Cross-Jurisdictional Income Shifting and Earnings Valuation

JULIE COLLINS,* DEEN KEMSLEY,† AND MARK LANG* 

1. Introduction

This research investigates the extent to which U.S. multinational enterprises (MNEs) engage in tax-motivated income shifting between the U.S. and foreign jurisdictions and whether investors differentially capitalize shifted income, based on its true source or its reported source. We find evidence that U.S. MNEs facing foreign tax rates that on average exceed the U.S. statutory tax rate shift taxable income into the United States, and that investors recognize firms’ income-shifting patterns when valuing the foreign versus domestic components of reported earnings.

We examine U.S. multinational manufacturing companies from 1984 to 1992 to determine the cross-sectional relation between firm-level foreign profit margins and average foreign tax rates. If U.S. MNEs respond to high (low) foreign tax rates by shifting income into (out of) the United States, then ceteris paribus we expect a negative relation between foreign profit margins and average foreign tax rates. In addition,

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as discussed further in section 2.1, we expect this negative relation to be stronger for U.S. MNEs with high foreign tax rates. However, numerous other factors may dampen the response to income-shifting tax incentives, including tax rule restrictions and the interdependence of financial, operational, and tax decisions. The tax penalties and/or nontax costs associated with income shifting may dominate the tax benefits, so the extent of actual shifting is an empirical issue.\(^1\)

We find U.S. MNEs facing average foreign tax rates in excess of the U.S. tax rate exhibit stronger evidence of tax-motivated income shifting than other U.S. MNEs. These companies appear to shift approximately $25–30 million of income per company to the United States each year, depending on the estimation model. Aggregated over all sample observations from 1984 to 1992, this translates to a total transfer of approximately $34–40 billion of income to the United States. Results are robust to a variety of sensitivity tests, and there is significant evidence of income shifting into the United States for all sample years and for most industries we study.

We assess the valuation effects of income shifting for firms that shift income into the United States (i.e., firms facing average foreign tax rates in excess of the U.S. tax rate, reporting relatively low foreign profit margins and, by implication, reporting a portion of their foreign earnings as domestic earnings). We predict that if unshifted domestic and foreign income are priced differently and if investors recognize that a portion of foreign income is being reported as domestic income, the multiple assigned to reported domestic earnings will reflect that these earnings are a mix of foreign and domestic source income.\(^2\) Our results are consistent with this prediction, suggesting investors recognize the effects of income shifting in their valuations. The findings are robust to a wide range of sensitivity tests and are consistent across years and industries.

We address the income-shifting and valuation issues together because evidence on each issue is informative about the other. The valuation effects of tax-motivated shifting cannot be ferreted out until we establish the nature of U.S. MNEs’ shifting patterns (i.e., which firms, if any, are shifting income and in which direction). Similarly, presuming market efficiency, the subsequent valuation tests are joint tests of our identification of tax-motivated income shifting and the valuation implications. They provide a validity check on our investigation of tax-motivated shifting and potentially offer a new approach for identifying income shifting.

Our findings have potential implications for tax policymakers, accounting standard setters, investors, and managers. Tax policymakers often

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\(^1\) Shackelford [1993] discusses why U.S. MNEs may not respond to income-shifting tax incentives.

\(^2\) We also assume that the market does not value income differently because it has been shifted. For example, if the market views shifted income as being at risk for detection and future additional taxes or penalties, it would assign a lower valuation multiple. Our empirical results are consistent with our assumption.
debate the size of the tax revenue drain created by cross-jurisdictional income shifting and discuss possible responses. In 1994, for example, Representative Gephardt and Senator Dorgan proposed unsuccessful legislation to limit income shifting by U.S. MNEs and foreign-controlled corporations operating in the United States (The Foreign Tax Compliance Act of 1994, H.R. 4860; S. 2342). In addition, congressional debates during 1995 included calls by Senator Dorgan and others to curtail income shifting by abandoning current arm's length methods of allocating income among tax jurisdictions in favor of formulary apportionment methods (Tax Analysts [1995]). However, the evidence presented in this paper suggests there is no necessary increase in net tax revenues from constraining the opportunities of U.S. MNEs to shift income. Because of foreign tax credit limitations, incentives to shift income to the United States for U.S. MNEs facing higher foreign tax rates are stronger than corresponding incentives to shift income out of the United States for U.S. MNEs facing lower foreign tax rates. Consistent with those incentives, the results indicate that significant income is shifted into the United States by our sample firms, and there is little evidence of shifting out of the United States. As a result, proposals from any source to limit U.S. MNEs' abilities to shift income could result in a substantial loss of U.S. tax revenue. Of course, our research provides only partial evidence on the overall net tax revenue consequences of such proposals because it does not consider the effects on tax collected from foreign-controlled U.S. corporations.

Our findings also are relevant because we propose and implement a test that can be used to detect shifted income. This is the first study to use market value tests to identify income shifting. Since shifted income is unobservable and can be measured only indirectly, tax policymakers are interested in additional techniques to bolster indirect identification of income shifting.

The results also are of potential interest to managers and investors interested in determining whether the "misclassification" of earnings for tax purposes also results in "misclassification" for valuation purposes. If so, managers' incentives to misclassify or shift income for tax purposes

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3 Consistent with our findings, Japan recently demanded back taxes from multinationals domiciled in the United States and elsewhere, claiming the domestic units of these companies charged artificially high prices to their Japanese units to purposefully understate their Japanese profits and avoid high Japanese corporate taxes (Wall Street Journal [October 12, 1994]: A12).

could be reinforced or countered by the valuation incentives. If the market attaches PIE multiples to earnings in accordance with their reported, rather than true, geographic sources, managers have incentives to report earnings in the jurisdiction where the highest multiple will be attached. Our evidence indicating markets appear to factor in the true geographic income source in valuing shifted income suggests that managers’ tax-motivated shifting behavior is not necessarily driven by valuation incentives.

The next two sections provide background for and specification of our income-shifting tests followed by the results of those tests. Sections 4 and 5 provide the specification and results of our earnings valuation tests. The paper concludes with a summary.

2. Income-Shifting Tests

The extant research into cross-jurisdictional income shifting is inconclusive. Harris et al. [1993] examine 95 U.S. MNEs from 1984 to 1988 and find that U.S. tax liabilities, as a fraction of U.S. sales or assets, are lower for firms with a legal presence in a tax-haven country. Jacob [1996] documents that U.S. MNEs with more international intrafirm sales paid lower global taxes in 1982–84 and 1988–90, lower U.S. taxes in 1982–84, and higher U.S. taxes in 1988–90. While these general relations are consistent with income shifting, data constraints prevent more detailed analyses or broader-sample inference.5

Harris [1993] and Klassen, Lang, and Wolfson [1993] examine large samples of U.S. MNEs to determine whether these firms shifted income into the United States following the Tax Reform Act of 1986. Harris finds that U.S. MNEs paid more U.S. taxes and reported more U.S. income than U.S. domestics from 1987–90 and reported less foreign income than foreign companies in 1987 and 1988. However, Harris is unable to reject that these differences reflect performance differences during this period. Similarly, Klassen, Lang, and Wolfson find evidence of U.S. MNEs shifting income into the United States in 1987, as expected, but also find evidence of income shifting out of the United States in 1988.

