Effective Corporate Tax Rate and Rent-Seeking: An International Comparison with the US

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Abstract

Current corporate tax reform debates focus on whether or not to lower the US top rate of 35 percent to match other developed countries' rates, and whether large corporations paid their fair share. Anecdotal evidence indicates that large US corporations engage in rent-seeking. This descriptive study examines the corporate effective tax rates and compares the US rates with the rates of six foreign countries. Results show the mean corporate effective tax rate of the US is significantly lower than that of six other OECD countries even though the statutory rates of the foreign countries are lower than the US. As a group, the mean effective tax rate of the 99th percentile of US firms does not significantly differ from that of other US firms, and the price-earnings association is not valid for 99th percentile of US firms because earnings are not earned productively but through rent-seeking. Consideration must be given to the percentage of actual taxes that US corporations pay, as well as the statutory rate, when reviewing future tax policy.

Keywords: taxes, corporations, price-earnings, rent-seeking

1. Introduction

Corporate tax law reform has been an important political topic recently. The political right argues that the US top corporate tax rate of 35 percent is the highest among developed countries and that it hinders the competitiveness of US corporations. Reducing the corporate tax rate may not only enhance such competitiveness, but also stimulate economic growth, and therefore decrease budget deficits. The political left argues that US corporate taxes as a percentage of total federal tax revenue have declined from 30 percent in the 1950s to 6.6 percent in 2009 (Kocieniewski, 2011).

Much of the reduction in total tax revenue may be due to the proliferation of new forms of business structures, e.g. Sub-Chapter S, Limited Liability Partnerships, and Limited Liability Corporations, in which profits (in all these forms) pass to owners and so are not considered corporate taxes. However, corporations, particularly large ones, still receive government bailouts, favorable tax laws, subsidies, and tax shelters, and may not pay their fair share of taxes. Large corporations, especially multinational corporations, can avoid income taxation by moving some operations to tax havens (lower-tax rate countries which transfer income from high-tax to low-tax locations to allow large corporations to avoid taxation.)

General Electric (GE) provoked criticism in 2011 when reports showed that it had a $14.2 billion profit in 2010 but paid no US corporate taxes, even though no illegal activity was involved (Kocieniewski, 2011). In addition, GE has a policy of minimizing taxes, employing 975 in a tax department that acts as a profit center; the company also has eight lobbyists who once worked for congressional super-committee members. Yet GE is not unique in making taxes a revenue source.

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Exxon Mobil, Bank of America, Chevron, Goldman Sachs, Citigroup, and Conoco Philips, all with net income in the billions, nevertheless received federal tax refunds (Oak, 2011) Numerous other high-profile companies such as Google, Ikea, Microsoft, Hewitt-Packard, and Starbucks were in the news about their tax practices (Dowling, 2014). Outside the US, the UK Parliament's Public Accounts Committee held public hearings to question the level of taxes that Google, Amazon, and Starbucks pay (*International Tax Review*, 2013). It is no wonder that tax departments are increasingly becoming profit centers and are counted on to enhance profits (Slemrod, 2004). Citizens for Tax Justice, a left-leaning consumer group, claim that corporations such as GE can reduce their taxes considerably by using deductions and loopholes. It also found that other countries in the Organization for Economic Cooperation and Development (OECD) have lowered their corporate tax rates while simultaneously closed tax loopholes, while US tax codes actually have expanded tax loopholes. Economists call large corporations' pursuit of lower taxes "rent-seeking."

This paper uses traditional rent-seeking theory in explaining differing effective tax rates of foreign corporations and US in order to answer three specific questions. First, are the corporate effective tax rates of US corporations significantly higher than that of foreign corporations? The foreign corporations are from six large OECD countries: Australia, Canada, France, Germany, Japan, and the UK. Second, are corporate effective tax rates of large US corporations and foreign corporations significantly lower than those of smaller ones? In this study, large corporations are measured as the 99th percentile of corporations measured by total assets' Third, large corporations' earnings have traditionally been associated with prices; is this relationship still significant if corporations engage in rent-seeking?

This study's results indicate that (1) US firms' overall mean effective tax rate is significantly lower than foreign firms' overall mean effective tax rate; (2) although there is a significant, positive association between effective tax rate and firm size, the 99th percentile of US corporations lack a significantly higher mean effective tax rate than other US corporations do, while the 99th percentile of foreign corporations do have a significantly higher mean effective tax rate compared to other foreign corporations; and (3) the prevailing significant, positive association between earnings and price is valid for the 99th percentile of foreign corporations, other foreign corporations, and other US corporations, but is not valid for the 99th percentile of US corporations. Thus, anecdotal evidence suggests that large US corporations can be assumed to engage in rent-seeking. Results from examining individual foreign countries generally show no rent-seeking, except for German firms.

2. Rent-Seeking

In the last few decades, rent-seeking has become an established economic theory. The foundation for this theory began with Tullock's (1967) basic analysis that lobbying diverts resources from positive-sum activities. Krueger (1974), a few years later, coined the term "rent-seeking" in her analysis of the Indian and Turkish trade sectors. Both authors assume that the rent-seeker uses its resources for its own benefit. However, this behavior is not Pareto-efficient because it is not as if the rent-seeker gains while no other loses (Krueger, 1974; Tullock, 1967).

