Global Organizations and Taxes
An Analysis of the Dividend, Interest, Royalty, and Management Fee Payments Between U.S. Multinationals’ Foreign Affiliates

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Overview

Taxes are a fundamental determinant in company decision making. Just as taxes can influence the structure and location of a business' activities in the U.S., global organizations coordinate a plethora of tax and non-tax factors in structuring their world-wide activities [Scholes and Wolfson (1992) and Wilson (1993)]. Companies naturally seek to maximize their international competitiveness, in part by minimizing their total tax burden by every legal means possible. This paper considers the extent and structuring of dividend, interest, royalty, and management fee payments between commonly owned businesses, ("affiliates") in different countries to assess the extent to which U.S. multinational corporations engage in such foreign tax mitigating activity.

This paper is concerned with legal practices involving inter-affiliate capital payments and management fees that would mitigate the foreign tax liability of U.S. multinational companies. This paper does not consider the (illegal) manipulation of transfer pricing on cross-border sales and services between related parties. Nor does it consider the effect of U.S. multinational corporations' organizational choices on their U.S. tax liability.

The U.S. imposes tax on the worldwide income of its citizens. To the extent U.S. companies are able to reduce their foreign tax liability, they risk increasing their ultimate U.S. tax liability if the resulting foreign tax rate is less than the prevailing U.S. rate. Moreover, the existence of the U.S. tax itself weakens the incentive to organize foreign activities to minimize foreign tax in those cases where the U.S. has the higher tax rate.
**Introduction**

Current theory is not rich enough to understand fully the structure of a multinational company operating through affiliates in multiple jurisdictions, each with unique societal, economic, political, and legal structures. However, dividend, interest, royalty, and management fee payments (inter-affiliate payments, or "IPs") offer a potentially powerful setting for measuring the effects of foreign income taxes on global organizations. If taxes are an important determinant of multinationals' operations, cross-border, inter-affiliate cash transfers would be expected to reflect the variations in tax costs across countries and methods of payment for at least two reasons: The discretionary nature of the payments and the underlying contracts producing the payments, and the significance of the tax ramifications triggered when cash crosses political boundaries. Cross-border IPs potentially trigger payors’ deductions and withholding taxes and payees’ taxable income and foreign tax credits or deductions. As a result, much of the returns to global tax planning may not be realized until cash moves across political borders within the organization.¹

Determining the extent to which dividend and similar payments between foreign affiliates are structured to mitigate foreign taxes is important for understanding the extent tax planning permeates the global organization. Mitigating worldwide taxes via related party payments could generate potential significant tax benefits, but such strategies would require complex tax planning and extensive internal coordination.

Tax mitigating strategies could also impose significant non-tax costs. For example, reallocating profits and liquidity among a company’s affiliates can impair performance evaluation and control since incentive systems based on profit centers are distorted. In particular, foreign affiliate managers directed to transfer cash from their affiliate to another affiliate could perceive a loss of control over their performance evaluation, resulting in low morale and confusion. In addition, while the benefit of engaging in interaffiliate cash transfers derives largely from government-created tax and financial asymmetries, consistently exploiting these opportunities potentially undermines a company’s goodwill with home and/or host country governments and could enhance short-run profits at the expense of long-run profits.² Finally, tax benefits resulting from investment in foreign tax mitigation strategies are limited to the extent foreign tax payments are reflected in foreign tax credits [Collins and Shackelford (1992)].

Related prior studies of the effect of taxes on intra-firm payments limited their analyses to transfers from foreign subsidiaries to U.S. parents. Hines and Hubbard (1990), Altshuler and Newlon (1993), and Altshuler, Newlon, and Randolph (1994) report that dividend payments from foreign affiliates to U.S. parents reflect inter-temporal variation in taxes and are more likely to emanate from high-tax foreign countries, consistent with lower U.S. taxes upon repatriation for these remittances. Grubert (1994) and Hines (1994) present evidence that higher foreign withholding tax rates tend to discourage interest, royalty, and dividend payments to the U.S. This paper extends these prior studies in two ways. It investigates cash transfers between the foreign affiliates of the global organization, and it includes management fees in the analysis.³