Harris [1993] and Klassen, Lang, and Wolfson [1993] compare U.S. MNEs to control samples and examine only a limited time period, during which tax rates and other variables were changing worldwide. In contrast, our time period is 1984 to 1992, and because we measure firm-specific

5 In addition, country-level studies suggest cross-jurisdictional income shifting. Grubert and Mutti [1994] and Hines and Rice [1994] analyze 1982 reported income of U.S. MNEs’ foreign affiliates aggregated at the country-level and document a negative relation between country total affiliate profitability and tax rates. Their results are consistent with income shifting between foreign affiliates or between the U.S. and foreign affiliates. However, because their data are aggregated across all foreign subsidiaries in a given country, they cannot control for differences in sample composition across countries or exploit firm-specific tax incentives.
income-shifting incentives, we examine U.S. MNEs relative to one another (rather than separate control samples).

2.1 FIRM-SPECIFIC INCOME-SHIFTING INCENTIVES

The United States taxes all income of U.S. companies (regardless of where earned). With some exceptions, foreign-source income is taxed on repatriation to the United States at the U.S. rate, subject to a credit for foreign taxes paid. However, the credit is limited to the amount of U.S. taxes which would have been owed on the income had it been U.S. source (i.e., the United States will not refund foreign taxes paid in excess of the U.S. rate).

As a result, U.S. MNEs facing foreign tax rates that on average exceed the U.S. rate (i.e., $t_F > t_{US}$) likely face binding foreign tax credit limitations and, hence, do not receive full U.S. credit for their foreign tax payments.$^6$ In such cases, a marginal dollar of earnings is taxed once and at the tax rate of the jurisdiction where it is initially reported. Thus, companies with binding foreign tax credits have an incentive, increasing in the difference between marginal foreign and U.S. rates, to shift high-taxed foreign income to the United States.

On the other hand, U.S. MNEs with a U.S. rate in excess of their average foreign tax rate ($t_{US} > t_F$) likely face nonbinding foreign tax credit limitations. While a marginal dollar of earnings is taxed initially in the jurisdiction where it is reported, when the after-tax dollar is repatriated to the United States, the total tax is equal to the U.S. rate: $t_F$ is owed in the foreign jurisdiction, and $(t_{US} - t_F)$ is owed in the United States. Shifting U.S. income to low-tax foreign jurisdictions thus results only in deferral, not permanent savings.

The benefit of shifting income out of the United States depends on the length of the deferral period and the costs of deferring repatriation (e.g., investing the earnings in substandard projects while having to raise external capital in other jurisdictions). Feldstein [1994] reports that MNEs repatriate approximately 70% of their foreign earnings after TRA 86, suggesting a limited tendency to exploit lower foreign tax rates through deferral. Because repatriation policies are unobservable via public data, we cannot measure the magnitude of the income-shifting incentive for firms with nonbinding foreign tax credit positions.$^7$ However, we can conclude that the shifting incentive for nonbinding firms is less than that for binding firms; therefore (and also because of the potential offsetting

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$^6$ The foreign tax credit limitation is computed based on baskets of similar income (e.g., manufacturing, shipping, etc.). As with previous research, we are unable to obtain data by basket and, therefore, treat all income as though it pertains to the same basket. To the extent that firms earn foreign income in multiple baskets, our data will be noisy (particularly with respect to identifying firms with binding foreign tax credit positions) and our tests weaker.

$^7$ Although some companies indicate in the income tax note that the tax provision does not include permanently reinvested earnings, this information is not reported consistently or in any detail. Thus, we do not incorporate repatriation measures into our tests.
effect of implicit taxes discussed later), we focus on the difference in shifting behavior between binding and nonbinding firms.\footnote{8}{The tax disincentives to shift income between the U.S. and foreign jurisdictions (e.g., tax rule restriction barriers) also likely vary for companies in binding versus nonbinding foreign tax credit positions. Because the United States is particularly aggressive in enforcing transfer pricing rules, the tax barriers to shifting income out of the United States for nonbinding companies may be stronger than the tax barriers to shifting income out of foreign jurisdictions for binding companies.}

### 2.2 DIRECT INCOME-SHIFTING TESTS

Consistent with prior research, our proxy for income shifting is foreign pretax income divided by foreign sales (FINC/FSALE), after controlling for other observable factors likely affecting foreign profitability (i.e., worldwide profitability, industry, and year).\footnote{9}{We also examine pretax domestic income scaled by domestic sales (controlling for pretax worldwide income scaled by worldwide sales, industry, and year) and pretax foreign income scaled by foreign assets (controlling for pretax worldwide income scaled by worldwide assets, industry, and year). Results based on these proxies, discussed in section 3, corroborate our primary findings.} Foreign profit margins proxy for income shifting because, for example, intracompany transfer prices that shift income away from (into) foreign countries result in low (high) reported foreign profit margins. To control for cross-sectional variation in firms' overall profitability, which likely creates non-tax-related variation in foreign profit margins, we include worldwide pretax income divided by worldwide sales (WWINC/WWSALE) as an explanatory variable. This worldwide (consolidated) profit margin reflects the weighted sum of unmanaged foreign and domestic profit margins and thus is not contaminated by cross-jurisdictional income shifting.\footnote{10}{Although WWINC and WWSALE include FINC and FSALE, we know of no reason to expect that relation to affect the coefficients on the variables of interest in this study. As an alternative, we regressed pretax foreign profit margins on pretax domestic profit margins, rather than pretax worldwide profit margins. A disadvantage of this approach is that pretax domestic profit margins are endogenous to income shifting, and any measurement error in pretax foreign profit margins is negatively related to the measurement error in pretax domestic profit margins. We also included the control variable as a component of the independent variable, e.g., foreign pretax profit margin less domestic pretax profit margin. This approach essentially forces the control variable coefficient to one and potentially weakens our tests. Our conclusions are insensitive to these alternatives.} In addition, we include two-digit manufacturing industry codes (IND) and year (YEAR) as explanatory variables to control for industry and time effects.

We measure the incentive to shift income between the United States and foreign jurisdictions as the firm-specific average foreign tax rate less the U.S. statutory tax rate (FTR). The average foreign tax rate equals total current plus deferred foreign taxes divided by total foreign pretax income.\footnote{11}{U.S. MNEs likely operate in multiple foreign jurisdictions. The average foreign tax rate is the weighted average of multiple (unobservable) foreign tax rates and includes all foreign income taxes (e.g., provincial and local). The use of average tax rates is consistent with...} We focus on the difference in the relation between FINC/FSALE and WWINC/WWSALE as proxies for income shifting.
INCOME SHIFTING AND EARNINGS VALUATION

FSALE and FTR for companies in binding and nonbinding foreign tax credit positions (FTCBIND and NONBIND). A company is presumed in a binding (nonbinding) position if FTR is greater than (less than or equal to) zero.