"Rent" in the rent-seeking concept is derived from the practices of monopolies that try to protect their competitive edge or profit, or "monopoly rent." Rent-seeking in this context can be broadly defined as benefit obtained not by increasing productivity but through influencing political decisions (Hillman, 2009). Rent-seeking has four characteristics. First, the rent-seeker uses scarce resources to possess, not to produce. Second, the rent-seeker uses scarce resources to obtain or maintain advantages and benefits over its competitors. Third, the rent-seeker obtains benefits through political processes. This behavior is not theft because it uses legal means, and it is not corruption because the politicians involved behave legally. Fourth, the rent-seeker incurs costs to its competitors because its rent-seeking raises barriers to competition.

Examples of rent-seeking in the economics literature include agricultural subsidies, import tariffs and quotas, professional licensure, etc. (Henderson, 2008), as well as lobbying and tax havens. American farms maintain price floors for their products through government subsidies. This rent-seeking benefits large farms and large agricultural businesses but hurts consumers. Import tariffs and quotas protect domestic manufacturing firms from foreign competition but raise domestic prices. Professional licensure benefits the license holders by reducing competition but, again, raises prices for consumers. Another example of a major rent-seeking activity that large corporations use to avoid paying income taxes is locating operations in low-tax countries. Offshore financial centers and Regional Operating Centers (ROCs) are often established in countries with zero or low taxation. US companies have profits in the trillions offshore and are not volunteering these profits for US corporate taxation (Reuters, 2012).

This may be the fastest form of rent-seeking for large corporations. For example, in 2000, 17% of the world's largest OCED-based companies on the Forbes 500 were headquartered in countries with territorial tax systems. This number increased to 61 percent by 2012 (PricewaterhouseCoopers, 2013). This percentage may increase for the US as some European countries lower their tax rates. Countries such as the United Kingdom, Denmark, Netherlands, Austria, Belgium, Liechtenstein, and Monaco may become tax heavens for the US (Gilleard, 2014).

These practices have not gone unnoticed by the federal government. The US Senate Permanent Subcommittee on Investigations of the Committee on Homeland Security and Government Affairs held a hearing on offshore profit-shifting in September 2012 (Wagaman & Duquette, 2013). The Senate was concerned that many large corporations designate their non-US earnings as "accumulated indefinitely reinvested," and thus the IRS would tax only a small proportion of their income.

Transfer pricing also allows corporations to move taxable profits from countries with high tax rates to countries with lower tax rates. For example, large multinational corporations can sell products at very low prices to a related foreign corporation in a low-tax country, leading to low taxable income in the US and higher profits in jurisdictions with low tax rates. The income that the related foreign corporation earns in the low-tax country will often be classified as permanently or indefinitely reinvested and not be taxed until the income is repatriated as dividends to the large corporation located in the US. Additionally, the distribution of debt and equity between subsidiaries and parent companies can allow large corporations in the US to defer taxes by permitting US corporations to deduct interest expense and thus pay lower taxes. Note that all sizes of corporations would indulge in rent-seeking if given the opportunity; however, large corporations are usually the only entities that have the means and political clout to implement rent-seeking. These large corporations engage in rent-seeking (in the corporate tax context) by minimizing corporate taxes through two strategies.

One strategy is to find tax deductions and loopholes; GEdoes so with its large tax department and through hiring former officials from the Treasury Department, the Internal Revenue Service, and tax-writing congressional committees (Kocieniewski, 2011). Those tax experts can find details in tax codes advantageous to GE. Reducing taxes through this strategy does not increase GE's productivity but does benefit the company and its shareholders. The second strategy is to influence politicians by lobbying and by spending significant funds to generate favorable tax legislation. The same measures that are intended to correct the effect of inequality, such as income taxation, create more opportunities for rent-seeking (Alesina and Angelotors, 2005). Empirical evidence shows that rent-seekers influence US federal corporate tax legislation, and corporate campaign contributions to tax-writing congressional members are positively associated with potential benefit to the corporations that made the contributions (Freed & Swenson, 1995). In the US, lobbyists act in their own self-interest, which in many cases is not for the public good.

Thus, campaign contributions may directly affect corporate tax rates and tax credits. For example, Chirinko & Wilson present empirical evidence, based on data from 48 US states, that corporate campaign contributions have a significant effect on state tax policy (2010). The study estimates that a $1.00 business campaign contribution lowers state corporate taxes by $6.6 (2010). Even if one questions a valid numerical relationship between contributions and lower corporate taxes, US corporations would not make such sizeable business campaign contributions if no direct effect existed between contributions and lower taxes. Thus, corporations' expected gains exceed the expected cost associated with rent-seeking costs, and campaign contributions may directly affect corporate tax rates and tax credits at the federal and state level.

Since they often have personal contact with lawmakers, lobbyists are in the best position to influence public policy on these tax matters. Their activities are rent-seeking because they do not increase corporations' productivity, instead benefitting the corporations and their shareholders through the political arena. For example, lobbyists may try to buy tariffs for the US automobile industry, helping the industry but hindering individuals from owning new cars. Some politicians have gone as far as to label lobbyists as corrupt in their actions in gaining unfair advantages in the political marketplace (Hansen, 2012). Hansen suggests that not only does rent-seeking not increase productivity, but also it may be partially responsible for the tremendous growth in the size of the US government (2012). For example, many laws in the US, such as progressive income taxation laws, are intended to correct the effect of economic inequality.

Corporations and individual firms that do not benefit directly from the law may prefer more regulation and larger government to increase the rents and benefits they can extract from the government (Alesina and Angeletes, 2004).