Other studies, attempting to gauge the extent U.S. multinationals engage in worldwide tax mitigation via related party income shifting [e.g., Klassen, Lang, and
Wolfson (1993), Harris (1993), and Harris, Morek, Slemrod, and Yeung (1993), take a somewhat indirect and broad-sweeping approach. Klassen, Lang, and Wolfson (1993) and Harris (1993) use segmental financial statement data to determine correlations between U.S. and foreign tax rates on the one hand, and U.S. and foreign profits from all sources (i.e., related and unrelated party transactions) on the other. Harris, et. al. (1993) also use financial statement data to document a correlation between U.S. tax liabilities and the existence of foreign affiliates in low-versus high-tax foreign jurisdictions. The power of the tests employed in these studies is diminished because the tests must rely on variations in total U.S. and foreign profits across all sources (or the related taxes) to infer related party worldwide tax mitigation strategies.

Jacob (1996) refined the analysis of U.S. multinationals' worldwide tax mitigation via related party income shifting by incorporating the volume of international intra-firm sales into his analysis. In addition, Collins, Kemsley, and Lang (1996) corroborate their findings of correlations between total U.S. and foreign earnings and tax rates. They provide evidence that stock price valuations of reported earnings when those earnings include a shifted income component reflect the pre-shifted geographic sources of the earnings. In other words, they found that stock price valuations tend to pierce any shifting of income. This paper adds further precision to the prior investigations of U.S. multinationals' worldwide tax mitigation via related party income shifting by using tax return data on separately-stated, related party transactions to determine whether payments between foreign affiliates of U.S. multinationals are structured to mitigate foreign taxes. Consequently, this paper presents the most direct examination to date of U.S. multinationals' foreign tax mitigation strategies.

We use foreign subsidiary informational returns (Form 5471s) which U.S. multinationals file annually with their corporate tax returns to estimate foreign affiliate cross-border payments. Each foreign subsidiary reports on a Form 5471 the total payments to and receipts from other foreign affiliates by payment type. While the ability to estimate flows between foreign affiliates enhances the power of our tests, data limitations associated with these disclosures also potentially limit the improvement in strength. First, the quality of Form 5471 information could be poor because these disclosures do not directly affect the corporate tax liability or because taxpayers strategically use the disclosures to minimize the probability of an audit. Second, because payments between foreign subsidiaries and other foreign affiliates are not separately identified by the domicile of the foreign affiliate on the other side of the transaction, we must estimate the specific payments between commonly-owned foreign subsidiaries, introducing additional measurement error. Third, we aggregate estimated payments at the country level to reduce omitted correlated variables, and thus possibly eliminate some relevant company-level heterogeneity.

The next section of the paper discusses determinants of international, inter-affiliate cash payments. Section 3 presents the regression model and provides data and variable descriptions. Section 4 provides empirical results. The paper concludes with a summary.

Model Development

Constructing a model of the tax and non-tax factors that affect international, inter-affiliate dividends, interest, royalties, and management fee payments is problem-
atic because the transactions examined are derived from many prior decisions. The residual nature of such returns to capital is both the strength and the weakness of the research design in this paper. As noted above, much of the global organization's tax planning likely is concentrated on cross-border distributions. Inter-affiliate, cross-border cash payments may trigger significant tax ramifications, and the returns to international tax planning cannot be calibrated fully until cash is redeployed within or outside the worldwide organization. In addition, focusing our analysis on cash payments should strengthen the power of our tests because tax planning is likely to be less important when companies do not anticipate transferring cash across countries.

On the other hand, any model of internal payments is likely to be both complex and incomplete because the payments are potentially affected by a host of discretionary and interrelated choices (e.g., operational location, investment, financing, property rights, human capital distribution, and accounting choices). Furthermore, these choices vary with a variety of company-specific and country-specific conditions. For example, factors that may vary across foreign affiliates include access to capital markets, cost of capital, investment opportunities, compensation structures, and tax positions. Factors that may vary across countries include anticipated economic prosperity, political and financial market risks, and taxes. Because company-specific differences likely are more idiosyncratic and difficult to measure and control for than country differences, we combine all payments by type (dividends, interest, royalties, and management fees) between two countries in our empirical tests.

Aggregation at the country level mitigates company-specific heterogeneity, reducing the possibility of omitted correlated variables and the number of control variables in the regression equation. Our country-level tests regress payments (by type) on a measure of taxes while controlling for flows in real goods and services between countries, a largely exogenous variable intended to capture non-tax reasons for payments. Company-level analysis also would require an exogenous control for payments. However, we were unable to identify adequate exogenous company-level measures of non-tax reasons for IP fees. A cost of country-level aggregation is the loss of variation in corporate tax positions within countries [Thus to the extent inter-affiliate tax planning varies more with the distribution of tax status or characteristics within countries than across countries, the power of our tests is diminished.]