Using financial statement data obtained from Compustat, we estimate the following:

\[
FINCI/FSALE_{i,t} = \beta_0 + \beta_1 WWINC/WWSALE_{i,t} + \beta_2 FTCBIND_{i,t} + \beta_3 NONBIND_{i,t} \times FTR_{i,t} + \beta_4 FTCBIND_{i,t} \times FTR_{i,t} + \sum_{k} \beta_{5k} IND_{i,t} + \sum \beta_{6i} YEAR_{i,t} + \varepsilon_{i,t}
\]

where:

- \(FINCI/FSALE_{i,t}\) = foreign pretax income divided by foreign sales;
- \(WWINC/WWSALE_{i,t}\) = worldwide pretax income divided by worldwide sales;
- \(FTR_{i,t}\) = average foreign tax rate less the U.S. statutory tax rate;
- \(FTCBIND_{i,t}\) = a dummy variable equal to one if FTR is greater than zero, and zero otherwise;
- \(NONBIND_{i,t}\) = a dummy variable equal to one if FTR is less than or equal to zero, and zero otherwise;
- \(IND_{i,t}\) = a vector of industry dummy variables corresponding to two-digit SIC codes within the manufacturing sector; and
- \(YEAR_{i,t}\) = a vector of year dummy variables from 1984 to 1992.

The subscripts \(i, t,\) and \(k\) refer to company, year, and industry, respectively.

Absent shifting, implicit taxes would create a positive relation between FTR and FINCI/FSALE. Ceteris paribus, countries with low pretax rates of return (e.g., due to higher nontax costs of operation) will offer lower tax rates to attract investment. Similarly, countries with high pretax rates of return and low taxes will attract increased competition, driving down pretax margins. Therefore, firms in countries with low explicit tax rates will tend to face higher implicit taxes (i.e., lower pretax rates of return)

the fact that the foreign tax credit limitation is based on aggregate foreign taxes paid rather than on a country-by-country comparison and the credit includes all foreign income taxes. We subtract the U.S. statutory tax rate because we examine a pooled sample of companies from 1984 to 1992 when the U.S. statutory tax rate varied from 46% to 34%. We subtract the U.S. statutory tax rate rather than the U.S. effective tax rate because U.S. taxes are tainted by the inclusion of any taxes paid on repatriated foreign earnings. Results are not sensitive to alternative specifications of FTR, including replacing the U.S. statutory tax rate with the U.S. effective tax rate, substituting zero as the U.S. rate for firms with U.S. NOLs, dropping deferred foreign taxes from the numerator, or replacing foreign pretax book income with estimated foreign taxable income (as in Klassen, Lang, and Wolfson [1993]).
which equalize the after-tax rates of return (Scholes and Wolfson [1992, pp. 256–60]).

In the absence of implicit taxes, we expect tax-motivated income shifting to result in a negative relation between foreign profit margins and average foreign tax rates. We cannot offer explicit predictions for the signs of the $FTCBIND \times FTR$ and $NONBIND \times FTR$ coefficients; they will be positive if implicit taxes dominate and negative if income shifting dominates. However, since the income-shifting incentive is stronger for binding foreign tax credit firms than nonbinding firms, we predict the $FTCBIND \times FTR$ coefficient will be less than the $NONBIND \times FTR$ coefficient. Further, a negative coefficient on either variable is consistent with tax-motivated income shifting of sufficient magnitude to dominate the effects of implicit taxes. If either coefficient is positive, we can infer only that income shifting does not dominate the effects of implicit taxes.

2.3 Sample Description

We estimate equation (1) as a pooled regression for all U.S. manufacturing firms (SIC 2000–3999) with foreign sales, pretax earnings, and tax information available in the Compustat database during the period 1984 to 1992. The manufacturing sector encompasses the vast majority of U.S. MNEs with foreign geographic segments. Excluding firms in other sectors eliminates the possible impact of inter-sector factors that affect foreign pretax profit margins. We also exclude observations with negative pretax domestic or foreign income or with $FTR$ values less than $-1$ or greater than 1, since these observations make it difficult to interpret our constructed variables and potentially confound our predicted relations.

Our full sample consists of 577 manufacturing companies and 2,517 company-years from 1984 to 1992. Descriptive statistics are provided in table 1 for the full sample and by binding and nonbinding foreign tax credit positions. Consistent with the decrease in U.S. statutory tax rates and other foreign tax credit-related provisions enacted in TRA 1986, the annual percentage of companies classified as having binding foreign tax credit positions ranges from 33–37% in 1984–86 and 50–65% in 1987–92. Mean $FINC/SALE$ for the binding foreign tax credit company-years is 10.3% versus 12.3% for nonbinding foreign tax credit company-years, a difference that is statistically significant at conventional levels. These data provide preliminary support for our prediction of lower pretax foreign profit margins for firms in binding foreign tax credit positions.

The mean average foreign tax rate of binding (nonbinding) foreign tax credit company-years is 16% greater (15% less) than the U.S. tax rate. The worldwide profit margins are just over 10% for both groups and the difference between groups is not statistically significant. Foreign sales are a substantial and comparable portion of total sales (on average, 31–32%) for both groups of company-years. Firm size is significantly differ-
TABLE 1
Descriptive Statistics for Direct Income-Shifting Tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Full Sample</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINCFISCALn</td>
<td>0.112</td>
<td>0.096</td>
<td>0.000–0.775</td>
</tr>
<tr>
<td>FTRn</td>
<td>0.018</td>
<td>0.009</td>
<td>−1.000–1.000</td>
</tr>
<tr>
<td>WWINCFWWSALEn</td>
<td>0.103</td>
<td>0.089</td>
<td>0.000–0.688</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>3,225</td>
<td>574</td>
<td>5–192,876</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>3,126</td>
<td>699</td>
<td>7–124,993</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>988</td>
<td>157</td>
<td>0.1–35,879</td>
</tr>
<tr>
<td>Panel B: Binding FTC Positions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINCFISCALn</td>
<td>0.103</td>
<td>0.091</td>
<td>0.000–0.775</td>
</tr>
<tr>
<td>FTRn</td>
<td>0.163</td>
<td>0.089</td>
<td>0.000–1.000</td>
</tr>
<tr>
<td>WWINCFWWSALEn</td>
<td>0.102</td>
<td>0.089</td>
<td>0.000–0.377</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>3,593</td>
<td>710</td>
<td>5–173,662</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>3,429</td>
<td>860</td>
<td>8–124,993</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>1,089</td>
<td>224</td>
<td>1–35,879</td>
</tr>
<tr>
<td>Panel C: Nonbinding FTC Positions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINCFISCALn</td>
<td>0.123</td>
<td>0.105</td>
<td>0.001–0.752</td>
</tr>
<tr>
<td>FTRn</td>
<td>−0.146</td>
<td>−0.100</td>
<td>−1.000–0.000</td>
</tr>
<tr>
<td>WWINCFWWSALEn</td>
<td>0.104</td>
<td>0.090</td>
<td>0.002–0.688</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>2,808</td>
<td>417</td>
<td>5–192,876</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>2,781</td>
<td>528</td>
<td>7–121,816</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>872</td>
<td>114</td>
<td>0–29,763</td>
</tr>
</tbody>
</table>

