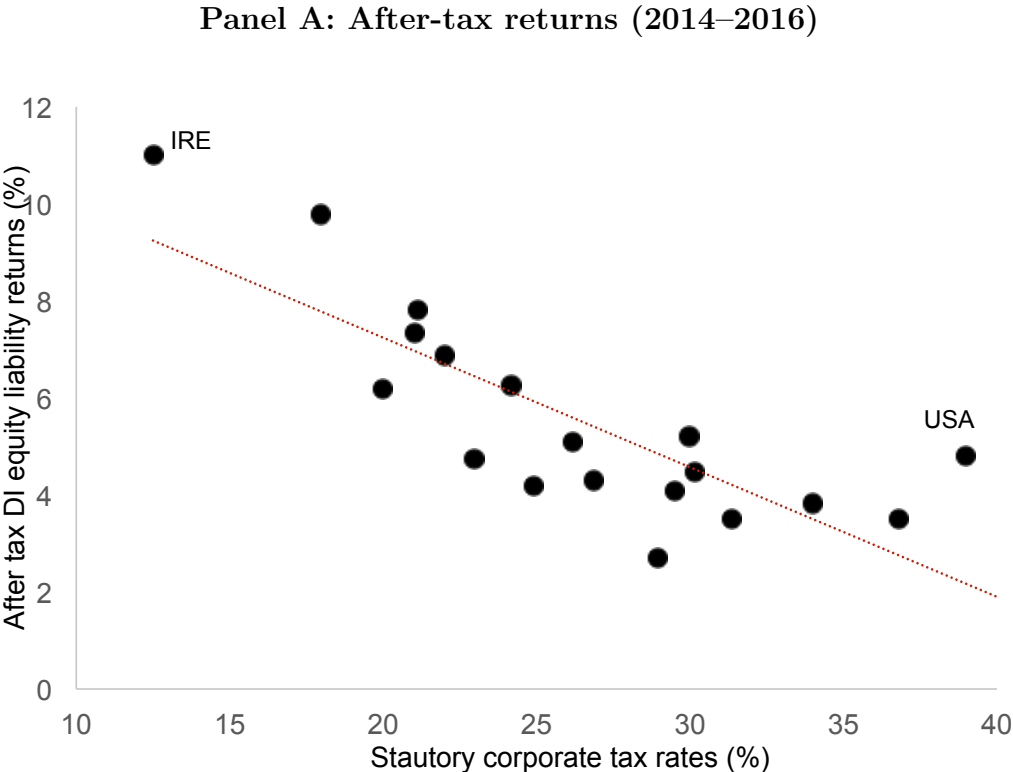
Notes: The net foreign asset position is at market value and at year end. For the post-1976 period, it is taken from the U.S. net international investment position published by BEA, Table 1.1, line 1. We subtract gold (which is which not a cross-border asset), as reported in the net international investment position Table 1.2, line 27. Estimates for 1966-1975 are from Gourinchas and Rey (2007), and also exclude gold (estimated from the Historical Statistics of the United States, series series X 438-443). Net foreign income includes investment income only (i.e., it removes the small amount of net cross-border compensation of employees). It is taken from the U.S. international transactions published by BEA, Table 1.1 line 6 minus line 14.