3. Development of hypotheses and analyses

The first hypothesis tests whether the descriptive statistics of US firms are larger than those of foreign firms. Revenue, total assets, total liabilities, and common equity all underwent t-tests to determine if there was a size difference.

H1: US firms' overall mean for revenue, total assets, total liabilities, and common equity is significantly higher than foreign firms' overall mean.

Large corporations have greater resources to influence the political process and can direct more resources toward tax avoidance. Large firms would then be more noncompliant than smaller firms would. Large firms are also more politically sensitive, and size can be used as a proxy for political costs. Theoretically, from this viewpoint, firms making large profits would hypothetically choose accounting choices to reduce earnings. Dyreng, Hanlon, and Maydew indicate that much of the research is mixed, with studies indicating both a positive and negative association (2008). In either case, the behavior of the largest firms would differ from that of other firms (Watts and Zimmerman, 1978).

The second hypothesis, stated in alternative form, is as follows:

H2. US firms' overall mean effective tax rate is significantly higher than foreign firms' overall mean effective tax rates.

This hypothesis is developed to answer the first question of this study: is the corporate effective tax rate of US corporations significantly higher than that of foreign corporations, given that the US top corporate tax rate of 35% is the highest among developed countries?

Both the Obama Administration and the political right, such as the Business Roundtable, argue that the US top corporate tax rate is too high. To help make US firms competitive, they have proposed reducing the top rate. However, this may be more perception than reality. The more relevant number we use in this study is the corporate effective tax rate, which reflects the actual rate levied on corporations. The corporate effective tax rate is defined as tax expense divided by pretax income and is subject to 0.5% winsorization in this study to control for outliers (Barnett & Lewis, 1994). To compare the mean corporate effective tax rates between US and foreign firms from different percentiles measured by size, t-tests are used.

The third hypothesis, stated in alternative form, is as follows:

H3. The US has a progressive corporate tax schedule, and therefore, larger firms, including the largest US firms, have a higher effective tax rate than smaller firms.[2] this is also true for foreign firms.

This hypothesis answers the second question of this study: Is the corporate effective tax rate of large US corporations significantly lower than (or at least not significantly different from) that of other US corporations? Two sets of tests are performed. The first set is to regress effective tax rate on size. Given the progressive nature of the corporate tax schedule in both the US and foreign countries, the regression coefficients of size are expected to be significant and positive. The effective tax rate-size relation can be described as:

Figure 1

Price-Earnings Relation

$$TR_i = \alpha + \beta \times SIZE_i + \varepsilon$$

Where,

TR_i is effective tax rate of firm i

$SIZE_i$ is size measured by the logarithm of total assets of firm i

The second set uses the t-test to compare the mean effective tax rate of the 99th percentile of US firms with that of other US firms and compares the mean effective tax rate of foreign firms in the 99th percentile with that of other foreign firms using the t-test. If the effective tax rate is significantly and positively associated with size, but the mean effective tax rate of firms in the 99th percentile is not significantly larger than that of other firms, then there is rent-seeking.

The fourth hypothesis, stated in alternative form, is as follows:

H4. The price-earnings association is not valid for the largest US firms if they show rent-seeking behavior.

This hypothesis answers the third question of this study: are earnings no longer significantly and positively associated with price for large corporations if they show rent-seeking? Prior accounting studies have established a significant and positive relationship between price and earnings A firm's earnings result from its productivity. The higher the firm's productivity is, the higher its stock price. Now, rent-seekers generate benefits without productivity increases, and therefore, the relation between price and earnings is weak. For these reasons, regressions of price change on earnings change test this hypothesis. The earnings change coefficients are not expected to be significant, and positive if the largest firms show rent-seeking.

The price change/earnings-change relation can be described as (Kothari, 1992):

Figure 2

Price-Earnings Regression

$$(P_i - P_{i-1}) / P_{i-1} = \alpha + \beta \times ((E_i - E_{i-1}) / P_{i-1}) + \varepsilon$$

where

P_i is price per share at the end of year I and E_i is earnings per share for year i

Thus, this paper assumes rent-seeking if both of the following conditions are met:

1. The mean effective tax rate of firms in the 99th percentile is not significantly different from that of other firms, and

2. There is no significant price-earnings relation for firms in the 99th percentile

The dependent variable is price change normalized by beginning price, and the independent variable is earnings change normalized by beginning price. Both variables are subject to 0.5% winsorization in this study for controlling the outliers (Barnett & Lewis, 1994). This transformation of the sample limits extreme values in the statistical data to reduce the effect of possible spurious outliers.

4. General country characteristics and data

Six foreign OECD countries, including Australia, Canada, France, Germany, Japan, and the United Kingdom, are selected for this study based on their GDPs and data availability. For example, Italy is not selected because of limited data availability, even though Italy's GDP surpasses Australia's.

According to the OECD, the US has the highest GDP ($14,369.4 billion in 2008), lowest corporate tax revenue as a percentage of GDP (28.3% in 2007), and the highest top corporate tax rate (35% in 2011) among the seven OECD countries. Australia has the lowest GDP ($831.2 billion in 2008), France has the highest corporate tax revenue as a percentage of GDP (43.5% in 2007), and Germany has the lowest top corporate tax rate (15% in 2011). OECD countries other than the US generally also levy a value-added tax to increase government revenue.