The full sample consists of 2,517 manufacturing company-years from 1984–92. FINCFISCALn is foreign pretax income divided by foreign sales. FTRn is the effective foreign tax rate minus the statutory U.S. tax rate. The effective foreign tax rate is current plus deferred foreign taxes divided by foreign pretax income. WWINCFWWSALEn is worldwide net income before taxes divided by worldwide sales. A company is considered in a binding (nonbinding) foreign tax credit (FTC) position if the effective foreign tax rate is greater than (less than or equal to) the U.S. statutory rate (i.e., if FTR is greater than [less than or equal to] zero). One thousand three hundred thirty-nine company-years are classified as binding and 1,178 as nonbinding. The t-statistic is for the difference in means between the nonbinding and binding FTC samples.

The estimated intercepts reported in tables 2 and 4 reflect the industry and year dummy variables excluded from the model to avoid singularity.

ent between the two groups; mean assets and sales for binding company-years are $3,593 million and $3,429 million, and mean assets and sales for nonbinding company-years are $2,808 million and $2,781 million. However, sensitivity tests (reported later) indicate size differences do not affect the results.

3. Direct Income-Shifting Results

Results from estimating (1) are shown in table 2. The FTCBIND coefficient is −0.01 (t-statistic = −2.79), the NONBIND × FTR coefficient
TABLE 2
Direct Income-Shifting Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.098 (9.94)</td>
</tr>
<tr>
<td>WWINC/WWSALE&lt;sub&gt;it&lt;/sub&gt;</td>
<td>0.521 (16.96)</td>
</tr>
<tr>
<td>FTCBIND&lt;sub&gt;it&lt;/sub&gt;</td>
<td>−0.010 (−2.79)</td>
</tr>
<tr>
<td>NONBIND&lt;sub&gt;it&lt;/sub&gt; × FTR&lt;sub&gt;it&lt;/sub&gt;</td>
<td>0.036 (2.11)</td>
</tr>
<tr>
<td>FTCBIND&lt;sub&gt;it&lt;/sub&gt; × FTR&lt;sub&gt;it&lt;/sub&gt;</td>
<td>−0.107 (−18.11)</td>
</tr>
</tbody>
</table>

Adjusted R²: 0.28

The sample consists of 2,517 manufacturing company-years from 1984–92. We report coefficient estimates (t-statistics) from the following regression:

\[
\text{FINCFSALE}_{it} = \beta_0 + \beta_1 \text{WWINC/WWSALE}_{it} + \beta_2 \text{FTCBIND}_{it} + \beta_3 \text{NONBIND}_{it} \times \text{FTR}_{it} + \beta_4 \text{FTCBIND}_{it} \times \text{FTR}_{it} + \beta_5 \text{IND}_{it} + \beta_6 \text{YEAR}_{it} + \epsilon_{it}.
\]

FINCFSALE<sub>it</sub> is foreign pretax income divided by foreign sales, WWINC/WWSALE<sub>it</sub> is worldwide net income before taxes divided by worldwide sales, FTR<sub>it</sub> is the effective foreign tax rate minus the statutory U.S. tax rate. The effective foreign tax rate equals current plus deferred foreign taxes divided by foreign pretax income. FTCBIND<sub>it</sub> is a dummy variable equal to one if FTR is greater than zero, and zero otherwise. NONBIND<sub>it</sub> is a dummy variable equal to one if FTR is less than or equal to zero, and zero otherwise. IND<sub>it</sub> is a vector of industry variables corresponding to two-digit SIC codes. YEAR<sub>it</sub> is a vector of year variables from 1984 to 1992.

is 0.04 (t-statistic = 2.11), and the FTCBIND × FTR coefficient is −0.11 (t-statistic = −18.11). As predicted, the FTCBIND × FTR coefficient is smaller than the NONBIND × FTR coefficient (F-statistic = 79.03, p = 0.0001). The results suggest U.S. MNEs in binding foreign tax credit positions are more likely to shift income than those in nonbinding positions. Further, the negative FTCBIND × FTR coefficient indicates income shifting by binding firms of sufficient magnitude to offset the implicit tax effect. Since binding firms’ mean foreign profit margin is 10.3%, the FTCBIND × FTR coefficient implies that an increase in the foreign tax rate of 16.3 percentage points (the mean FTR value for the firms with binding foreign tax credit positions) decreases the foreign profit margin from 10.3% to 8.6%.

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13 Diagnostic tests indicate the results reported in table 2 are not affected by outliers or multicollinearity. All t-statistics reflect standard errors adjusted for heteroscedasticity by White’s correction factor.

14 This magnitude of shifting is roughly consistent with the results in Klassen, Lang, and Wolfson [1993] who provide evidence that multinationals shifted about 10% of 1987 foreign income into the United States in response to the Tax Reform Act of 1986 which decreased U.S. tax rates rom 46% to 34%. Our results for binding foreign tax credit firms suggest that about 16% of foreign income is shifted in response to the 16% average difference between foreign and domestic tax rates.
The positive NONBIND × FTR coefficient suggests that shifting by nonbinding firms is more than offset by the implicit tax effect. Because we cannot determine the magnitude of this effect, we cannot discern the extent to which the NONBIND × FTR coefficient is biased downward by income shifting.

The results in table 2 may be affected by omitted correlated variables; in particular, FTR may be correlated with other factors that affect foreign profit margins. However, we believe that the results are not driven by nontax factors. First, confounding variables related to implicit taxes would imply a positive FTCBIND × FTR coefficient, inconsistent with the observed results. Second, an omitted correlated variable explanation for the difference in signs between the FTCBIND × FTR and NONBIND × FTR coefficients would have to be consistent with a negative relation between FTR and FINCSALE when the foreign tax rate exceeds the U.S. rate and with a positive relation otherwise. We are unaware of any such explanation.

We conduct a variety of specification checks which include estimating a fixed effects specification with separate intercepts for each firm (rather than industry); respecifying FINCSALE, WWINC/WWSALE, and FTR as changes from year \( t - 1 \) to \( t \); estimating the regression model in ranks; excluding WWINC/WWSALE; adding sales; deflating FINC and WWINC by foreign assets and worldwide assets (rather than sales); and including the ratio of foreign sales to assets to control for asset turnover. In each specification conclusions are consistent with those reported in table 2.