Payments between countries are expected to vary with cross-country differences in the tax costs of a transfer and factors such as economic prosperity, political and financial market risks, and capital market efficiency. Without regulatory impediments, we expect cash to accumulate in and flow to countries with the most efficient investment opportunities. We do not expect payments to accumulate in or flow to jurisdictions hampered by political risks or financial market risks, such as exchange controls. We proxy for the effects of economic prosperity and unrestricted political and financial environments by including the level of real trade activity between pairs of countries in our model. Financial flows (dividends and interest) also are expected to be larger for countries with more efficient financial markets, e.g., a well-developed banking system, where financial capital is maintained. By holding excess cash in a central cash reservoir, a multinational company potentially can
reduce its required level of worldwide cash reserves and/or increase overall returns to cash management [Shapiro (1992)]. Thus, we anticipate foreign affiliate cross-border payments to be a function of taxes and trade, and, for financial flows, for these flows to be a function of banking activity.

**Research Design**

To determine the effect of taxes on interaffiliate, cross-jurisdictional IPs we estimate the following country-level equation for dividends and interest and a similar model that excludes PAYFIN and RECFIN for royalties and management fees:

\[
PAY_{jk} = \beta_0 + \beta_1 TAX_{jk} + \beta_2 TRADE_{jk} + \beta_3 PAYFIN_j + \beta_4 RECFIN_k + \epsilon_{jk}
\]

- **PAY**\(_{jk}\) = total 1990 IPs from country j to country k;
- **TAX**\(_{jk}\) = net transfer tax (reflecting deductions and withholding taxes in country j and income taxes and foreign tax credits or deductions in country k) imposed per $1 of IPs from country j to country k;
- **TRADE**\(_{jk}\) = total 1990 exports and imports between countries j and k;
- **PAYFIN**\(_j\) = financial service affiliate assets as a percentage of total affiliate assets in country j;
- **RECFIN**\(_k\) = financial service affiliate assets as a percentage of total affiliate assets in country k.

The remainder of this section discusses the explanatory variables. The sample selection and the dependent variables are detailed in the Appendix.

**Explanatory variables**

The TAX coefficient is expected to be negative if inter-affiliate, cross-border payments are decreasing in net transfer taxes levied by payors' and payees' domiciles. TAX varies by method of payment between the paying and receiving countries. TAX encompasses each of the separate components of the net transfer tax cost: whether or not the transfer payment is deductible from taxable income in the paying country; the impact of withholding taxes imposed by the payor country; the taxable or tax-free nature of the payment in each country of receipt, including the effects of taxes imposed by the payor on the amount of income included in the payee's tax base; and double taxation relief in each receiving country in terms of deductions for foreign income taxes, direct and indirect foreign tax credits, and the availability of tax sparing. For all computations we assume the foreign-controlled corporation is subject to the country's statutory tax rate.

TRADE controls for economic prosperity and unrestricted political and financial markets. The TRADE coefficient is predicted to be positive because, everything else held equal, real economic trade activity between two countries is expected to be highly positively correlated with dividends, interest, royalties, and management fees. The regression is intended to isolate the extent to which income and withholding taxes cause organizations to decouple the natural relation between trade and payments for financial, intangible, and human capital. TRADE is collected from the International Monetary Fund's Direction of Trade Statistics Yearbook-1993.

PAYFIN and RECFIN are included in the regressions of dividends and interest to control for variability across countries in the financial service industries. To the
extent companies centralize cash reserves in countries with established banking centers until redeployment is required, we expect the PAYFIN and RECFIN coefficients to be positive because payments to and from the country should be increasing with the level of financial efficiency. To capture the effect of centralized cash management on dividends and interest, ideally we would measure each country’s attractiveness as a money center, irrespective of its tax climate, using proxies such as the degree of liberalization of banking laws. However, such proxies are not available for the numerous countries included in this study. Thus, we use PAYFIN (RECFIN), which represents total financial service affiliates’ assets as a percentage of all affiliates’ assets in the paying (receiving) country, as an ex post measure of the country’s attractiveness as a money center. To the extent tax incentives such as a tax exemption for dividends and interest are important factors in the establishment of financial subsidiaries, we bias against rejecting the null hypothesis that taxes are not a significant factor in global corporate structuring. This occurs because part of the tax effects will be shifted to the coefficient estimates for PAYFIN and RECFIN, reducing the significance of the variable TAX.13