**Figure 2: Asset–liability return differential on direct investment equity (OECD, 2014-2016)**

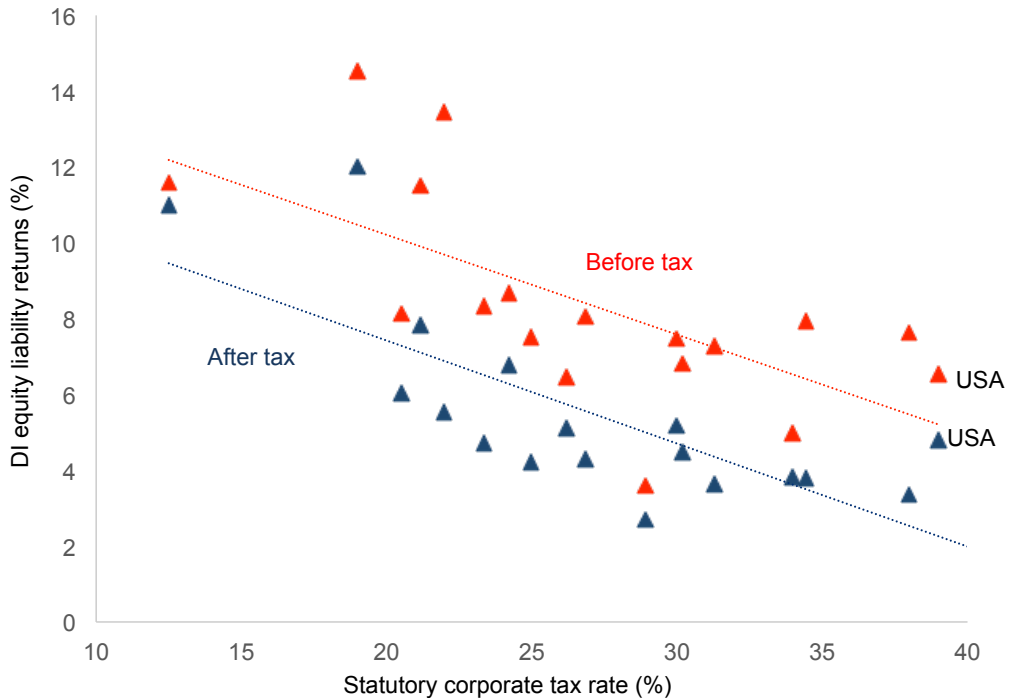


Notes: Returns are income yields, they do not include capital gains. Yields are computed by dividing DI equity earnings (dividends plus reinvested earnings, IMF codes bxipide\_bp6\_usd and bmipide\_bp6\_usd) in year  $t$  by positions (IMF codes iade\_bp6\_usd and ilde\_bp6\_usd) at the end of  $t - 1$ . Returns are after foreign taxes paid. In the figure, the data is pooled over 2014-16 and binned by corporate tax rates, except for Ireland and the U.S. which are shown separately. The sample is OECD countries excl. Slovenia, Greece, Iceland, Mexico, Israel, Turkey and Slovak Republic; see Appendix B for justification. Sources: IMF balance of payments statistics (February 2018). For the US we use the more comparable current-cost measure for DI equity positions (see appendix B), as reported in table 2.1 lines 36 and 41 of the international macro accounts. Combined statutory corporate tax rates from OECD.