We also estimate equation (1) allowing the NONBIND × FTR and FTCBIND × FTR coefficients to vary across years. This estimation captures any yearly effects on the relative profitability of domestic and foreign operations and on the measurement of profit margins (although we have no expectations of the likely direction of any such effects). Results (not tabulated) indicate that the FTCBIND × FTR coefficient is significantly negative and less than the NONBIND × FTR coefficient in each year. There is no apparent overtime pattern in coefficient estimates.

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15 Conclusions about the magnitude of implicit taxes should be drawn with caution because, while the negative FTCBIND × FTR coefficient is robust to our specification checks, the NONBIND × FTR coefficient often is insignificant.

16 Results are unchanged when we focus on companies in the tails of the FTR distribution (i.e., FTCBIND = 1, if FTR > 0.1 and NONBIND = 1, if FTR < -0.1). While income-shifting incentives are expected to be particularly strong for these firms, implicit tax effects also are likely to be larger.

17 Based on an analysis of 40 countries, Kemsley [1996] finds no significant correlation between country-level tax rates and inflation, wage rates, political turmoil, or five-year changes in exchange rates.

18 In addition, if the observed results are driven by tax factors, the kink point in the FTR and FINCSALE relation should occur where FTR approximates the U.S. tax rate. In fact, the change in slope occurs at FTR about three percentage points below the U.S. tax rate. This slightly lower rate may be the result of mismeasurement of tax rates or of potential IRS scrutiny.
In addition, we estimate equation (1) allowing the NONBIND × FTR and FTCBIND × FTR coefficients to vary across two-digit manufacturing industry codes. The FTCBIND × FTR coefficient has a negative sign in 19 of the 20 manufacturing sectors. It is significantly negative and significantly less than the NONBIND × FTR coefficient in 10 of the 16 sectors with 15 or more observations.\footnote{In addition to industry variation, we examine income shifting among binding foreign tax credit firms as a function of the following flexibility factors suggested in Harris (1993): interest, research and development, advertising, and size. Only advertising is significant. Firms with large amounts of worldwide advertising expense have a steeper negative relation between average foreign tax rates and foreign profit margins than other binding firms.}

If the evidence in table 2 is the result of income shifting, it should be manifested not only in low foreign profitability but also in high domestic profitability for firms facing high foreign tax rates. When we estimate equation (1) substituting domestic profit margins (DINC/DSALE) as the dependent variable (results not tabulated), the FTCBIND × FTR coefficient is .037 (t = 5.10) and the NONBIND × FTR coefficient is −.006 (t = −.51). The fact that binding-positions firms have both foreign profit margins that decrease in FTR and domestic profit margins that increase in FTR provides evidence that within-jurisdiction tax minimization alone does not account for the results in table 2.

While our results are consistent with cross-jurisdictional income shifting into the United States by binding foreign tax credit firms, they also are consistent with other tax-motivated strategies, such as intertemporal income shifting and tax-motivated location decisions. For example, firms with binding foreign tax credit limitations might systematically accelerate recognition of foreign income and delay recognition of U.S. income prior to tax rate changes that increase FTR. To address this possibility, we reestimate equation (1) using one observation per firm based on means of FINC/FALE, WWINC/WWALE, and FTR over the sample period.\footnote{FTCbIND and NONBIND are coded as zero or one based on the firm’s mean or median FTR.} The FTCBIND × FTR coefficient is −.094 (t = −3.73), indicating that intertemporal shifting alone does not account for our results.

Location choice could account for our results if firms with high average foreign tax rates are more likely to locate high-margin activities domestically and low-margin activities abroad. However, the direct implications of tax-motivated shifting are similar regardless of whether the shifting occurs through reporting activities (e.g., transfer prices) or through location choices. While our results to this point do not indicate whether income is shifted through reporting activities or location choices, our valuation tests (reported next) suggest that cross-jurisdictional income shifting is responsible for the results discussed thus far.
4. Earnings Valuation Tests

If firms facing high foreign tax rates relative to the U.S. tax rate shift income to the United States, and if investors recognize this behavior, U.S. earnings for firms shifting income from foreign operations will be valued as a mix of domestic and foreign earnings. Thus, we investigate the valuation of domestic earnings of firms identified as "shifters." Not only does this investigation shed light on how investors value foreign and domestic earnings components, it also strengthens the inferences from our direct income-shifting tests. Results consistent with the valuation implications of income shifting would indicate the our tests in the preceding section have successfully identified incidents of cross-jurisdictional income shifting.\footnote{21}

There are a number of reasons that observable tax-motivated income shifting into the United States might not be extinguished by foreign tax enforcement agencies.\footnote{22} First, while market prices are determined by investors' expectations, tax authorities cannot assess tax deficiencies without actual evidence of improper income shifting. Obtaining this evidence can be costly, particularly for non-U.S. tax enforcement agencies. In addition, income can be shifted through legal reporting mechanisms.

Our earnings valuation tests evaluate whether earnings multiples for firms identified as shifting income reflect the source of the shifted income. Two reasons commonly suggested for valuation differences are growth opportunities and risk. For example, Bodnar and Weintrop [1994] regress annual returns of U.S. MNEs for 1985–92 on changes in foreign and domestic income and find that, on average, foreign income is more highly valued. They attribute the difference to higher growth opportunities for foreign operations.\footnote{23}

Regardless of why valuation multiples differ for foreign and domestic income, if investors realize that income is being shifted, they will factor the shifting into the multiple on segment income. Specifically, if non-shifted foreign income carries a higher valuation multiple, then the multiple on reported domestic income for firms which shift foreign income to the United States should be higher than that placed on domestic income, because some income reported as domestic income is in fact shifted foreign income.\footnote{24}

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\footnote{21} Results might not be consistent with the implications of income shifting either because we have not correctly identified income shifting or because investors do not consider the valuation implications of income shifting.

\footnote{22} U.S. tax enforcement agencies have no incentive to alleviate income shifting which enhances U.S. tax revenue.

\footnote{23} Using a returns specification and geographic segment data, Boatsman, Behn, and Patz [1993] find mixed evidence of differences in valuation across geographic regions. They do not test for the source of observed differences.

\footnote{24} We do not model the earnings multiples for foreign and domestic earnings as a function of factors such as expected growth and risk because previous research suggests a limited
As a precursor to our valuation tests, we detail the differences in domestic and foreign earnings multiples in our pooled sample, in particular years, and in particular industries. Consistent with prior literature, we find foreign earnings are associated with significantly higher multiples than domestic earnings in our pooled sample. This same relation is documented in each of the five years from 1985 to 1989 and within six manufacturing sectors. We find domestic earnings are capitalized at a significantly higher rate than foreign earnings only in food manufacturing.