Results

The regression estimates in Table 4 present evidence consistent with U.S. multinationals’ structuring their foreign operations to mitigate non-U.S. taxes. Confirming the univariate findings that payments and taxes are correlated for each method of payment, except management fees, the regression estimates indicate the transfers of dividends, royalties, and sometimes interest between foreign affiliates are consistent with the global organization’s structuring its affairs to avoid cross-border taxes. We find no evidence that management fee payments are sensitive to the taxes levied on cross-border payments. Our documentation of global tax planning is striking, given the multitude of non-tax factors affecting multinational decisions, the residual nature of foreign taxes in a worldwide tax system (i.e., U.S. foreign tax credits offset many foreign taxes payments), and the likely measurement error in our tests.

Tobit regression procedures are employed because 49 percent of the dependent variables across the four methods of payments are zero. We find the TAX coefficient is negative and significantly less than zero at conventional levels (p<0.0001 for dividends and royalties, p<.05 for interest) for each tax mitigation method, except management fees. The TAX coefficient is much larger for dividends than the other methods.

One interpretation of the findings is that tax considerations permeate global decisions. However, the extent to which tax considerations affect decisions (and are detectable with the crude calibrations available to researchers) is determined by the importance of non-tax considerations (Scholes and Wolfson [1992]). This internal coordination of taxes and non-tax factors could be one of several explanations for the differences in the significance of the TAX coefficients in this study. For example, inter-affiliate dividends could be a particularly flexible method to transfer cash among commonly-owned affiliates to the extent organizational structures can be established to provide “tax-efficient” routes of transfer. Once organizational structures are established, inter-affiliate dividends can be readily suspended, initiated, or changed, and thus are subject to relatively little tax enforcement scrutiny. In addition, inter-affiliate dividends have no impact on common performance and
control measures and accounting earnings (except to the extent future investment income is affected).

Management fees could exhibit less TAX variability for a number of reasons. First, management fees may be less flexible because they are a component of earnings, and thus affiliate performance. Second, management fees are the most challenged method of interaffiliate cash transfers by tax authorities.14 Also, most worldwide tax authorities require companies to recharacterize management fees which are deemed excessive as dividend payments, eliminating potential tax savings from deductions. Third, management fee withholding rates, which are used to compute the net transfer tax, may be more imprecise than other payment method withholding rates. In particular, there may be multiple potential withholding rates that could apply to these fees or commissions depending on the exact nature of the payment. The remainder of the paper presents several sensitivity tests conducted to determine the robustness of the findings.

Sensitivity tests

Inferences from a battery of sensitivity tests confirm the conclusions drawn above. The first sensitivity test addresses the appropriateness of the Tobit model. The Tobit specification assumes global tax planning is increasing in payments. It may be that the level of payments is immaterial, and that the mere presence or absence of a payment signifies the influence of tax planning in the global organization. If so, a binary dependent variable is appropriate. When the equation is re-estimated using such a probit model, inferences are unaltered, except the TAX coefficient for interest payments is no longer significantly different from zero. The TAX coefficients for dividends and royalties remain negative and significant at less than the 0.0001 level, and the TAX coefficient for management fees remains insignificantly different from zero. These results imply that the decision to issue debt between foreign affiliates is not motivated by incentives to mitigate foreign tax payments, but the level of interest payments is related to differential cross-border tax considerations.

The second sensitivity test addresses dependence among the methods of payments. Because the decisions to make IPs are not independent, ideally a system of equations should be used to estimate the coefficients.15 Unfortunately, we are unaware of any statistical package designed to estimate Tobit specifications in a system of equations. Therefore, we attempt to assess the effect of dependence by reestimating the regression equation using Tobit and adding the other three dependent variables as explanatory variables in each model. Inferences are unaltered, except the TAX coefficient for interest payments is no longer significantly different from zero. The TAX coefficients for dividends and royalties remain negative and significant at less than the 0.0001 level, and the TAX coefficient for management fees remains insignificantly different from zero. The coefficients on the new explanatory variables (the dependent variables for the other three regressions) are always positive and significantly greater than zero at the 0.0001 level, except royalties as a regressor in the dividends and interest estimations and dividends as a regressor in the royalty estimation, which are not significantly different from zero.16