Data are collected using the following procedure:

1. Data are from 2001 to 2010.
2. US data are collected from the Research Insight database, while Australian, Canadian, French, German, Japanese, and British data are collected from the Global Vantage database.

3. The following data are collected: revenue (sales), total assets, total liabilities, common equity, pretax income, tax expense, earnings per share before extraordinary items, and price per share.

The final sample consists of 111,309 firm-year observations. 52,273 are US firm-year observations, 8,728 are Australian; 4,433 are Canadian'; 4,260 are French'; 4,586 are German; 28,729 are Japanese; and 8,300 are British.

5. Results

5.1. Descriptive statistics – US versus foreign firms

A few alternative measures of variables that relate to taxes appear in Table I, which provides descriptive statistics for both US firms and the combined firms from the other six countries. US firms are compared with foreign firms using four measures of size: revenues, total assets, total liabilities, and common equity. In all four measures,, results show that US firms are significantly larger than foreign firms. Even though not displayed in a table, the analysis was also performed by comparing each country with the US. The results are the same, indicating that US firms are significantly larger than firms from each of the other six countries, individually and in total. The results are consistent with the first hypothesis in that the overall means for revenue, total assets, total liabilities, and common equity are significantly higher for US firms compared to foreign firms.

Table 1: **Descriptive statistics – US versus foreign firms**

	No.	Mean	Std.Dev.	No.	Mean	Std.Dev.	t-value
	US			Other			
REV	52273	3344	14570	59036	961	7619	33.55***
TA	52271	11787	97876	59033	1243	8952	24.54***
TL	52176	9880	92604	59031	801	6163	22.35***
CE	52165	1781	8153	58955	410	3198	36.04***

Other countries include Australia, Canada, France, Germany, Japan, and the UK.

REV is revenue, TA is total assets, TL is total liabilities, and CE is common equity.

t-value is for comparing means.

*** is for $p < 0.01$

5.2. Comparisons of mean effective tax rates – US versus foreign firms

Table 2 presents the corporate tax rate by corporate size in 10% increments for the whole sample and 1% increments for the top 5% for both US firms and the combined firms from the other six countries. The mean effective tax rate was computed by dividing tax expense by pretax income. Hypothesis 2 is not suggested by the empirical results in Table 1.

US firms' overall mean effective tax rate (16.48%) is significantly lower than foreign firms' overall mean effective tax rate (24.51%). Most striking in Table II is that, in every percentile, US firms' mean effective tax rate is significantly lower than those of foreign firms. The top 5% of corporations in the study based on size displays an inverse relationship between size and corporate tax rates for US corporations. However, this pattern is not observed for foreign corporations. The mean effective tax rates for US firms range from 24.56% to 17.90% (6.66 differences) with a rate of 24.56% at the 95th percentile and 17.90% at the 99th percentile for the largest 5% firms. For foreign firms, this range is much smaller (1.42 difference) and varies from 31.35% at the 97th percentile to 32.77% at the 98th percentile, a difference of 1.41%. Thus, the results do not confirm the second hypothesis that US firms' mean effective tax rate is significantly lower, not higher, than foreign firms' mean effective tax rate. The results presented in Table 2 also suggest that the largest companies in the US are more likely to engage in rent-seeking than the largest companies in foreign companies.

A major observation from Table 2 is that no category, including the largest firms by earnings, approaches the nominal maximum rate of 35%. Some of the most profitable firms (top 1% in earnings or 99th percentile) pay fewer real taxes than firms making considerably less. For example, firms in the 99th percentile pay an average of 17.9%, which is considerably less than the firms in the 40th to 50th percentile in earnings (19.01%).

Another observation from Table 2, though less obvious, is that neither the real taxes paid by US corporations nor size is perfectly graduated. Without even considering rent-seeking theory, corporate tax rates do not increase symmetrically. One reason for this effect relates directly to the tax code. The statutory marginal tax rate increases irregularly from 15% to 25% to 34% to 39% to 34% to 35% to 38% to 35% for each of the eight increments in US corporate taxes. Thus, the statutory marginal tax rate varies from 34% to 39%, depending on the level of income for an amount of income earned in excess of $55,000. For foreign corporations, there are regular increases for all ten percentiles.

Table 2: **Mean effective tax rates – US versus foreign firms**

	US	Other	t-value
<10 percentile	0.34%	14.30%	15.3***
10 to < 20 percentile	5.27%	18.33%	12.73***
20 to < 30 percentile	8.08%	22.01%	12.77***
30 to < 40 percentile	13.52%	23.50%	8.54***
40 to < 50 percentile	19.01%	24.73%	5.11***
50 to < 60 percentile	22.41%	25.27%	2.58**
60 to < 70 percentile	24.44%	26.32%	1.81*
70 to < 80 percentile	23.24%	29.91%	6.41***
80 to < 90 percentile	23.18%	30.28%	6.89***
90 to ≤ 100 percentile	25.00%	30.43%	5.65***
All	16.48%	24.51%	23.94***
≥ 95 percentile	24.56%	32.19%	6.01***
≥ 96 percentile	23.71%	32.08%	6.05***
≥ 97 percentile	22.32%	31.35%	6.12***
≥ 98 percentile	20.39%	32.77%	6.63***
≥ 99 percentile	17.90%	32.36%	6.32***

Other countries include Australia, Canada, France, Germany, Japan, and the UK.