**Figure 3: Rates of returns on DI equity liabilities and corporate taxes**

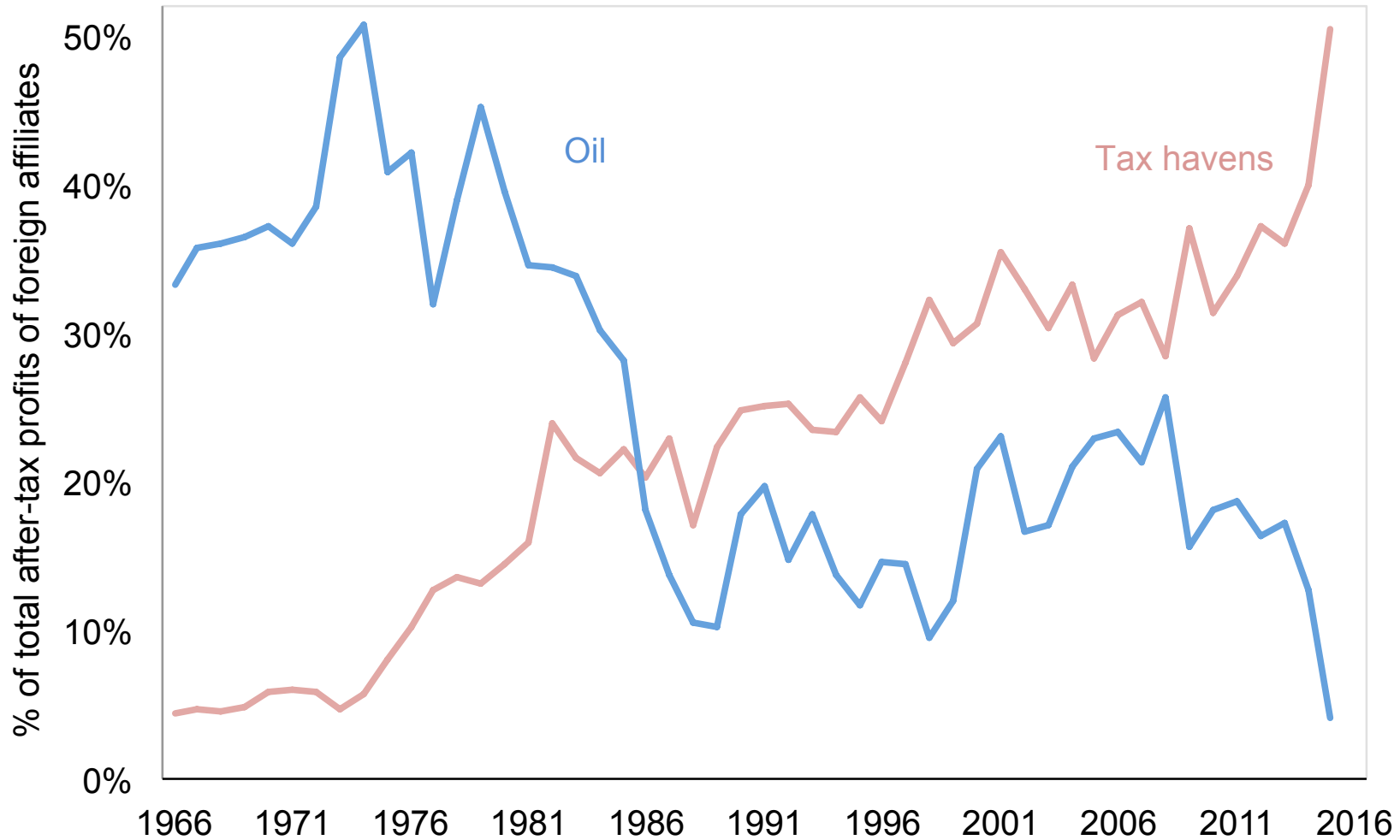


**Panel B: Pre-tax vs. after-tax returns (2014–2016)**



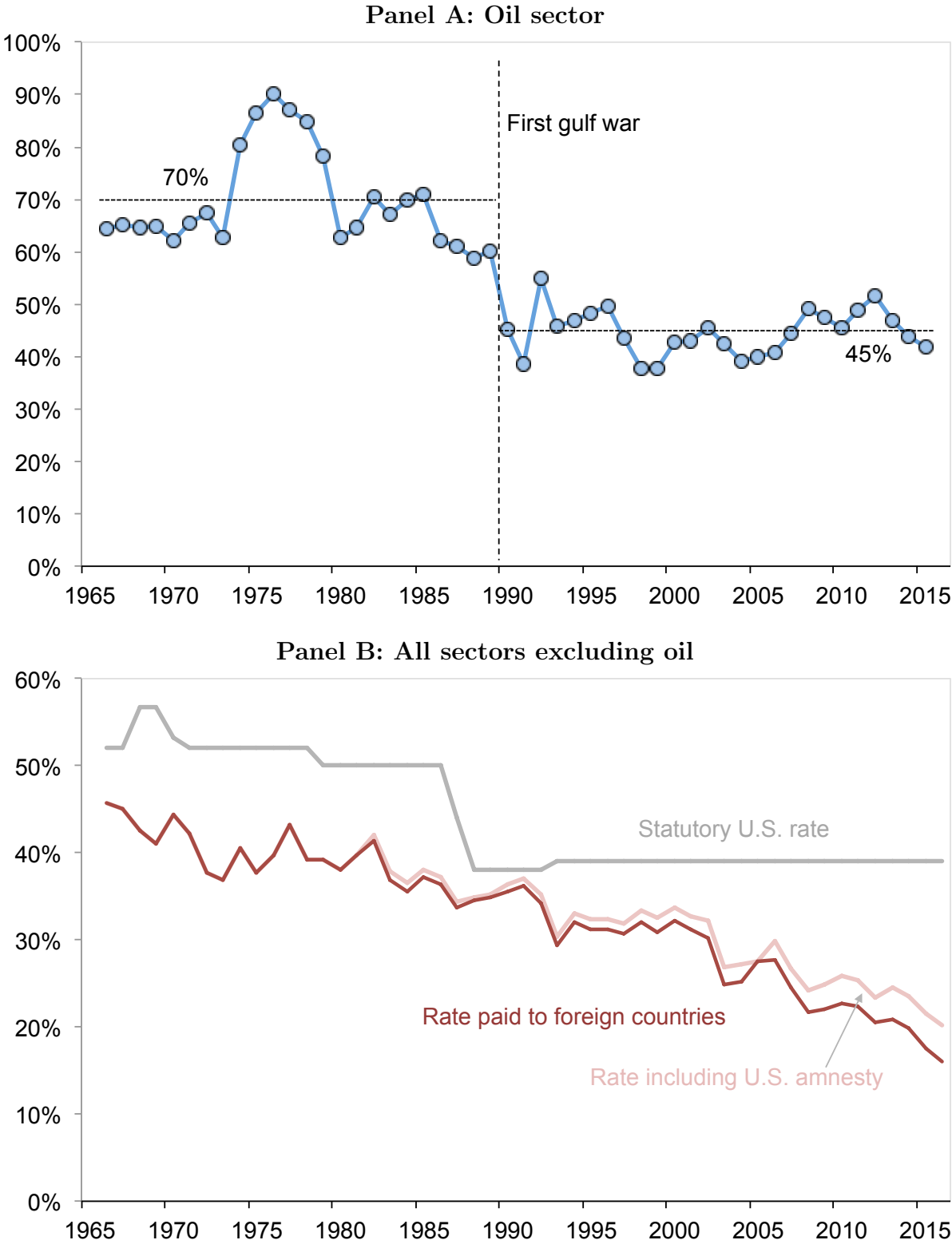
Notes (A): Returns are computed in same way as in Figure 2, and with the same sources. The sample is also the same as Figure 2, excluding Japan and New Zealand (see appendix B for details). Notes (B): Same as (A) except the sample includes only countries for which we can compute effective tax rates faced by US majority-owned affiliates from BEA data (i.e., OECD countries excl. Slovenia, Greece, Iceland, Estonia, Finland, Hungary, Latvia, Mexico, Portugal, Slovak Republic, and Sweden). Effective tax rates are computed to be consistent with BOP-recorded DI equity income. Sources: Authors’ computations using IMF and BEA data, see appendix B.

Figure 4: Share of oil and tax-haven affiliates in the after-tax foreign profits of US multinationals



Notes: Profits are computed after net interest payments and capital depreciation, and are net of foreign corporate taxes paid (they are equal to “profit-type return” in the BEA data Tables II.F.1 and II.F.2, minus corporate income taxes paid in Tables II.D.1 and II.D.2). The line “tax havens” includes the profits reported by majority-owned affiliates of U.S. multinationals in Ireland, Luxembourg, Netherlands, Switzerland, Singapore, Bermuda and Caribbean havens, excluding profits by affiliates in the oil sector. The line “oil” includes the profits reported by majority-owned affiliates which are classified in the oil sector (oil and gas extraction, petroleum and coal products, petroleum wholesale trade). Source: BEA survey of the foreign operations of U.S. multinationals and authors’ computations, see Appendix Tables A.2 and A.4.