The third set of sensitivity tests addresses the possibility of correlated omitted variables biasing the coefficient estimates of TAX. Specifically, TRADE is designed to capture a multitude of un-
specified non-tax factors affecting cross-border economic activity. To the extent it fails to control for differences across pairs of countries, mismeasurement is introduced into our estimates. To assess the possibility of an omitted variable, we reestimate the equations retaining the original explanatory variables and including eight additional explanatory variables designed to control for variability across the paying and receiving countries. Four variables, the mean real growth rates of the gross domestic products of both the paying and receiving countries for both the four years preceding and the four years following 1990 (the year of the sample data), are intended to capture variation in the level of payments arising from cross-country differences in expected and past prosperity. Two variables, Institutional Investor 1990 Country Credit Ratings for both paying and receiving countries, are designed to control for cross-country differences in political risk. Two categorical variables, for the existence of foreign currency exchange controls in both paying and receiving countries, are expected to control for cross-country differences in currency risk. We offer no predictions of the sign of these additional variables because they appear ambiguous. For example, payments may be increasing in the political riskiness of payor countries as investors redeploy investments in less troubled nations. Conversely, payments may be decreasing in the political riskiness of payor countries because initial investments were reduced, reflecting the country’s longtime political uncertainty.

Inferences regarding the TAX coefficients are unchanged when the additional eight control variables are included in each of the Tobit regressions. All TAX coefficients remain negative. The dividends and royalties TAX coefficients remain significant at the 0.0001 level; the interest TAX coefficient remains significant at the 0.05 level; and the management fees TAX coefficient remains not significant.

The fourth set of sensitivity tests control for cross-country differences in ability to pay by adding the following explanatory variables for all affiliates in the payor country: country profitability (1990 book earnings), country investments (total assets), or return on assets (1990 book earnings divided by assets). In these alternative specifications, the TAX coefficients for royalties and dividends are negative and significant at 0.0001 and the TAX coefficients for interest and management fees are not significantly different from zero. This pattern continues if both payor and payee earnings, assets, or return on assets are included in the specifications. The coefficients on earnings and assets for both payor and payee countries are always positive and significant at the 0.0001 level. The coefficients on the return on assets for the two countries only are significant when the dependent variable is interest. Also, when the original variables expressed in levels are scaled by the sum of payor and payee country earnings, the tax coefficients for each payment method, except management fees, are significant at the 0.005 level.

The final set of sensitivity tests addresses the role of tax havens in the mitigation of non-U.S. tax liabilities. A possible interpretation of the above findings is that multinationals establish subsidiaries in tax havens to mitigate non-U.S. taxes and ignore tax considerations in the transfer of funds between non-haven countries. To investigate this possible explanation, we re-estimate the regressions including a categorical variable which indicates whether the payor or payee country is a tax haven. The indicator variable is included as an intercept.
term and interacted with each explanatory variable. None of the intercept or slope tax haven variables are significant at the 0.05 level in any of the four methods of payments. We interpret these findings as evidence that global tax planning permeates both transfers involving tax havens and transfers involving other countries.21

The failure to detect a difference between havens and other countries should not be interpreted as evidence that havens are peripheral to global tax planning. Havens likely dominate other countries as tax-advantaged cash depositories. However, havens do not necessarily dominate other countries as conduits for redeployment. As detailed in this study, transfer of cash involves far more tax considerations than the marginal tax rate applied to investment income. Firms must consider both payor and payee taxes, including revenue recognition, deductions, withholding taxes, and foreign tax credits. Consequently, the multinational tax planning detected in this study likely transcends the simpler strategy of depositing excess cash in low-tax countries.22

Closing Remarks

The purpose of this paper is to provide an initial calibration of the extent to which tax planning permeates global organizations. The paper focuses on cross-border payments of dividends, interest, royalties, and management fees between commonly-owned foreign affiliates of U.S. multinationals because firms have considerable discretion over the timing and magnitude of these payments, and there are substantial foreign tax implications regarding the transfer of cash across political borders. We find dividend, royalty, and sometimes interest payments between foreign affiliates are negatively correlated with the cumulative income and withholding taxes levied on cross-border transfers. We find no evidence management fees are structured to mitigate non-U.S. taxes.