*** is for $p < 0.01$, ** is for $p < 0.05$, * is for $p < 0.10$

5.3. Regressing effective tax rate on size – US versus foreign firms

In Table 3, firms are also divided into two groups: US companies and other countries. For both groups, the effective tax rate was regressed on size. Results indicate a significant and positive association between effective tax rate and size for both US firms and foreign firms; i.e., the larger the size, the higher the effective tax rate. Thus, the results are consistent with the fact that there is a progressive tax schedule both in the US and in foreign countries, confirming the third hypothesis.

Table 3: Regressing effective tax rate on size

	US	Other
No.	52070	58996
Intercept	2.12***	17.12***
	(0.39)	(0.59)
Size	2.59***	1.82***
	(0.06)	(0.13)
Adj. R^2	0.0339	0.0034

Other countries include Australia, Canada, France, Germany, Japan, and the UK.
Dependent variable is effective tax rate.
Size is logarithm of total assets.
Standard deviation is in parentheses.
*** is for $p < 0.01$

5.4. Comparisons of mean effective tax rates between 99th percentile firms and other firms – US versus foreign firms

Table 4 presents the results of comparing the mean effective tax rates of firms in the 99th percentile with those of other firms, both in the US and in foreign countries. The mean effective tax rate of US firms in the 99th percentile does not differ significantly from that of other US firms. This result is inconsistent with the result in Table 3, namely that the larger the size, the higher the effective tax rate. Thus, one could assume that the largest 1% firms possibly engage in rent-seeking to lower their effective tax rate to the level of other, much smaller firms. The mean effective tax rate of foreign firms in the 99th percentile is significantly higher than that of other foreign firms. The result is consistent with that in Table 3. Foreign firms in the 99th percentile seem to engage in little or no rent-seeking. Thus, the results confirm Hypothesis 3 for foreign firms, but do not confirm Hypothesis 3 for US firms. Even though the effective tax rate in the US in general increases with increased size, there is no significant difference between the 1% percentile and the aggregate of all other corporations outside the 99th percentile. However, foreign firms within the 99th percentile firms have a significantly higher effective tax rate because of their size, and thus foreign firms indicate few or no signs of rent-seeking.

Table 4: Mean effective tax rates – 99th percentile versus other firms

	Group	No	Mean rate	Std.Dev.	t-value
US	0	51550	16.46%	0.19	-1.12
	1	723	17.90%	1.27	
Other	0	58411	24.43%	0.28	-4.13***
	1	625	32.36%	1.90	

Other countries include Australia, Canada, France, Germany, Japan, and the UK.

Group = 1 is for 99th percentile firms, and = 0 is for other firms.

*** is for $p < 0.01$

5.5. Regressing price change on earnings change – US versus foreign firms

Table 5 presents the results of the price-earnings regressions for both US and other countries in Table 5. There is no significant and positive association between earnings change and price change for US firms in the 99th percentile, but there is a significant and positive association between earnings change and price change for foreign firms. Thus, earnings change for US firms in the 99th percentile cannot explain price change. A possible reason is that earnings of 99th percentile firms are not earned productively, and therefore are not a significant explanatory variable of price. Thus, there is rent-seeking of the 99th percentile US firms. There is a significant and positive association between earnings change and price change for 99th percentile foreign firms and other foreign firms, respectively. Thus, it seems likely that there is no significant rent-seeking. We assume that earnings are acquired productively, and therefore are a significant explanatory variable of price. These results are consistent with Hypothesis 4, as well as Table 4, that the largest US firms engage in rent-seeking. This outcome could be influenced by the size difference between foreign firms and US.

Table 5: Regressing price change on earnings change

Group		US	Other
0	No.	51550	58411
	Intercept	0.19***	0.12***
		(0.00)	(0.00)
	EC	0.18***	0.17***
		(0.00)	(0.01)
	Adj. R^2	0.0306	0.0134
1	No.	723	625
	Intercept	0.13**	0.06***
		(0.05)	(0.02)
	EC	-0.01	0.17**
		(0.03)	(0.08)
	Adj. R^2	-0.0013	0.0052

Other countries include Australia, Canada, France, Germany, Japan, and the UK.

Dependent variable (PC) is price change normalized by beginning price per share, and independent variable (EC) is earnings change normalized by beginning price per share.

Group = 1 is for 99th percentile firms, and = 0 is for other firms.

Standard deviation is in parentheses.

*** is for $p < 0.01$, ** is for $p < 0.05$

5.6. Comparisons of mean effective tax rates – US versus individual foreign country firms

Table 6 statistically illustrates the distribution of the mean effective tax rate for firms from each of the six foreign countries compared to the US for each percentile. US firms' overall mean effective tax rate is significantly higher than Australian firms' overall mean effective tax rate and is not significantly different from British firms' overall mean effective tax rate. US firms' overall mean effective tax rate is significantly lower than Canadian, French, German, and Japanese firms' overall mean effective tax rates.

In every size range presented in Table 6, US firms' mean effective tax rate is significantly lower than Japanese firms' mean effective tax rate. For France, Germany, and Canada, not every percentile is significantly smaller than the US rates at that particular percentile, even though the overall effective tax rate is smaller for all three of these countries. The UK is not statistically different from the US for the overall effective tax rate, and individual percentiles vary from significant to non-significant and positive to negative depending on the percentile. The Australian effective tax rates are significantly larger than the US effective tax rates at all levels except for the smallest (10th) percentile.