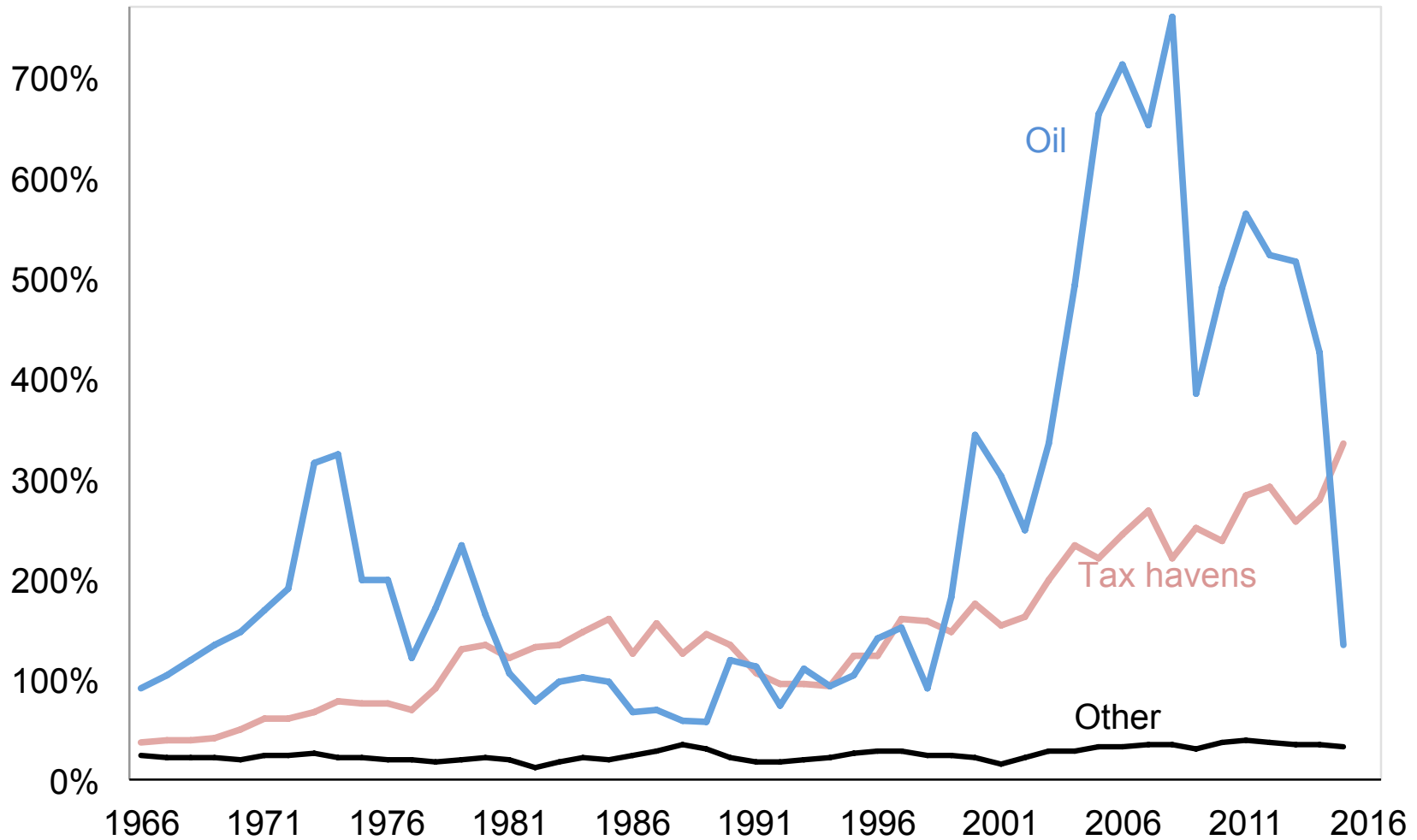
Figure 5: Tax rates paid by U.S. multinationals on their foreign profits



Notes: Foreign tax rates are computed by dividing foreign corporate income taxes paid (BEA survey Tables II.D.1 and II.D.2) by pre-tax profits net of interest payments and capital depreciation (“profit-type return” in the BEA survey Tables II.F.1 and II.F.2). Source: BEA survey of the foreign operations of U.S. multinationals and authors’ computations, see Appendix Table A.2.