4.1 Empirical Tests

We regress market value of common equity on after-tax domestic and foreign earnings to determine whether separate domestic and foreign earnings multiples reflect underlying income shifting. We use the same sample of firms and time period examined in the prior income-shifting tests to estimate the following equation.

\[
PRICE_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 FORINC_{i,t} + \beta_3 DOMINC_{i,t} + \beta_4 IS_{i,t} \\
+ \beta_5 IS_{i,t} \times DOMINC_{i,t} + \Sigma \beta_6 k IND_{i,t} + \Sigma \beta_7 t YEAR_{i,t} + \epsilon_{i,t}
\]  

(2)

where:

\[
PRICE_{i,t} = \text{market value of common equity at year-end}; \\
BV_{i,t} = \text{book value of common equity at year-end}; \\
FORINC_{i,t} = \text{after-tax foreign income at year-end}; \\
DOMINC_{i,t} = \text{after-tax domestic income at year-end}; \\
IS_{i,t} = \text{a dummy variable equal to one if a company is classified as an income shifter in year } t, \text{ and zero otherwise}; \\
IND_{i,t} = \text{a vector of industry dummy variables corresponding to two-digit SIC codes within the manufacturing sector}; \text{ and} \\
YEAR_{i,t} = \text{a vector of year dummy variables from 1984 to 1992}.
\]

The subscripts \(i\), \(t\), and \(k\) refer to company, year, and industry, respectively. All variables (including the intercept) are divided by common shares outstanding at year-end to reduce heteroscedasticity.

We classify companies as income shifters (\(IS = 1\)) if they have an incentive to shift income into the United States from abroad, i.e., \(FTR > 0\) and thus \(FTCBIND = 1\), and there is evidence the company is shifting foreign income into the United States. The latter is determined if the company-year residual from the following regression is negative.

\[
FINCVSALES_{i,t} = \beta_0 + \beta_1 WWINC/WWSALE_{i,t} \\
+ \Sigma \beta_2 k IND_{i,t} + \Sigma \beta_3 t YEAR_{i,t} + \epsilon_{i,t}
\]  

(3)

Equation (3) is estimated using all sample companies and mirrors equation (1) absent the income-shifting tax incentive variables. A neg-
ative residual indicates a company’s foreign profit margin is lower than expected, after controlling for firm-specific worldwide profitability, industry, and year.

Book value of common equity ($BV$), the income-shifting dummy ($IS$), industry ($IND$), and year ($YEAR$) are included in equation (2) as additional control variables. Book value of common equity is included based on research that suggests that valuation is a function of both net income and shareholders’ equity.$^{25}$ $IS$ is included as a separate dummy variable to control for any mean difference in price between income shifters and nonshifters for reasons unrelated to income shifting. Industry is included to control for industry-wide factors (e.g., expected growth or risk) which might influence the results. Year is included to control for macroeconomic factors (e.g., exchange rates or stage in the economic cycle).

Since our estimates from equation (2) (reported below and in table 4) indicate foreign earnings enjoy greater capitalization than domestic earnings in our pooled sample (i.e., $\beta_2$ exceeds $\beta_3$), we predict the $IS \times DOMINC$ coefficient, $\beta_5$, will be positive. More specifically, if the amount shifted is a proportion of unbiased domestic income ($\delta \times DOMINC$), then reported domestic income ($DOMINC$) is equal to $(1 + \delta)$ $DOMINC$ and reported foreign income ($FORINC$) is equal to $FORINC$ $\times$ $(\delta \times DOMINC)$. Assuming the relation between price and unbiased domestic and foreign income can be expressed as $y_i = a_1 DOMINC_i + a_2 FORINC_i + \varepsilon_i$, then $y_i = a_1 DOMINC_i + a_2 FORINC_i + [(\delta/(1 + \delta)) (a_2 - a_1)] DOMINC_i + \varepsilon_i$. Thus, $\beta_5$ is positive, if the coefficient on unshifted foreign income exceeds the coefficient on unshifted domestic income.

Theoretically, $\beta_5$ is equal to the proportion of domestic income that is shifted multiplied by the difference between $\beta_2$ and $\beta_3$. However, this assumes, among other things, that no income is shifted for firms for which $IS = 0$. While we assign $IS = 1$ to firms most likely to shift income into the United States (about 25% of the sample observations), the fraction of firms shifting income likely is substantially greater than this for at least three reasons. First, U.S. tax rates tend to be comparatively low relative to worldwide rates, so many U.S. multinationals have tax incentives to shift income into the United States. Second, the IRS often is asserted to be a particularly tough regulator, so U.S. firms may at the margin choose to report income in the United States to minimize IRS scrutiny. Third, some of the firms that are not net shifters of income into the United States may be shifting income out of the United States. In sum, if firms with $IS = 0$ shift income in or out of the United States, $FORINC$ and $DOMINC$ are mixtures of true foreign and domestic income, and $\beta_2$ and $\beta_3$ are biased toward each other. As a consequence, the estimated $\beta_5$ coefficient may exceed its theoretical value. We can predict only that $\beta_5$ will be positive (negative) when $\beta_2$ exceeds (is less

$^{25}$ Inferences are not sensitive to the inclusion of book value in the model.
TABLE 3
Descriptive Statistics for Valuation Tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Full Sample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRICE_{it}</td>
<td>23.77</td>
<td>20.25</td>
<td>0.11–111.00</td>
</tr>
<tr>
<td>BV_{it}</td>
<td>10.61</td>
<td>8.18</td>
<td>−36.91–75.11</td>
</tr>
<tr>
<td>FORINC_{it}</td>
<td>0.56</td>
<td>0.36</td>
<td>−0.50–5.82</td>
</tr>
<tr>
<td>DOMINC_{it}</td>
<td>1.17</td>
<td>0.89</td>
<td>−0.95–7.28</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>3,225</td>
<td>574</td>
<td>5–192,876</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>3,126</td>
<td>699</td>
<td>7–124,993</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>988</td>
<td>157</td>
<td>0–35,879</td>
</tr>
</tbody>
</table>

**Panel B: Income Shifters**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE_{it}</td>
<td>24.98</td>
<td>21.25</td>
<td>0.17–111.00</td>
</tr>
<tr>
<td>BV_{it}</td>
<td>11.18</td>
<td>8.49</td>
<td>−20.23–55.21</td>
</tr>
<tr>
<td>FORINC_{it}</td>
<td>0.33</td>
<td>0.18</td>
<td>−0.50–4.05</td>
</tr>
<tr>
<td>DOMINC_{it}</td>
<td>1.36</td>
<td>1.06</td>
<td>−0.35–5.98</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>3,311</td>
<td>640</td>
<td>5–173,662</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>3,261</td>
<td>753</td>
<td>8–97,650</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>1,046</td>
<td>188</td>
<td>1–35,879</td>
</tr>
</tbody>
</table>