While the ability to observe flows between foreign affiliates enhances the power of our tests, data limitations associated with the Form 5471 disclosures also potentially weaken our tests. The quality of Form 5471 information could be diminished because these disclosures do not directly affect the corporate tax liability or because taxpayers strategically use the disclosures to minimize the probability of an audit. Also, additional measurement error is introduced because we must estimate the specific payments between commonly-owned foreign subsidiaries. Finally, some relevant company-level heterogeneity may be lost when we aggregate at the country level. The robustness of the dividend and royalty results, in particular, indicate that, despite data limitations, our tests merit a high degree of confidence.

This paper presents the most direct evidence to date that U.S. multinationals coordinate their non-U.S. activities to mitigate foreign taxes. Our evidence that inter-affiliate cross-border payments are responsive to the net tax cost of crossing borders indicates that the foreign organizational structures of U.S. multinationals are established to provide "tax efficient" routes of cash transfer, which produce tax savings that seemingly outweigh complex coordination challenges.
Appendix

Data, sample, and the dependent variables

The principal data source for this study is the 1990 Form 5471 data file created by the Statistics of Income Division of the Internal Revenue Service (SOI). Form 5471s are foreign subsidiary informational returns U.S. multinationals file annually with their corporate returns. A U.S. multinational must file a separate Form 5471 for each of its foreign subsidiaries. The Form 5471 includes identifying information, such as name, address, business activity, date of incorporation, and country of domicile, and financial information, including a balance sheet, an income statement, and a statement of retained earnings. Schedule M of Form 5471 also provides detailed information on receipts and payments between the filing foreign subsidiary and its U.S. parent, U.S. affiliates, and foreign affiliates. The receipts and payments are partitioned as follows: dividends, interest, rents and royalties, compensation, commissions, insurance premia, sales and purchases of inventory, and other purchases of tangible property. Receipts and payments of each type are aggregatedly reported in three categories depending on the company on the other side of the transaction: the U.S. parent, U.S. affiliates, or foreign affiliates.

The Form 5471 disclosures are subject to the following two limitations. First, since 5471 disclosures do not directly affect the U.S. parent corporate tax liability, the disclosures may be of poor quality, reducing their usefulness for our tests. Second, there is anecdotal evidence that 5471 disclosures are considered by the IRS in its audit selection process. If taxpayers perceive that the 5471 disclosures affect the likelihood and extent of audits, they may provide information in a way that they believe will minimize the probability of an audit. If so, this would limit the detection of tax management.

Every other year SOI creates a data base with selected information from Form 5471, Form 1120 (the basic corporate income tax return) and Form 1118 (the foreign tax credit calculation). Our analysis is limited to the 7,500 foreign subsidiaries with the largest total assets because the data base only compiles Form 5471, Schedule M payments and receipts information for this set of companies.

The interest, dividend, royalty, and management fee cross-border payments (PAY) are derived from the Form 5471 Schedule M data. Payments between foreign subsidiaries and other foreign affiliates are not separately identified by the domicile of the foreign affiliate on the other side of the transaction. Non-U.S. transactions for each foreign subsidiary are disaggregated only by method of payment and direction (payment or receipt). Thus, we must estimate the specific payments between commonly-owned foreign subsidiaries are received by its commonly-owned foreign affiliates in proportion to the IP’s reported on their Form 5471s. For example, assume a U.S. multinational has four foreign subsidiaries, one each in Britain, France, Germany and Italy. The British subsidiary reports total interest payments of $10 to its foreign affiliates, and the French, German, and Italian subsidiaries report total interest income from foreign affiliates of $12, $3 and zero, respectively. We estimate the British subsidiary paid the French subsidiary $8 of interest, [$10*($12/($12 + $3))], the German subsidiary $2 of interest [$10*($3/ ($12 + $3))], and the Italian subsidiary no interest.