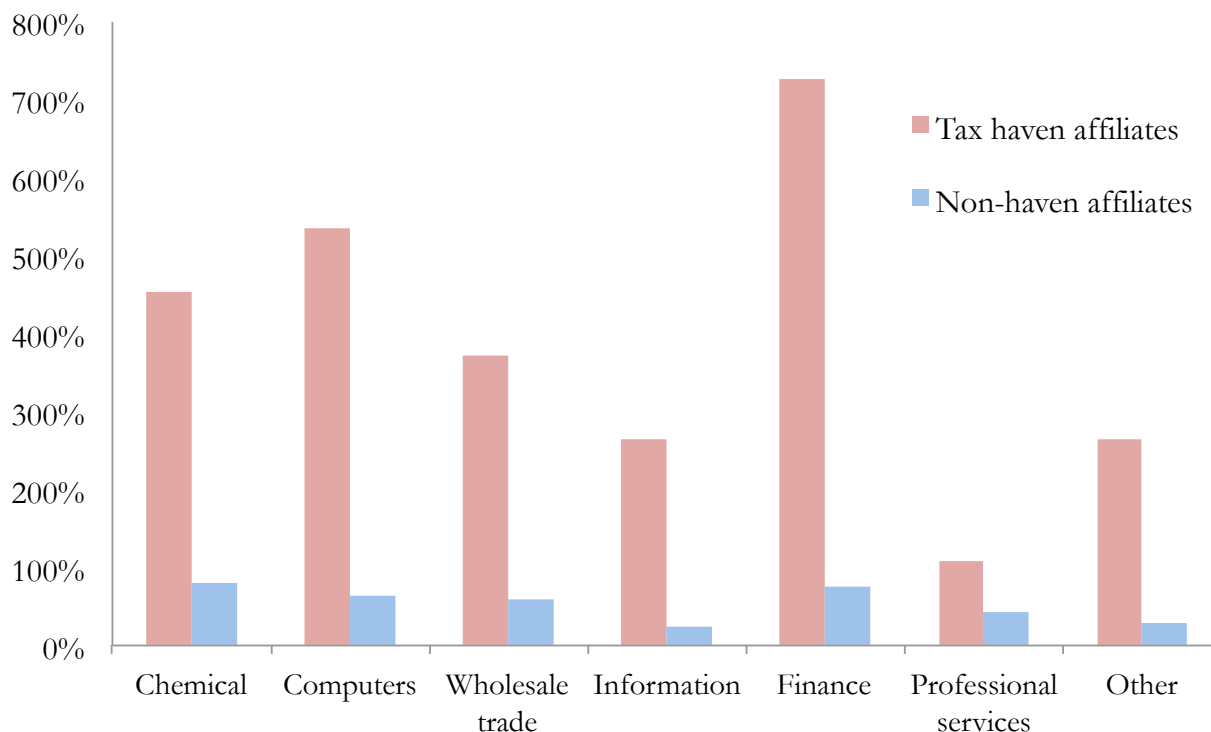
**Figure 6: After-tax profits of the foreign affiliates of US multinationals  
(% of wages paid)**



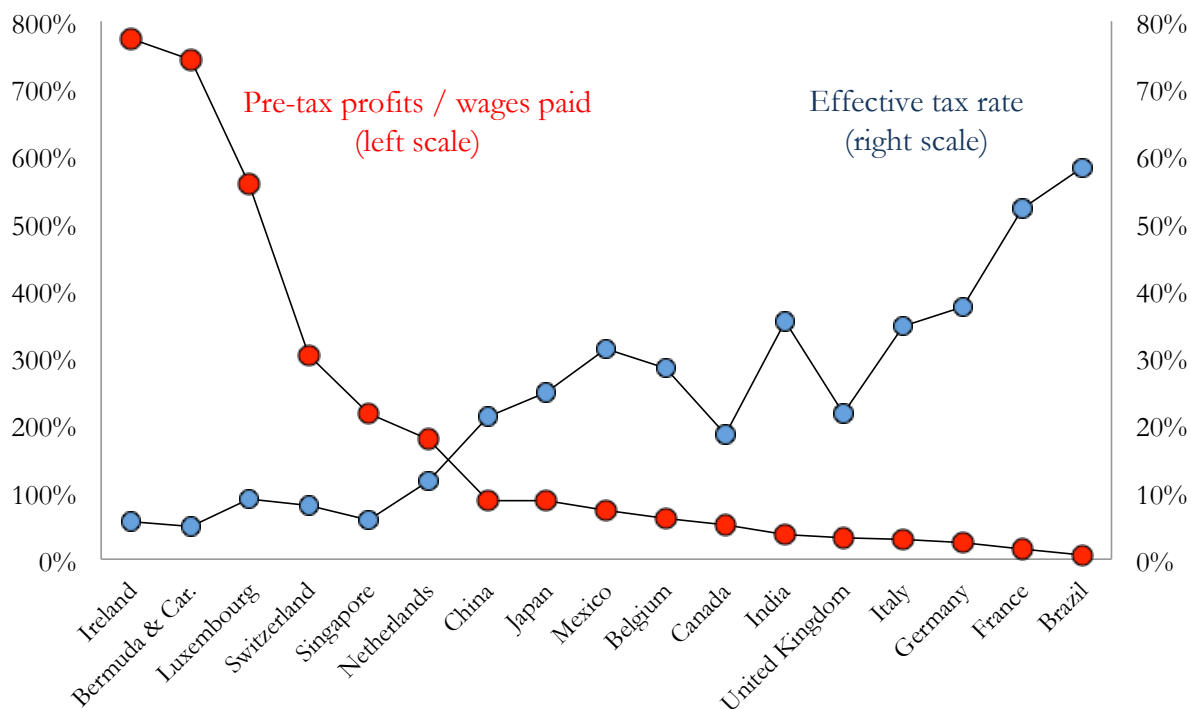
Notes: As in Figure 4, profits are computed after net interest payments and capital depreciation and are net of foreign taxes paid. The line “tax havens” divides the profits made by majority-owned affiliates of U.S. multinationals in tax havens by the compensation of employees paid by these affiliates (wages plus non-wage compensation). The line “oil” computes the same ratio for affiliates in the oil sector; and the line “other” for all other affiliates. Source: BEA survey of the foreign operations of U.S. multinationals, and authors’ computations, see Appendix Tables A.2, A.3, A.11b, A.12b, and A.13.