**Panel C: Nonincome Shifters**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE_{it}</td>
<td>23.20</td>
<td>19.81</td>
<td>0.11–102.63</td>
</tr>
<tr>
<td>BV_{it}</td>
<td>10.34</td>
<td>8.00</td>
<td>−36.91–75.11</td>
</tr>
<tr>
<td>FORINC_{it}</td>
<td>0.68</td>
<td>0.46</td>
<td>−0.02–5.82</td>
</tr>
<tr>
<td>DOMINC_{it}</td>
<td>1.08</td>
<td>0.82</td>
<td>−0.95–7.28</td>
</tr>
<tr>
<td>Assets ($M)</td>
<td>3,184</td>
<td>521</td>
<td>5–192,876</td>
</tr>
<tr>
<td>Sales ($M)</td>
<td>3,060</td>
<td>663</td>
<td>7–124,993</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
<td>959</td>
<td>145</td>
<td>0–35,768</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T-Statistic for Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE_{it}</td>
</tr>
<tr>
<td>BV_{it}</td>
</tr>
<tr>
<td>FORINC_{it}</td>
</tr>
<tr>
<td>DOMINC_{it}</td>
</tr>
<tr>
<td>Assets ($M)</td>
</tr>
<tr>
<td>Sales ($M)</td>
</tr>
<tr>
<td>Foreign Sales ($M)</td>
</tr>
</tbody>
</table>

The full sample consists of 2,517 manufacturing company-years from 1984–92. PRICE_{it} is market value of common equity. BV_{it} is book value of common equity. FORINC_{it} is after-tax foreign income. DOMINC_{it} is after-tax domestic income. Income shifters are company-years in which a company is classified as being in a binding foreign tax credit position and actual pretax foreign income divided by foreign sales is less than predicted. Nonincome shifters are the remaining company-years. There are 821 income shifter company-years and 1,696 nonincome shifter company-years. The t-statistic is for the difference in means between the income shifter and nonincome shifter samples.

than) β_{3} and will imply a coefficient on domestic income for shifting firms between β_{2} and β_{3}.

4.2 DESCRIPTIVE STATISTICS

Table 3 presents descriptive statistics for the variables included in equation (2), as well as total assets, total sales, and foreign sales. Statistics are provided for the full sample and the subsample classified as income shifters (821 firm-years) and nonincome shifters. Consistent with the results in the previous section, 61% of the company-years with binding foreign tax credit positions also indicate evidence of income shifting, i.e., the residual from equation (3) is negative.

Income shifters are not significantly different from nonincome shifters in terms of total assets, sales, and foreign sales. Relative to the nonincome
TABLE 4
Valuation Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>17.72 (1.49)</td>
</tr>
<tr>
<td>BV_{it}</td>
<td>0.35 (12.20)</td>
</tr>
<tr>
<td>FORINC_{it}</td>
<td>11.12 (27.20)</td>
</tr>
<tr>
<td>DOMINC_{it}</td>
<td>8.20 (28.44)</td>
</tr>
<tr>
<td>IS_{it}</td>
<td>−6.57 (−2.12)</td>
</tr>
<tr>
<td>IS_{it} × DOMINC_{it}</td>
<td>2.48 (7.34)</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.83</td>
</tr>
</tbody>
</table>

The sample consists of 2,517 manufacturing company-years from 1984−92. We report coefficient estimates and t-statistics from the following regression:

\[ \text{PRICE}_{it} = \beta_0 + \beta_1 \BV_{it} + \beta_2 \text{FORINC}_{it} + \beta_3 \text{DOMINC}_{it} + \beta_4 \text{IS}_{it} + \beta_5 \text{IS}_{it} \times \text{DOMINC}_{it} + \sum \beta_{6k} \text{IND}_{it} + \sum \beta_{7t} \text{YEAR}_{it} + \epsilon_{it}. \]

\( \text{PRICE}_{it} \) is market value of common equity, \( \BV_{it} \) is book value of common equity, \( \text{FORINC}_{it} \) is after-tax foreign income and \( \text{DOMINC}_{it} \) is after-tax domestic income. \( \text{IS}_{it} \) is a dummy variable equal to one if a company is classified as an income shifter in year \( t \), and zero otherwise. All variables (including the intercept) are deflated by shares outstanding at year-end to reduce heteroscedasticity and the \( R^2 \) has been redefined accordingly. A company is classified as an income shifter in year \( t \) if \( \text{FTR} \) is greater than zero and the company-year residual from the following regression is negative:

\[ \text{FINC}/\text{SALE}_{it} = \beta_0 + \beta_1 \text{WING}/\text{WWSALE}_{it} + \sum \beta_{2k} \text{IND}_{it} + \sum \beta_{3t} \text{YEAR}_{it} + \epsilon_{it}. \]

\( \text{IND}_{it} \) is a vector of industry variables corresponding to two-digit SIC codes and \( \text{YEAR}_{it} \) is a vector of year variables from 1984 to 1992.

sh IFs, mean foreign income per share is significantly lower and mean domestic income is significantly higher for the income shifters, consistent with income shifting and reflecting the selection criteria. The two subsamples are not significantly different in terms of foreign sales as a percentage of total sales.

5. Earnings Valuation Results

Results from estimating equation (2) are shown in table 4. The after-tax foreign and domestic earnings multiples are 11.12 and 8.20

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26Diagnostic tests indicate that the results reported in table 4 are not affected by outliers or multicollinearity.
respectively. Consistent with greater capitalization of foreign earnings and investor recognition of tax-motivated income shifting, the $\text{IS} \times \text{DOMINC}$ coefficient is positive ($t$-statistic = 7.34). As predicted, this coefficient is less than the difference between the coefficients on $\text{FORINC}$ and $\text{DOMINC}$, suggesting that investors value reported domestic income for shifting firms as a combination of foreign and domestic income. The ratio of the $\text{IS} \times \text{DOMINC}$ coefficient to the difference between the $\text{FORINC}$ and $\text{DOMINC}$ coefficients is larger than its theoretical value, consistent with $\beta_2$ and $\beta_3$ being biased by shifting of $\text{IS} = 0$ firms.

The $\text{IS}$ coefficient (our control for other factors that could cause a price difference between shifters and nonshifters) is negative ($t$-statistic = -2.12); its magnitude suggests a mean price difference between income shifters and nonincome shifters of approximately $6.57$ million. While this difference may reflect factors unrelated to income shifting, after controlling for book value and foreign and domestic income, it also is possible that $\text{IS}$ partially captures a misspecification of our assumed shifting relation. In particular, if shifting is equal to a proportion of income plus a constant, part of the effect of shifting could appear in the $\text{IS}$ coefficient ($\beta_4$). In the alternative specifications reported below, the $\text{IS} \times \text{DOMINC}$ coefficient remains positive and significant and the $\text{IS}$ coefficient generally is not significantly different from zero.

While the year and industry controls mitigate some potential concerns about correlated omitted variables, we also conduct the following sensitivity tests.

