

Is It a Level Playing Field? An Analysis of Effective Tax Rates

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This article examines the 2006-2007 effective corporate income tax rates of publicly traded companies around the world. We find that Asia-Pacific companies have among the lowest effective tax rates, and that they are very successful in managing their tax burdens compared with their benchmark worldwide counterparts. In contrast, U.S. firms have among the highest effective tax rates. We also report the top 20 best tax-managed companies.

For all firms, taxes are a significant cash drain. In our analysis, firms pay an average of more than 30 percent of their net income in the form of income taxes. Fortunately, income taxes are a controllable cost. By tax planning, including locating the business in a low-tax country, firms can manage their taxes and stay competitive with their worldwide counterparts. The results of our study are important for policy purposes. Although many governments advertise low statutory tax rates and advantages to locating a new business in their country, low statutory tax rates themselves are only partly indicative of the tax cost of locating in a country. Instead, effective tax rates (ETRs) are more indicative of the true tax costs. Effective rates take into account, for example, differences in the tax base (worldwide versus territorial) and differences in incentives and tax credits. Ours is the first study to document such worldwide effective rates.

The purpose of this study is to test whether Southeast Asian countries, which are widely known for their low statutory tax rates, in fact have low ETRs. Our results find that this is the case. In examining this

theory we also find large differences in effective rates between entire countries and within industries around the world.

Method

We report the ETRs for publicly traded countries around the world. ETRs are calculated by taking the firms' income tax expense and dividing it by their pretax incomes for the year. Our data exclude any firms that report negative accounting earnings; effective rates for such firms would be meaningless. Effective rates can provide a glimpse of how firms and entire countries really stack up against one another.

The traditional measure of an ETR is:

$$\text{ETR} = \text{total taxes paid} / \text{pretax income}$$

Ideally, total taxes paid would be drawn from firms' tax returns. Unfortunately, this type of tax return data is not publicly available, so the traditional proxy for this is total income tax expense, as reported on firms' financial statements. By dividing income tax expense by total income, we control for firm size and allow for meaningful comparisons across firms. That is, a large firm will pay more taxes than a smaller firm, and without dividing by some scale, it would appear that the larger firm has a higher tax burden. But when the larger firm's taxes paid are divided by its larger income, and the smaller firm's taxes paid are divided by its smaller income, we can meaningfully compare the two firms.

The data are drawn from the Standard and Poor's Compustat Global database, which contains the financial statements of all publicly traded firms in the world. To avoid potential year-by-year fluctuations, we report the average of such data from the years 2006-2007.

Table 1 reports, by country of incorporation, top statutory corporate tax rates and effective corporate tax rates for firms on the database by year. Top statutory rates are those effective for 2007. Effective rates are the median rates for all publicly traded companies incorporated (and publicly traded) within that country.¹ Effective rates can give us a clearer picture of the true tax burden faced by a company than statutory tax rates can because ETRs implicitly take into account varying tax concessions given by countries, whether the country uses a worldwide or territorial tax structure, or whether the country has restrictive or liberal rules on income recognition and allowability of deductions (expenses). The number of firms shown in the second column of the table (if fewer than 10) should be interpreted with extreme caution, since the data may simply show unusual fluctuations for a few companies during this time period.

As we might suspect, tax haven countries — the Cayman Islands, Monaco, and Panama — have statutory and effective rates at or under 10 percent. What is surprising is Australian companies' ETRs of 13 percent, when the country's statutory rate is 30 percent. While many countries' ETRs are below the statutory rate, a few have ETRs higher than the statutory rate. This is because the statutory rate only includes the national income tax rate. In contrast, firms' reported ETRs include national, local, and foreign taxes paid. For example, Cayman Islands companies have median ETRs of less than 10 percent, but this comprises solely taxes paid to other countries.

Consistent with our expectations, Pacific Rim Asian countries compare favorably. As noted above, statutory rates are at the national level, and do not include other local or foreign taxes that a firm located in that country might also face. Thus, effective rates can conceivably be higher than statutory rates. The following statutory (and effective) rates apply:

- China: 25 percent (20 percent);
- Hong Kong: 17.5 percent (14 percent);
- Indonesia: 30 percent (31 percent);
- Japan: 30 percent (41 percent);
- Korea: 25 percent (26 percent);

- Malaysia: 27 percent (21 percent);
- the Philippines: 35 percent (17 percent);
- Singapore: 20 percent (17 percent);
- Taiwan: 25 percent (17 percent); and
- Thailand 30 percent (17 percent).

