

## Average Effective Federal Corporate Tax Rates

The effective actual tax rate is defined as taxes actually remitted divided by book or financial statement income (rather than taxable income).<sup>1</sup> The average effective “actual” federal corporate tax rate (ATR) provides a comprehensive measure of the average tax rate actually paid by corporations.<sup>2</sup>

For several reasons, the ATR differs from the 35 percent top federal statutory tax rate. Accelerated depreciation and other tax preferences, such as the domestic production activities deduction and tax credits, can lower the ATR below the top U.S. federal statutory corporate tax rate.<sup>3</sup> In addition, tax planning, noncompliance, and costly enforcement all can influence taxable income and taxes paid, and hence also have the potential to impact the ATR.

Based on data from federal corporate income tax returns for 2007 through 2011, Table 1 shows that the U.S. ATR on income earned by profitable corporations with over \$10 million in assets was 22 percent (when averaged over all firms in all years), well below the top statutory rate of 35 percent. This overall tax rate, however, masks a large amount of variation by industry. When averaged over the 2007-2011 period, ATRs ranged from 10 percent for the utilities industry to 28 percent for service industries. This suggests that some industries benefit more from tax preferences than do other industries, which implies that the tax system may distort investment incentives across industries. However, this was also a period of the financial crisis where many firms, particularly in the financial sector, were experiencing losses; hence this period might not be representative of other time periods.

Table 2 shows how the ATR changed from year to year over the 2007-2011 time period. The rate fell from 26 percent in 2007 to 20 percent in 2010 and 2011, when averaged each year over all firms. This decline potentially reflects a number of factors including changes in tax law and the business cycle. For example, the law governing depreciation deductions changed significantly over the period with the reintroduction of bonus depreciation. Bonus depreciation allows a fraction of eligible business investment (mainly equipment and software) to be expensed immediately rather than depreciated over time, resulting in a shifting forward of deductions and a temporary decrease in taxes paid (relative to what would have been paid). Bonus depreciation was not available in 2007, but 50 percent of eligible investment could be expensed in 2008, 2009, and most of 2010, and 100 percent of eligible investment could be expensed for the remainder of 2010 and 2011. The annual amount of bonus depreciation taken over the period was large. For example C corporations taking 100 percent bonus depreciation in 2011 reported approximately \$350 billion dollars of bonus depreciation deductions. In addition, starting in 2010, the deduction rate for the production activities deduction, which allows a deduction against the tax base for domestic production activities, increased from 6 percent to 9 percent for certain businesses. These law changes could partially explain the declining pattern of tax rates over the time period.

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<sup>1</sup> This measure includes taxes paid at the corporate level, but not at the shareholder level.

<sup>2</sup> In contrast to the effective actual tax rate, the effective marginal tax rate (EMTR) is generally considered to be the theoretically appropriate measure for determining the effect of taxes on investment. It measures the total fraction of an investment's pre-tax rate of return, excluding economic depreciation, needed to pay taxes over the lifetime of a hypothetical marginal investment, i.e., an investment assumed to just break even. See Congressional Budget Office, *Computing Effective Tax Rates on Capital Income* (December 2006), for additional detail.

<sup>3</sup> In theory, the graduated corporate tax rate schedule could play a role, but in practice does not matter because income and tax payments are heavily skewed to larger corporations taxed at the top (35 percent) tax rate.



The sample of firms included in the average effective tax rate calculation changes over time due to the exclusion of firms with negative income. This may lead to changes in the effective tax rate during business cycles. Further, the business cycle itself could potentially play a role in determining average effective tax rates, as realizations of key components of taxable income are closely related to the cyclical performance of the economy. Notably, capital gains and rents were at cyclical highs in 2007 prior to crashing during the “great recession”, and bad debt write-offs rose sharply from a low level in 2007 through 2009. The fluctuations in these components of taxable income could also contribute to the declining pattern of average effective tax rates during the time period.

**Table 1: Effective Actual Federal Corporate Tax Rate, by Industry,  
Average 2007-2011**

Agriculture, Forestry, Fishing	25%
Mining	20%
Utilities	10%
Construction	27%
Manufacturing	22%
<i>Non-Durables (Food, Paper, Clothing)</i>	23%
<i>Durables (Metal, Machinery)</i>	22%
<i>Chemical-Pharmaceutical</i>	22%
<i>Computer-Electronic</i>	18%
<i>Petroleum-Coal Products</i>	25%
Wholesale-Retail	27%
Transport and Warehouse	16%
Information	21%
Insurance	22%
Finance	19%
Real Estate	20%
Leasing (Auto, Equipment, Consumer Goods)	15%
All Services	28%
<b>TOTAL</b>	<b>22%</b>

**Table 2: Effective Actual Federal Corporate Tax Rate, by Year,  
2007-2011**

<b>2007</b>	26%
<b>2008</b>	23%
<b>2009</b>	21%
<b>2010</b>	20%
<b>2011</b>	20%



## Calculation of Effective Actual Federal Corporate Tax Rates

The Treasury effective actual federal corporate tax rates, by industry, are calculated by dividing corporate taxes paid by pre-tax book income as reported on corporate income tax returns.<sup>4</sup> Industry classifications are based on two-digit and three-digit North American Industry Classification System (NAICS) industry sectors.<sup>5</sup> Income taxes paid and pre-tax book income are computed for each year 2007 through 2011 and then summed over all these tax years at the two-digit industry level to compute industry-level effective actual federal corporate tax rates over the period.