1. We regress $\text{PRICE}$ on $\text{NETINCOME}$, $\text{IS} \times \text{NETINCOME}$ (where $\text{NETINCOME}$ is total net income), and the other control variables to assess whether the $\text{IS} \times \text{DOMINC}$ coefficient may reflect a higher valuation of all income for $\text{IS} = 1$ firms for reasons unrelated to income shifting; the coefficient on $\text{IS} \times \text{NETINCOME}$ is insignificant.
2. We include lagged price/earnings ratio, lagged net income, and past growth in net income and sales as explanatory variables; results are unaffected.
3. We interact $\text{IS}$ and $\text{BV}$ to assess whether investors simply value $\text{BV}$ more highly for firms with $\text{IS} = 1$; the interaction term is insignificant.

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27 We also estimate equation (2) adding an indicator variable which equals one if $\text{FTR} < 0$ and the residual from equation (3) is positive, and an interaction of this indicator variable with $\text{FORINC}$. A negative interaction coefficient is consistent with shifting income out of the United States. Neither the indicator variable nor the interaction coefficient is significantly different from zero, and the remaining coefficients are essentially unchanged from the values reported in table 4.

28 The market may value domestic and foreign book values separately. However, book values for foreign and domestic operations are not reported separately. As a crude proxy, we include domestic and foreign sales alone and interacted with $\text{IS}$ as explanatory variables. Results are insensitive to their inclusion.
4. We correlate the mean value of IS for each firm with the mean value of total assets, sales, foreign sales, dividends per share, shares outstanding, book value per share, net income per share, growth in net income, and growth in sales to assess whether there are other systematic differences between IS = 1 and IS = 0 firms that affect our inferences; correlations are insignificant.

5. We estimate a fixed-effects regression model with separate intercepts for each firm and year and a regression based on year-to-year changes in the variables; conclusions are consistent with those in table 4.

It is also possible that the IS = 1 firms have low foreign profit margins relative to domestic profit margins, and investors place a higher multiple on domestic earnings of firms with higher domestic margins that are unrelated to shifting (e.g., because of higher expected growth or lower risk). To infer whether such differences in underlying margins drive the results, we examine the intersection of the subsamples of firms with higher than expected domestic profit ratios (i.e., a negative residual from estimating equation (3)) and average foreign tax rates below the U.S. rate. If our selection procedure for IS = 1 is simply selecting firms with unusually high domestic margins, then the same effect is expected to be observed when the margins are high but there is no tax incentive to shift to the United States. When we reestimate equation (2) after re-specifying IS as one if a company has a negative residual from estimating equation (3) and the average foreign tax rate is below the U.S. rate (533 company-years), the coefficient on the interaction with DOMINC is not significantly different from zero, confirming our prior inferences.29

Finally, our results might be driven by a subset of years or industries. If income shifting is occurring, its effects should be detectable only in years in which there is a significant difference between the coefficients on domestic and foreign income. The foreign multiple is significantly larger (p < 0.10) in each year from 1985–89. Consistent with our expectations, the IS × DOMINC coefficient is positive and significant in each year from 1985 to 1989. Equally important, when the domestic and foreign multiples are not significantly different (i.e., 1984 and 1990–92), the IS × DOMINC coefficient also is not significantly different from zero.

Similarly, estimating equation (2) separately for each two-digit manufacturing industry with 15 or more observations, we expect income shifting into the United States to be detectable only when there is a

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29 The larger multiple on domestic earnings for firms with IS = 1 might also reflect a higher valuation of domestic earnings for firms with relatively high foreign tax rates. We know of no reason for the foreign tax rate to affect the multiple on domestic earnings (other than because of income shifting). However, for completeness we estimate equation (2) setting IS = 1 for firms for which the foreign tax rate exceeds the U.S. rate but the company-year residual from equation (3) is positive (i.e., there is no evidence of shifting). Results provide no evidence of an increased multiple on domestic income.
significant difference between the foreign and domestic income coefficients, and the $IS \times DOMINC$ coefficient sign should be the same as the sign of the difference between the multiples on foreign and domestic earnings. Capitalization of foreign earnings is greater than domestic earnings in the paper, chemical, petroleum, rubber and plastics, electrical, and instruments manufacturing sectors, and the $IS \times DOMINC$ coefficient is significantly positive as expected in each of those sectors, except rubber and plastics. The $DOMINC$ coefficient is significantly greater than the $FORINC$ coefficient in the food manufacturing sector, so if $IS = 1$ firms in this sector are shifting income into the United States, the $IS \times DOMINC$ coefficient should be negative. As predicted, this coefficient is significantly negative in the food manufacturing sector. The $FORINC$ and $DOMINC$ coefficients are not significantly different from each other and the $IS \times DOMINC$ coefficient does not differ significantly from zero in any of the other manufacturing sectors.

In summary, the valuation results provide consistent evidence that when foreign and domestic multiples are significantly different, the domestic earnings of firms identified as shifting income into the United States are valued significantly differently from nonshifters’ domestic earnings. In addition, this documentation supports the inference that the results discussed in section 3 are attributable, at least in part, to reporting activities that result in cross-jurisdictional income shifting.

6. Conclusion

We provide evidence that U.S. MNEs with average foreign tax rates in excess of the U.S. tax rate (and thus likely facing foreign tax credit limitations) have lower pretax foreign profit margins than other U.S. MNEs. This evidence is consistent with income shifting from high-tax foreign jurisdictions into the United States and indicates that tax policymakers’ efforts to further constrain income-shifting opportunities could result in a U.S. tax revenue decrease from some taxpayers. We estimate that the U.S. and state governments combined enjoyed a tax revenue increase of approximately $15–18 billion as a result of the income-shifting patterns of our sample firms during 1984 to 1992.\footnote{Mean foreign sales and $FTR$ for firms estimated to be in binding foreign tax credit positions are $1.089$ billion and $0.163$, respectively. In table 2, the $FTCBIND$ and $FTCBIND \times FTR$ coefficients are $-0.01$ and $-0.11$, respectively. We estimate the average firm-level decrease in foreign pretax income as $[\text{mean } FTR \times FTR \text{ coefficient}] + FTCBIND \text{ coefficient} \times \text{mean foreign sales}$, which yields a $30.4$ million decrease in foreign income—and hence increase in domestic income—per firm. Total firm-years with binding foreign tax credit positions in our sample are 1,339. Thus, estimated total income shifted to the United States by manufacturing companies with binding foreign tax credit positions is $40.7$ billion. Comparable computations based on domestic income indicate shifting of $33.7$ billion. Assuming an average state tax rate of $5\%$ and an average federal tax rate of $38.67\%$ during our sample period suggests a combined state and federal tax increase of approximately $14.7–17.5$ billion depending on the specification.}
In addition, we find evidence that investors seem to factor in the true geographic income source in capitalizing foreign earnings shifted to the United States. This evidence implies that the potential security price distortions associated with tax-motivated geographic income shifting and the “mislabeling” of foreign or domestic earnings are mitigated.

REFERENCES