The median statutory rate for these countries is 30 percent. China, Hong Kong, Malaysia, the Philippines, and Taiwan have effective rates much lower than their statutory rates. Thus, these countries must have favorable tax climates. One striking result is the very high effective rates in Japan, at 41 percent.

In comparison, the median statutory rates for other geographic areas are:

- South America: 30 percent;
- Eastern Europe: 35 percent;
- Central America: 30 percent;
- the Near East: 36 percent;
- Africa: 35 percent;
- North America: 31 percent;
- Western Europe: 34 percent; and
- all others (excluding the Caribbean): 36 percent.

The conclusion is that, on average, the Pacific Rim Asian countries offer competitive tax rates.

A policy implication of Table 1 is that firms from different countries but the same industry compete globally, and firms located in lower ETR countries have a clear cost advantage over competitors located in higher ETR countries. Those advantages can, in the long run, be used to undercut their competitors in terms of price, or investing in additional research and development or plant, among other things. To see if there is such a wide variation within industries, we report an analysis by industry in the next section.

How Do ETRs Vary by Industry?

Table 2 reports average ETRs for eight broad industry groups, by country. When there were fewer than five firms in a particular group, the country is not shown, since such a small group may not provide meaningful data.

The pattern that emerges from the data is similar to that in Table 1; Southeast Asian firms — particularly those in Hong Kong — have very low rates for most industries. Another consistent finding is that most industries based in Japan, Germany, the United States, and Italy have very high ETRs. A policy implication is that if these firms compete with each other in the global marketplace, the substantial differences in ETRs by home country appear to give large advantages to some firms, and corresponding large disadvantages to others.

¹Because actual tax return data are not publicly available, we use financial statement data. Some caution should be exercised in the interpretation of the data because of varying accounting standards by country. The data are derived from the Standard and Poor's Compustat Global database.

Table 1. Effective Tax Rates (ETR) and Statutory Tax Rates (STR), 2006-2007 Averages

Country of Incorporation	Number of Firms	ETR (Mean)	ETR (Median)	STR (2007)
Argentina	24	0.3353	0.3252	0.3500*
Australia	1,935	0.1317	0.0219	0.3000
Austria	56	0.2250	0.2363	0.2500
Bangladesh	1	0.1005	0.1005	0.3000*
Belgium	77	0.2467	0.2617	0.3300
Bermuda	400	0.1406	0.1177	0.0000
Brazil	140	0.2750	0.2764	0.3400
Canada	464	0.2336	0.2428	0.2100
Cayman Islands	257	0.1366	0.1022	0.0000
Chile	117	0.1904	0.1766	0.3500
China (P.R.C.)	2,052	0.2030	0.1762	0.2500
Colombia	8	0.2720	0.2701	0.3400
Croatia	1	0.2073	0.2073	0.2500*
Cyprus	2	0.1148	0.1148	0.1000*
Czech Republic	6	0.2892	0.2629	0.2400
Denmark	132	0.2254	0.2487	0.2650
Egypt	5	0.1429	0.2145	0.4000
Estonia	2	0.1682	0.1682	0.2200*
Finland	145	0.2413	0.2589	0.2600
France	471	0.2942	0.3179	0.3443
Germany	470	0.2730	0.2952	0.2500
Greece	84	0.2760	0.2814	0.2700
Hong Kong	136	0.1398	0.1250	0.1750
Hungary	14	0.1259	0.1112	0.1600
Iceland	3	0.1607	0.0587	0.1800
India	240	0.2587	0.2798	0.3000
Indonesia	173	0.3157	0.3003	0.3000
Ireland	61	0.1543	0.1558	0.1250
Iran	31	0.2372	0.2380	0.2700
Italy	213	0.3986	0.3925	0.3300
Japan	3,438	0.4185	0.41223	0.3000
Korea (R.O.K.)	206	0.2639	0.2731	0.2500
Lithuania	1	0.1672	0.1672	0.1500*
Luxembourg	25	0.2182	0.1858	0.2200
Malaysia	746	0.2123	0.2062	0.2700
Malta	1	0.0677	0.0677	0.3500*
Mexico	69	0.2814	0.2852	0.2850

Table 1. Effective Tax Rates (ETR) and Statutory Tax Rates (STR), 2006-2007 Averages (continued)