Examination of the five top percentiles for all six foreign countries indicates that only two countries (Australia and France) have a progressive increase in the mean effective tax rate for all five percentiles. There are mixed results for the other four countries. Canada's mean effective tax rates range from 13.95% to 32.84%, with the lowest rate for the top 99th percentile. This indicates that there is probably some rent-seeking for the top 99th percentile group, large corporations. Even though the range for the effective tax rates for the top five percentiles in Germany (8.81 range) is not as great as Canada's, the mean tax rates for the last four percentiles decrease from 31.38% to 22.57%, indicating some evidence of rent-seeking. Japan's effective tax rates do not change much for the top five percentiles from 36.44% to 39.71%, with a relatively small range of 3.27. However, the highest effective tax rate is at the 99th percentile, indicating that the top firms find rent-seeking more difficult. Finally, the UK also has a small range among the top five percentiles (2.64). Every percentile shows a continuous increase except for the 99th percentile, which has the lowest rate of the top five percentiles. Even though the results are mixed for the six foreign countries, the US is the only one in which the effective tax rate for the highest five percentiles continuously decreased.

The mean effective tax rate of US firms in the 99th percentile is significantly lower than that of 99th percentile Australian, Japanese, and British firms. The mean effective tax rate of 99th percentile US firms is not significantly different from that of Canadian, French, and German firms in the 99th percentile. However, the numbers in Table 6 alone are somewhat misleading because there are no statistical tests on firms in the 99th percentile versus the others. We have assumed that rent-seeking exists only if both the mean effective tax rate of firms in the 99th percentile does not significantly differ from that of other firms, and there is no significant price-earnings relation for firms in the 99th percentile.

Table 6: Mean effective tax rates – foreign firms

	AUS		CAN		FRA	
	Mean	t-value	Mean	t-value	Mean	t-value
<10 percentile	1.29%	-1.59	4.31%	-1.37	18.43%	-5.68***
10 to < 20 percentile	0.56%	5.74***	8.05%	-1.11	23.08%	-5.17***
20 to < 30 percentile	1.04%	7.59***	16.97%	-3.42***	25.79%	-4.59***
30 to < 40 percentile	0.46%	11.06***	19.37%	-1.80*	28.00%	-3.77***
40 to < 50 percentile	3.43%	12.32***	22.38%	-0.95	23.55%	-1.70*
50 to < 60 percentile	4.71%	13.11***	25.82%	-0.93	28.53%	-1.84*
60 to < 70 percentile	13.45%	8.49***	19.54%	1.46	25.78%	-0.53
70 to < 80 percentile	15.51%	5.25***	28.92%	-1.42	28.82%	-3.17***
80 to < 90 percentile	19.69%	2.43**	28.17%	-1.54	26.47%	-1.41
90 to ≤ 100 percentile	21.54%	2.77**	24.60%	0.13	27.35%	-1.21
All	8.17%	21.44***	19.82%	-3.22***	25.58%	-9.68***
≥ 95 percentile	22.92%	0.90	27.77%	-0.69	27.25%	-0.92
≥ 96 percentile	24.10%	-0.25	25.69%	-0.37	27.60%	-1.08
≥ 97 percentile	24.31%	-1.18	30.15%	-1.20	28.36%	-1.28
≥ 98 percentile	24.64%	-1.85*	32.84%	-1.28	30.77%	-1.54
≥ 99 percentile	25.39%	-2.42**	13.95%	0.90	38.67%	-1.61

	GER		JPN		UK	
	Mean	t-value	Mean	t-value	Mean	t-value
<10 percentile	8.67%	-1.92*	23.23%	-15.62***	3.43%	-2.65***
10 to < 20 percentile	4.16%	0.25	29.97%	-15.84***	7.64%	-1.72*
20 to < 30 percentile	21.78%	-2.83***	32.38%	-15.70***	9.08%	-0.60
30 to < 40 percentile	15.81%	-0.51	34.92%	-12.96***	12.42%	0.66
40 to < 50 percentile	21.56%	-0.70	34.38%	-9.61***	17.35%	0.84
50 to < 60 percentile	22.04%	0.09	33.38%	-7.00***	18.67%	2.14**
60 to < 70 percentile	26.00%	-0.52	33.91%	-6.25***	17.67%	3.22***
70 to < 80 percentile	28.43%	-1.36	35.92%	-8.44***	26.20%	-1.87*
80 to < 90 percentile	25.23%	-0.66	36.46%	-8.62***	25.92%	-1.58
90 to ≤ 100 percentile	30.02%	-1.86*	36.08%	-7.66***	25.00%	0.00
All	20.37%	-3.13***	33.07%	-33.92***	16.34%	0.26
≥ 95 percentile	30.35%	-1.71*	38.88%	-7.94***	24.26%	0.12
≥ 96 percentile	31.38%	-1.85*	38.37%	-7.71***	24.28%	-0.20
≥ 97 percentile	28.49%	-3.02***	36.44%	-7.28***	24.31%	-0.63
≥ 98 percentile	27.44%	-2.53**	38.10%	-7.27***	25.97%	-2.54**
≥ 99 percentile	22.57%	-1.04	39.71%	-6.87***	23.33%	-1.72*

AUS is for Australia, CAN is for Canada, FRA is for France, GER is for Germany, JPN is for Japan.

t-value is for comparing with US mean.