This estimation of the dependent variables introduces at least three possible sources of error in our measurement of
payments, weakening the power of our tests. First, the number of positive payments is overstated. Zero values are assigned only when payments are impossible (i.e., no payment-receipt country-pair combination between commonly-owned foreign affiliates of the same multinational). Positive values are assigned whenever a payment is possible. Thus, our estimates are overstated when a payment could have occurred, but did not, and understated when payments are actually made. Consequently, if payments are tax-motivated, our estimation will bias against rejecting the null hypothesis of no tax effect. Second, since the SOI only samples the largest 7,500 foreign affiliates of all U.S. multinationals, complete identification of each U.S. multinational's commonly-owned foreign subsidiaries is not possible. As a result, though total receipts do not equal total payments in the SOI database, our estimates of total receipts and total payments equal. Third, filing requirements for Form 5471 require that all financial information be stated in U.S. dollars at yearend. The translation of various local currencies into U.S. dollars adds to the discrepancy between receipts and payments.

After estimating the receiver domiciles for payments between foreign affiliates, we eliminate estimated transfers between commonly-owned foreign affiliates in the same country. We then aggregate company payments to determine the total flows by direction and method between each pair of foreign domiciles. The direction of the payments is relevant because the tax transfer cost varies by direction. Thus, if there are payments both to country X from country Y and to country Y from country X, the payments are not netted but rather treated as two separate country-pairs. Observations (i.e., payor/payee country-pairs for each method) are deleted only if there are no dividend, interest, royalty and management fee estimated payments by any company in the payor country to any company in the payee country. If there is an estimate for at least one method of payment between two countries, a zero observation is recorded for any other payment methods between the two countries where there are no estimated payments.

Descriptive statistics

The estimation and aggregation process identifies 2,388 country-pairs with at least one positive payment among the four methods. The inter-affiliate, cross-border payments (PAY) total $22.8 billion, with total dividend, interest, royalty, and management fee flows of $5.6 billion, $7.5 billion, $1.0 billion, and $8.7 billion, respectively. Table 1 lists the 25 countries with the largest total receipts and payments. U.S.-controlled British subsidiaries report the largest receipts ($4.4 billion) and payments ($4.3 billion). They are followed by Germany ($6.1 billion total receipts and payments), and the Netherlands ($4.6 billion total). No other country has more than $4 billion in combined receipts and payments. These three countries account for the largest two amounts of each type of receipt and payment, except: (1) dividends received, where Switzerland trails only the United Kingdom in receipts; (2) royalties received, where France and Switzerland lead all countries; and (3) royalties paid, where France reports the largest amount. Many countries report roughly the same amount of payments and receipts for a given method. Notable exceptions include: (1) Switzerland, where dividends received exceed dividends paid by sixfold; (2) Spain, where dividends paid are over five times dividends received; and (3) the Bahamas, Netherlands Antilles, and Luxem-
bour, where combined interest receipts for the three countries exceed seven times combined interest paid.

The 25 largest countries include the U.S.'s major trading partners and several countries commonly called tax havens, e.g., Hong Kong, Bermuda, Bahamas, Netherlands Antilles, Singapore, Ireland, Luxembourg, Cayman Islands, and Panama. The prevalence of cash flows in and out of tax havens provides prima facie evidence taxes are an important consideration in structuring IPs between foreign companies controlled by U.S. multinationals.

Table 2 provides further descriptive statistics for each variable included in the regression model. Many dependent variables are zero. Seventy-four percent of dividend payments, 37 percent of interest payments, 73 percent of royalty payments, and 12 percent of management fee payments are zero. The mean and median TAX variables are near-zero for each method, except dividends where the mean (median) value is 15 (14). Not surprisingly, TAX is greater for dividends because there generally is no deduction in the payor country for dividend payments. The mean (median) TRADE variable is $1.7 billion ($163 million). Financial service industry assets account for 30 (31) percent of affiliate assets in payor (payee) countries.

**Univariate analyses**

Table 3 provides correlations of the regression variables. Consistent with global tax planning, the Pearson and Spearman correlation coefficients between PAY and TAX are negative and significant at the 0.05 level for each method except management fees, where neither statistic is significantly different from zero.\(^28\) As expected, TRADE is positively related to each method of payment. The correlation coefficients between TRADE and TAX are always negative, but only TRADE and the TAX measure for dividends are significantly correlated. Consistent with money center countries operating as central cash reservoirs, PAYFIN and RECFIN are always positively correlated with each method of payment, except that the Pearson correlation coefficient between PAYFIN and royalty payments is not significantly different from zero. PAYFIN (RECFIN) is positively (negatively) correlated with each of the tax measures. These relations are consistent with firms' redeploying from money centers despite unfavorable tax consequences and deployment to money centers being tax-advantaged. PAYFIN and RECFIN are not correlated.
Unlike financial reporting entities, which generally are defined by common ownership rather than political boundaries, tax reporting entities are defined more by political boundaries than common ownership. For example, U.S. GAAP consolidation rules are based only on common ownership and ignore the geographic location of the business activity. Conversely, U.S. tax law restricts consolidations to commonly-owned companies domiciled only in the U.S. Thus, cross-border transactions, while largely irrelevant for financial reporting purposes, generally create tax consequences in multiple jurisdictions.