**Figure 7: Foreign pre-tax profits of U.S. multinationals, 2015**

**Panel A: Pre-tax profits / compensation of employees**

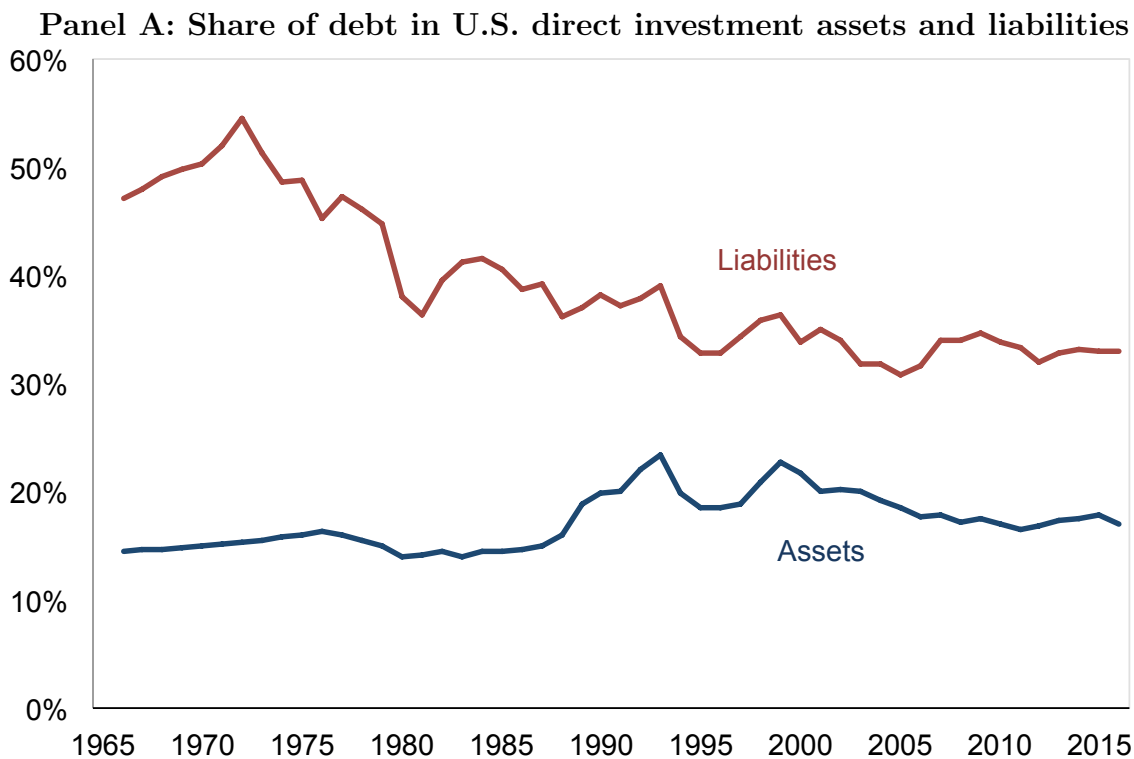


**Panel B: Pre-tax profits vs. effective tax rates**

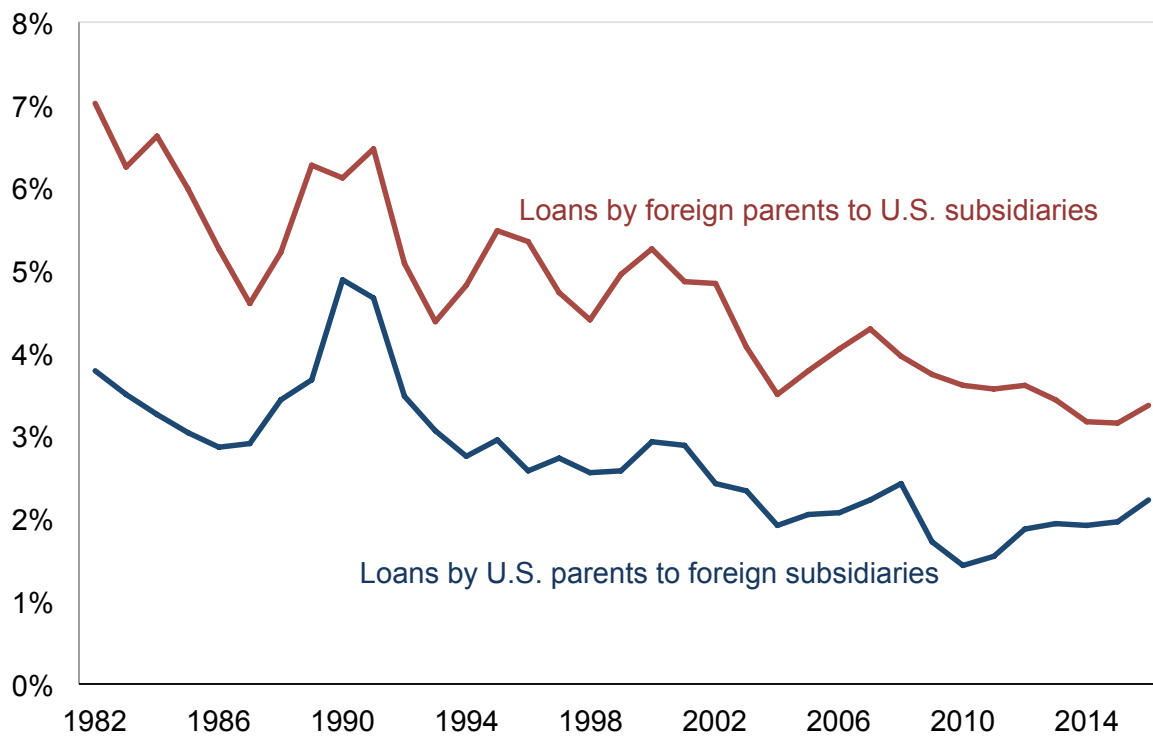


Notes: As in Figure 5, profits are computed after net interest payments and capital depreciation and are before corporate income taxes. Source: BEA survey of the foreign operations of U.S. multinationals, Tables II.F.1, II.F.2, II.D.1, and II.D.2.

**Figure 8: Profit Shifting by Foreign Firms in the US: Role of Debt**



**Panel B: Interest rate on intra-group loans: U.S. vs. foreign multinationals**



Notes: In Panel A, data are on an asset / liability basis (as opposed to a directional basis). In Panel B, the interest rate is computed by dividing interest payments in year  $t$  by the stock of debt at the end of year  $t$ . Source: authors' computations using the international macroeconomic accounts of the United States, see Appendix Tables A.5. and A.7.