The sample only includes C-corporations with positive book income that file a Schedule M-3 (i.e., corporations with total assets of \$10 million or more).<sup>6</sup>

**Taxes Paid.** Taxes paid equal the sum of the following information from Internal Revenue Service (IRS) Forms 1120 and 1118:

- Total taxes less credits. This is the U.S. tax on domestic income and the residual U.S. tax on repatriated foreign source income, *but* removing the residual tax on currently taxable but not repatriated (i.e. subpart F) foreign income<sup>7</sup>;
- Foreign taxes paid associated with repatriated foreign source income; and
- 35 percent of the corporation's net operating loss deductions (NOLD).

Taxes paid are adjusted for net operating loss deductions (NOLD) to neutralize the effect of previous year losses. The measure of taxes paid is given by expression (A1).<sup>8</sup>

$$(A1) \text{ Taxes Paid} = \text{Domestic Taxes Paid} + \text{Foreign Taxes Paid} + \text{Tax Value of NOLD}$$

**Pre-Tax Book Income.** Pre-tax book income is derived from C-corporations' IRS Forms 1120 Schedule M-3 and 1118 data. Pre-tax book income is the sum of:

- Reported book income of the tax consolidated group;
- Reported U.S. current and deferred tax expenses;

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<sup>4</sup> The calculation weights firms by income, and so is equivalent to summing up taxes paid for all firms in an industry and dividing that by the sum of book income earned by all firms in that industry.

<sup>5</sup> These classifications are determined by the business activity from which a corporation derives the highest percentage of its total receipts, as reported on its tax return.

<sup>6</sup> Corporations that appear to have filed an incomplete Schedule M-3 or have errors on that Schedule are excluded.

<sup>7</sup> While much foreign source income receives deferral of U.S. taxation until the income is repatriated, Subpart F of the Internal Revenue Code mandates that taxes be paid currently on certain passive and mobile income, even if that income is not actually repatriated to the United States. Because the income associated with these taxes is not included in the denominator of the effective tax rate, the taxes are not included in the numerator of the effective tax rate.

<sup>8</sup> Domestic Taxes Paid are actually the reported tax less credits multiplied by 99% in order to remove the residual tax paid on subpart F income. The portion of Foreign Taxes Paid that is associated with dividends also must be scaled because it includes foreign income taxes on subpart F ("deemed") dividends. Foreign Taxes Paid = Withholding and Other Foreign Taxes + Taxes on Repatriated Income; Taxes on Repatriated Income = (Foreign Income Tax "Gross Up" on Voluntary Dividends) / (Foreign Income Tax "Gross Up" on All Dividends) x (Foreign Income Taxes on Dividends). The "gross up" is a measure of foreign income taxes on dividends but it is reported separately for voluntary and "deemed" dividends. The Tax Value of NOLD is computed by multiplying the reported NOLD by the statutory corporate tax rate of 35 percent.



- Reported state and local current and deferred tax expenses;
- Reported foreign current and deferred tax expenses;
- Reported foreign withholding tax expenses; and
- An approximation of foreign tax expenses associated with voluntary dividends<sup>9</sup>.

The measure of pre-tax book income is given by expression (A2).

$$\begin{aligned}
 \text{(A2) Pre-Tax Book Income} &= \text{Reported Book Income} + \text{U.S. Current and Deferred Tax Expenses} \\
 &+ \text{State and Local Current and Deferred Tax Expenses} \\
 &+ \text{Foreign Current and Deferred Tax Expenses} \\
 &+ \text{Foreign Withholding Tax Expenses} + \text{Taxes on Repatriated Income}
 \end{aligned}$$

Equations (A1) and (A2) can be combined to obtain an expression for the average effective actual federal corporate tax rate.

$$\begin{aligned}
 \text{(A3) Average Effective Actual Tax Rate} &= \text{(A1)} / \text{(A2)} = \\
 &\frac{\text{Domestic Taxes Paid} + \text{Foreign Taxes Paid} + \text{Tax Value of NOLD}}{\text{Reported Book Income} + \text{U.S. Current and Deferred Tax Expenses} \\
 &+ \text{State and Local Current and Deferred Tax Expenses} \\
 &+ \text{Foreign Current and Deferred Tax Expenses} \\
 &+ \text{Foreign Withholding Tax Expense} \\
 &+ \text{Taxes on Repatriated Income}}
 \end{aligned}$$

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<sup>9</sup> The M-3 does not report information on the current and deferred book tax expense associated with voluntary repatriated dividends, but rather only foreign tax expense associated with branches and withholding taxes. Therefore, we approximate this value with total taxes deemed paid in order to create pretax book income.