*** is for $p < 0.01$, ** is for $p < 0.05$, * is for $p < 0.10$

5.7. Regressing effective tax rate on size – foreign country firms

Table 7 shows the results of regressing the effective tax rate on size for firms from each of the six foreign countries. Results indicate a significant and positive association between effective tax rate and size for firms from each of the six countries; i.e., the larger the size, the higher the effective tax rate. Thus, the results are consistent with the fact that there is a progressive tax schedule in the six foreign countries.

Table 7: Regressing effective tax rate on size – foreign firms

	AUS	CAN	FRA	GER	JPN	UK
No.	8726	4433	4258	4584	28696	8299
Intercept	-3.12***	-1.54	20.76***	4.88	25.82***	4.26***
	(0.60)	(3.39)	(2.36)	(3.05)	(1.09)	(1.00)
Size	3.39***	3.43***	0.90**	3.05***	2.04***	2.87***
	(0.15)	(0.52)	(0.40)	(0.55)	(0.28)	(0.21)
Adj. R^2	0.0549	0.0095	0.0009	0.0065	0.0018	0.0229

AUS is for Australia, CAN is for Canada, FRA is for France, GER is for Germany, JPN is for Japan.
Dependent variable is effective tax rate.
Size is the logarithm of total assets.
Standard deviation is in parentheses.
*** is for $p < 0.01$, ** is for $p < 0.05$

5.8. Comparisons of mean effective tax rates between firms in the 99th percentile–individual foreign firms

Table 8 presents the results of comparing the mean effective tax rate of firms in the 99th percentile with those of firms from each of the six foreign countries. The mean effective tax rate of the 99th percentile of Australian firms is significantly higher than that of the other Australian firms. This is also true for Japanese firms and British firms. Thus, the results are consistent with those in Table 7. There seems to have been little or no rent-seeking by Australian, Japanese, and British firms in the 99th percentile. Furthermore, the mean effective tax rate of Canadian, French, and German firms in the 99th percentile does not differ significantly from that of their non-99th-percentile counterparts. Thus, the results are inconsistent with those in Table 7, and there may be rent-seeking. As a result, additional analyses will be completed for Canadian, French, and German firms.

Table 8: Mean effective tax rates – 99th percentile versus other foreign firms

	Group	No	Mean rate	Std. Dev.	t-value
AUS	0	8639	7.99%	0.34	-6.12***
	1	89	25.39%	2.82	
CAN	0	4390	19.87%	1.03	1.37
	1	43	13.95%	4.19	
FRA	0	4216	25.45%	0.92	-1.03
	1	44	38.67%	12.85	
GER	0	4539	20.35%	1.24	-0.49
	1	47	22.57%	4.32	
JPN	0	28410	32.99%	0.45	-2.28***
	1	319	39.71%	2.91	
UK	0	8217	16.27%	0.52	-2.41***
	1	83	23.33%	2.88	

AUS is for Australia, CAN is for Canada, FRA is for France, GER is for Germany, JPN is for Japan.
Group = 1 is for 99th percentile firms, and = 0 is for other firms.
*** is for $p < 0.01$

5.9. Regressing price change on earnings change – Canadian, French, and German firms

Table 9 shows the results of price-change/-earnings-change regressions for Canadian, French, and German firms. There is no significant and positive association between earnings change and price change for 99th percentile German firms, but there is a significant and positive association between earnings change and price change for other German firms. Thus, earnings for German firms in the 99th percentile cannot explain price.

The possible explanation is that earnings from these firms are not acquired productively and are therefore not an explanatory variable of price. Thus, there is evidence that German firms in the 99th percentile engage in rent-seeking.

Table 9: Regressing price change on earnings change – firms from three countries

Group		CAN	FRA	GER
0	No.	4390	4216	4539
	Intercept	0.23***	0.07***	0.08***
		(0.01)	(0.01)	(0.01)
	EC	0.23***	0.23***	0.24***
		(0.03)	(0.02)	(0.01)
	Adj. R^2	0.0182	0.0314	0.0583
1	No.	43	44	47
	Intercept	0.04	-0.01	0.11*
		(0.05)	(0.04)	(0.06)
	EC	1.19*	0.77***	0.29
		(0.65)	(0.20)	(0.22)
	Adj. R^2	0.0526	0.2399	0.0171

CAN is for Canada, FRA is for France, GER is for Germany. Dependent variable (PC) is price change normalized by beginning price per share, and the independent variable (EC) is earnings change normalized by beginning price per share.

Group = 1 is for 99th percentile firms, and = 0 is for other firms.

Standard deviation is in parentheses.

*** is for $p < 0.01$, ** is for $p < 0.05$, * is for $p < 0.10$

There is a significant and positive association between earnings change and price change for the 99th percentile of Canadian firms and other Canadian firms, respectively. This is also true for French firms. Thus, neither the 99th percentile Canadian nor French firms show the same patterns as their US and German counterparts, and are not rent-seekers.

6. Weakness

One of the weaknesses of this paper is that we do not establish a direct relationship between rent-seeking and corporate tax rates, and therefore we assume that large corporations indulge in rent-seeking because of tax abnormalities in the mean corporate tax rates, based on size. But this issue is not unique to this paper, since one of the basic problems with empirical studies on rent-seeking is that it is not directly observable (Katz and Rosenberg, 1989).

There is not enough evidence in this study to determine whether current corporate tax laws are fair. This is a normative question that cannot be answered by only the empirical results of this study. However, anecdotal evidence exists, such as the case of GE, of rent-seeking by large corporations. Furthermore, even though we assume rent-seeking is legal, it would be very difficult, if not impossible, to differentiate between legal and illegal rent-seeking or tax evasion and abusive tax avoidance. However, we assume that all rent-seeking is detrimental to the economy, and thus, for the purposes of this study, it is irrelevant whether or not corporations engage in legal or illegal rent-seeking.