Country of Incorporation	Number of Firms	ETR (Mean)	ETR (Median)	STR (2007)
Monaco	2	0.0693	0.0693	0.3333*
Morocco	6	0.3059	0.3213	0.3500*
Netherlands	137	0.2323	0.2469	0.2755
Netherlands Antilles	3	0.2687	0.2404	0.3450*
New Zealand	110	0.2637	0.3155	0.3300
Norway	120	0.2497	0.2514	0.2800
Pakistan	57	0.2627	0.2729	0.3500
Panama	4	0.0658	0.0359	0.3000*
Paraguay	1	0.0000	0.0000	0.1000*
Peru	29	0.2923	0.2950	0.3000
Philippines	85	0.1775	0.1404	0.3500
Poland	21	0.1879	0.1943	0.1900
Portugal	31	0.1741	0.1969	0.2500
Romania	1	0.1024	0.1024	0.1600*
Russian Federation	20	0.3332	0.3050	0.2400
Saudi Arabia	3	0.0338	0.0329	0.2000*
Singapore	570	0.1775	0.1596	0.2000
Slovakia	1	0.2017	0.2017	0.1900
Slovenia	5	0.1601	0.1761	0.2200*
South Africa	225	0.2704	0.2978	0.2900
Spain	162	0.2398	0.2663	0.3375
Sri Lanka	4	0.1940	0.1666	0.3500*
Sweden	261	0.2348	0.2707	0.2800
Switzerland	204	0.2142	0.2107	0.0850
Taiwan (R.O.C.)	894	0.1791	0.1716	0.2500
Thailand	472	0.1748	0.1936	0.3000
Turkey	30	0.2151	0.1862	0.2000
United Arab Emirates	4	0.2417	0.2088	0.0000*
United Kingdom	1,457	0.2113	0.2450	0.3000*
United States	3,268	0.2946	0.3349	0.3500
Venezuela	6	0.3144	0.2624	0.3400
Virgin Islands	3	0.1750	0.1528	0.2000
Zimbabwe	2	0.2302	0.2302	0.3500*
Total	20,419	0.2562	0.2695	

(*) 2006

Data Source: Standard and Poor's Compustat Global database.

Table 2. Average Effective Tax Rates (ETR) by Industry and Country, 2006-2007

Country	Unclassified Industry	Agriculture/ Mining/ Chemical/ Steel	Automobile/ Retail/Service	Food/ Beverage/ Tobacco/ Healthcare/ Pharmaceutical	Oil and Gas	Finance/ Insurance/ Real Estate	Construction and Engineering/ Machinery/ Nonfinancial Services	IT Services/ Semiconduc- tors/Electronic Equipment and Instruments/ Computer Hardware, Software	Professional Services
Argentina			0.3116	0.3786	0.3770	0.4005			
Australia	0.1911	0.0713	0.1413	0.1439	0.2025	0.2091	0.1970	0.2246	0.1445
Austria	0.4263	0.1755	0.2173	0.2118	0.2111	0.3073		0.1128	
Bangladesh			0.1005						
Belgium	0.3152	0.1918	0.2441	0.2419	0.1849	0.2718		0.3590	
Bermuda	0.0977	0.1224		0.1503	0.1565	0.1362	0.1912	0.2850	0.0761
Brazil	0.3325	0.2590	0.2853	0.2595	0.2974	0.1897			0.0000
British Virgin Islands		0.1434	0.2381						
Canada	0.2314	0.2296	0.2130	0.2306	0.2368	0.3314	0.2176	0.2965	0.0000
Cayman Islands	0.0996	0.1444	0.1361	0.1485	0.1030	0.1751		0.1643	0.0804
Chile	0.1598	0.1731	0.2242	0.1595	0.2104	0.1484		0.1937	0.0879
China (P.R.C.)	0.1752	0.2425	0.2122	0.1782	0.2128	0.3083	0.3204	0.2435	0.2521
Colombia			0.4132	0.2627	0.1862	0.1894			
Croatia			0.2073			N/A			
Cyprus				0.1282	0.1014				
Czech Republic			0.3640		0.2518				
Denmark	0.2802	0.1772	0.2218	0.2562	0.1833	0.2663		0.0297	0.0453
Egypt			0.0195	0.2385	0.2185				
Estonia			0.1682						
Finland	0.2907	0.2547	0.2024	0.2419	0.2300	0.2848		0.2391	
France	0.2807	0.2981	0.2918	0.2960	0.2785	0.3089	0.3227	0.3612	0.0459
Gabonese Republic		0.5093							
Germany	0.2381	0.2863	0.2644	0.2996	0.2663	0.2657		0.2747	0.2389
Gibraltar	0.1562								
Greece	0.2157	0.2958	0.2730	0.2630	0.2445	0.3063		0.4719	
Hong Kong	0.0878	0.2758	0.1448	0.1287	0.1495	0.1211	0.2703	0.0566	0.1365

Table 2. Average Effective Tax Rates (ETR) by Industry and Country, 2006-2007 (continued)

Country	Unclassified Industry	Agriculture/ Mining/ Chemical/ Steel	Automobile/ Retail/Service	Food/ Beverage/ Tobacco/ Healthcare/ Pharmaceutical	Oil and Gas	Finance/ Insurance/ Real Estate	Construction and Engineering/ Machinery/ Nonfinancial Services	IT Services/ Semiconduc- tors/Electronic Equipment and Instruments/ Computer Hardware, Software	Professional Services
Hungary	0.1827		0.0503	0.1867	0.2405				
Iceland			0.2117	0.0587					
India	0.1866	0.3259	0.2501	0.2868	0.2961	0.3754		0.1896	0.2281
Indonesia	0.3072	0.2915	0.3427	0.3265	0.2677	0.2746	0.7522		
Iran	0.1329		0.3111	0.2188	0.2883	0.2599			0.3140
Ireland	0.2370	0.0584	0.1502	0.1951	0.1163	0.1804		0.2355	0.1279
Italy	0.5334	0.4117	0.4109	0.3721	0.3342	0.4742			0.2077
Japan	0.4222	0.4129	0.4175	0.3949	0.4146	0.4438	0.4808	0.4649	0.3279
Jordan			0.2468						
Korea (R.O.K.)	0.2666	0.3450	0.2773	0.2580	0.2191	0.3159		0.1397	0.2350
Lithuania					0.1672				
Luxembourg	0.2587	0.4036	0.2264	0.2119	0.2172				0.0009
Malaysia	0.2066	0.3132	0.1940	0.1958	0.1696	0.2374	0.2107	0.2591	0.2606
Malta	0.0677								
Mexico	0.4746	0.2200	0.2805	0.2358	0.3167	0.2703		0.7044	0.2440
Monaco	0.0000	0.1386							
Morocco			0.2485	0.3079	0.3315				
Myanmar					0.0291				
Netherlands	0.2669	0.2531	0.2257	0.2421	0.2146	0.1935		0.2305	
Netherlands Antilles		0.2295		0.3471					
New Zealand	0.1867	0.0519	0.2483	0.2661	0.2986	0.3018		0.2047	
Norway	0.2048	0.2504	0.2400	0.3144	0.1716	0.2778		0.1928	0.4673
Pakistan	0.1051	0.3940	0.2614	0.2772	0.2297	0.3242			
Panama				0.1198	0.0117				
Papua New Guinea		0.3036							
Peru		0.2152	0.2465	0.3594	0.3569	0.3212			

Table 2. Average Effective Tax Rates (ETR) by Industry and Country, 2006-2007 (continued)

Country	Unclassified Industry	Agriculture/ Mining/ Chemical/ Steel	Automobile/ Retail/Service	Food/ Beverage/ Tobacco/ Healthcare/ Pharmaceutical	Oil and Gas	Finance/ Insurance/ Real Estate	Construction and Engineering/ Machinery/ Nonfinancial Services	IT Services/ Semiconduc- tors/Electronic Equipment and Instruments/ Computer Hardware, Software	Professional Services
Philippines	0.1113	0.1331	0.2088	0.1629	0.2295	0.2706		0.1135	0.1074
Poland	0.0996	0.2843	0.1980	0.1798	0.2002	0.0886		0.1943	
Portugal	0.0078	0.2917	0.1699	0.2245	0.1920	0.1550			
Romania		0.1024							
Russian Federation		0.2752	0.2702	0.3013	0.3832				
Saudi Arabia			0.0377		0.0261				
Singapore	0.1645	0.2473	0.1919	0.1601	0.1316	0.2047	0.0522	0.1741	0.1314
Slovakia			0.2017						
Slovenia			0.2465		0.0995	0.1776			
South Africa	0.2513	0.2337	0.2604	0.2995	0.2738	0.3003	0.7143	0.2313	0.2533
Spain	0.2575	0.2330	0.2187	0.2693	0.2451	0.2827	0.2946	0.1871	
Sri Lanka			0.1556		0.1201	0.3228			0.1776
Sweden	0.1933	0.3066	0.2271	0.2543	0.2359	0.2553	0.1445	0.1962	0.0998
Switzerland	0.1769	0.3592	0.1973	0.2243	0.2227	0.1811		0.3206	0.2109
Taiwan (R.O.C.)	0.1707	0.1435	0.1705	0.1775	0.1835	0.2159	0.1018	0.2003	
Thailand	0.2667	0.1968	0.1503	0.1357	0.2200	0.2019		0.2237	0.0000
Turkey		0.0721	0.3038	0.1895	0.1764	0.2647			0.1917
United Arab Emirates		0.2021			0.2813				
United Kingdom	0.1974	0.1881	0.2058	0.2085	0.2077	0.2575	0.1959	0.2588	0.0374
United States	0.2937	0.3023	0.2731	0.2727	0.3311	0.3330	0.2801	0.3254	0.2035
Venezuela			0.0155	0.2891	0.4309				
Zimbabwe			0.3262			0.1341			

Data Source: Standard and Poor's Global Compustat database.