Finally, the significant size difference between foreign corporations and US can distort comparisons between the US and the other six countries. In all cases, the descriptive statistics for foreign corporations are smaller in terms of the mean.

7. Conclusions

Slemrod indicates that corporate tax evasion and tax avoidance concern public policy because they affect the fairness of the distribution of the tax burden as well as the cost of raising these taxes (2012). Not only can taxes have a negative effect on society, but they can also harm the economy (Portillo and Block, 2012) and result in a poorer allocation of resources. The combination of taxes and rent-seeking may also affect an individual's perception of how fairly the US government operates, subsequently affecting taxpayer behavior.

For example, after reading about multi-billion corporations that pay no taxes, small taxpayers may assume they can use any means available, legal or illegal, to avoid paying taxes.

Corporate tax law reforms for corporations have caused heated debate between the political right and left in recent years. The political right and the Obama Administration claim that the US top corporate tax rate of 35 percent is too high and should be lowered to the rates of other developed countries. The political left claims that the corporate tax rate should be raised because large corporations are greedy and pay too little in taxes. At one time, America was below the international average for taxes, but since the 1980s the top marginal tax rates for most countries around the world have dropped, leaving America with one of the highest statutory rates in the world (*The Economist*, 2012).

However, the debate over taxes on US corporations must consider both the statutory rate and the actual taxes paid. Even though high taxes may discourage investment and risk-taking (Brodwin, 2012) and encourage rent-seeking, it may be important to close loopholes and other corporate rent-seeking opportunities. For example, the highest statutory rate for US corporations is 35%.[4] However, in the top 10th percentile, the real tax rate for US companies is 25%, and for the top 99th percentile, the real rate for taxes for US corporations is 16.48%, indicating a major disparity between statutory rate of taxes and the actual rate of taxes paid.

Rent-seekers use at least two strategies to minimize their taxes. The first is to hire former government officials to find deductions and loopholes, and the second is to lobby tax law-writing congressional committee members for favorable tax legislation. To reduce rent-seeking, the government would have to limit fundraising and contributions, which in turn would decrease lobbyists' influence. As Hansen indicates, if one could break the monetary connection between lobbyists and government officials, the primary role of a lobbyist would change from activist to information provider (2012).

After confirming a size difference between foreign firms, and US firms this study tries to answer three descriptive questions. The first question is whether the US means effective corporate tax rate is higher than the foreign mean effective corporate tax rate. Six foreign OECD countries, including Australia, Canada, France, Germany, Japan, and the United Kingdom, were selected for comparison. Results indicate that the mean effective corporate tax rate of US firms is significantly lower than that of the foreign firms as a group.

The second question is whether large corporations in the US and the six foreign countries as a group show rent-seeking. Findings in this study indicate that in the US and in the foreign countries as a group, effective tax rate is significantly and positively associated with size. This result is consistent with the fact that all countries have a progressive corporate tax schedule. Yet the results also show that for the 99th percentile US firms, the mean effective tax rate is not significantly different from other US firms' mean effective tax rate. This suggests thatlarge US corporations have the resources to engage in rent-seeking, and are able to lower their taxes. Rent-seekers try to receive benefits not productively but through political processes. Earnings need not be earned through an increase in productivity, and the prevailing price-earnings association may not be valid for large corporations. This is not true for firms from other countries as a group. Thus, there is no evidence of rent-seeking in the other OECD countries as a group, based on a decrease of effective tax rates for the largest companies.

The third question is whether the price-earnings association is still valid for 99th percentile US firms. Results show no significant and positive price-earnings association for those firms.

Additional analyses are also performed to examine the six foreign countries individually. The results are generally consistent with those found in examining the foreign firms as a group. The notable differences are that the overall mean US corporate effective tax rate is significantly higher than the overall mean Australian corporate effective tax rate, and large German corporations also indicate rent-seeking.

In conclusion, the US could reduce the current top corporate tax rate of 35% to a percentage that is in line with most of the world. However, this new statutory rate would still allow large companies to pay little or no taxes, especially if the tax policies are complex and unnecessarily burdensome on business entities. One may argue that tax rules have become complex in response to the increasingly elaborate tax planning strategies used to avoid paying taxes (Christenson, 2011). The level of tax avoidance in the US is a signal to the government not to abuse its tax raising powers (Dowling, 2014).

More importantly, the US must begin to enact policies to make corporate rent-seeking more difficult while avoiding unnecessarily complex tax laws—not an easy task. Thus, future tax policy must consider the percentage of actual taxes that US corporations actually pay as well as the statutory rate.

Notes

1. Firms within each country are ranked by size.

2. Largest companies are usually established firms having higher profits than small companies. Empirical evidence, not reported here, shows (1) there is a significant and positive association between net income and firm size for each country, and (2) the percentage of net loss firms in the 99th percentile group is much lower than that in other group for each country.

3. After years of establishing associations between earnings and returns, recent studies have indicated a declining association between earnings and returns. See Lim and Park (2011).

4. This is applicable only to federal taxes. If we included state taxes, the statutory rate would most likely be closer to 40%, depending on the state. For simplicity, we elected to ignore the state taxes in this study.

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