Notes: Blank cells indicate the averages were omitted because there were fewer than five firms in the group.

"N/A" indicates there were no firms in the group.

Table 3. Lowest-Taxed Companies, 2006-2007

No.	2006		2007	
	Company	Country of Incorporation	Company	Country of Incorporation
1	Pmi-Pan Malaysian Inds Bhd	Malta	Kantone Hldgs Ltd	Cayman Islands
2	XM Satellite Radio Hldgs Inc	United States	Kwv Beleggings Beperk	South Africa
3	Giga Storage Corp	Taiwan (R.O.C.)	Star Reefers Inc	Cayman Islands
4	Chung Fu Chen Yeh Enterprise	Taiwan (R.O.C.)	Anhui Feiya Textil Dev Co	China (P.R.C.)
5	Zhonghe Co Ltd	China (P.R.C.)	Silver Wheaton Corp	Canada
6	Grupo Iusacell SA	Mexico	The Quaypoint Corp Ltd	Cayman Islands
7	Afgem Ltd	South Africa	Integrated Silicon Solution	United States
8	Champion Technology Holdings	Cayman Islands	Compass East Ind (Thailand)	Thailand
9	Yunshin Construction	Taiwan (R.O.C.)	Chaoda Modern Agriculture	Cayman Islands
10	Kee Tai Properties	Taiwan (R.O.C.)	Cangzhou Chemical Industry	China (P.R.C.)
11	Tang Eng Iron Works Co Ltd	Taiwan (R.O.C.)	Argus Solutions Ltd	Australia
12	Kwv Beleggings Beperk	South Africa	Shandong Jintai Group Co Ltd	China (P.R.C.)
13	Frontline Ltd	Bermuda	Oxonica Plc	United Kingdom
14	Chaoda Modern Agriculture	Cayman Islands	Liang Huat Aluminium Ltd	Singapore
15	Shandong Jinan Dept Store	China (P.R.C.)	Elektrobit Oyj	Finland
16	Jiugui Liquor Co Ltd	China (P.R.C.)	Yunnan Malong Ind Group	China (P.R.C.)
17	Kantone Hldgs Ltd	Cayman Islands	Frontline Ltd	Bermuda
18	Gansu Languang Sci & Tech	China (P.R.C.)	Ballard Power Systems Inc	Canada
19	Ch Offshore Ltd	Singapore	Coal International Plc	United Kingdom
20	Fujian Star Cmp Gp Co Ltd	China (P.R.C.)	Infocus Corp	United States

Data Source: Standard and Poor's Global Compustat database.

Which Firms Have the Lowest Taxes?

Table 3 reports the top 20 firms worldwide with the lowest ETRs from 2006-2007. All firms have effective rates of approximately 0 percent or even slightly lower (that is, tax refunds). All firms have positive financial accounting income. The list is in order; the top listed firm has the lowest effective rate. Industry numbers are consistent with those shown in previous tables. Note that all of these firms report positive financial income, so their zero rate is not simply a result of being unprofitable. The results show that the list is dominated by Asia-Pacific companies and tax haven countries (Bermuda and the Cayman Islands).

Conclusion and Policy Implications

Asia-Pacific countries operate in favorable tax climates. This conclusion is upheld at both the national and subnational (industry) level. It may be that such favorable tax rates are one factor accounting for these countries' international competitiveness.

The policy implications of our findings are as follows:

- The finding that Southeast Asian countries have the lowest ETRs confirms the popular belief that these countries offer favorable tax climates. In contrast, our evidence also reveals that other

countries in the region (for example, Japan) have highly unfavorable tax climates. Over time, this cost advantage for firms located in low ETR countries can be used for undercutting competitors in terms of prices and investing in additional R&D and plant, giving them a competitive advantage.

- Within-industry variations in ETRs indicate a similar advantage for Southeast Asian countries,

although this advantage does not hold for all industries. In a global marketplace, such differences give an advantage to these industries.

Of course, the comparative advantage of any country includes many factors other than tax structures so the results of this study should not be generalized beyond tax issues. ◆