An official with one of the largest U.S. multinationals privately communicated to us that the company chooses to forego tax mitigation arising from opportunistic interaffiliate payments to minimize conflict between affiliate managers. Thus, all profits are repatriated directly to the U.S. each year, and excess cash is managed centrally in the U.S. and redeployed throughout the organization according to centralized decisions.

We define management fees as commissions and compensation for technical, managerial, engineering, construction, or like services. Including interaffiliate management fees potentially is important because they are large (aggregate interaffiliate management fees exceed dividends, interest or royalties) and are reportedly subject to closer scrutiny by taxing authorities than other payments.

For example, U.S. tax law generally defers taxation of foreign subsidiaries' profits until repatriation to the U.S. parent occurs. If the earnings are expected to be permanently reinvested in the foreign subsidiary, the enterprise likely invests little in strategies to mitigate the tax costs arising upon repatriation. Accordingly, U.S. GAAP permits companies to forgo recognition of income tax expense on permanently reinvested foreign earnings.

For example, it would be very difficult to isolate and measure costs of capital and investment opportunities of individual foreign affiliates within the global organization.

For example, total interest payments from German affiliates to French affiliates for all companies are treated as one observation.

Preliminary analyses using affiliate self-reported earnings measures to construct firm-specific tax rates resulted in over half the observations being classified as having zero tax rates. This large number likely underestimates the relevant marginal tax rate and suggests that the significant measurement error introduced by estimating firm-specific rates overwhelms any increase in precision. Also, preliminary results regarding the tax cost of cross-border transfers were robust to both firm-specific and statutory tax rate measures.

Sensitivity tests, presented later in the paper, employ additional measures of economic prosperity and political and financial market risks. The results from these alternative tests are not materially different.

The variable Tax is computed using the 1990 version of COMTAX, an international tax management system produced by a Swedish company of the same name and leased primarily to European multinational corporations, for coordinating multinational operations. Among other tasks, the system can compute the country-specific income and withholding taxes (as modified by treaty provisions) levied on IPs between 99 countries.

The COMTAX system provides a precise measure of the taxes levied on payments between two countries. Each observation in the study required inputting the countries involved and the form of payment.
COMTAX computes the amount of cash remaining after earning $100 and paying any amount remaining after local taxes in dividends, interest, or royalties. We compute TAX measures for management fees by modifying COMTAX's interest and royalty programs to adjust for differences in withholding and income taxes related to management fees. To demonstrate the COMTAX procedure, assume a Brazilian subsidiary pays interest to its Swiss affiliate. Brazil taxes ordinary income at a 49.8 percent tax rate and also permits a deduction for interest payments at the same rate. (Typically, for deductible payments, the tax rate applied to income equals the tax rate applied to a deduction.) COMTAX assumes the $100 of income is taxed and then deducted at the same rate, leaving $100 for distribution as an interest payment. Brazil withholds 25 percent of interest payments so $75 of interest are received by the Swiss affiliate. The Swiss government fully taxes the interest income at this rate of 18 percent, extracting $13.50 for Swiss income taxes. Thus the Swiss subsidiary is left with $61.50 ($75-$13.50) of cash. Because we assume the tax associated with earning the cash already has been paid and focus on the tax costs (benefits) of the decision to transfer cash, we must reverse out the payor country income taxes included in the COMTAX program. Thus, the net transfer tax (TAX) is $11.30, total taxes paid, $38.50 ($100-$61.5) less Brazilian income taxes paid of $49.80 ($100*.498). Intuitively, the multinational organization can save or "earn" 11.3 cents on every dollar of cash transferred through interest payments from Brazilian to Swiss companies. The 11.3 cents of "earnings" are 49.8 cents of reduced Brazilian income taxes less 25 cents of Brazilian withholding taxes paid and 13.5 cents of Swiss income taxes paid.

The ideal measure of TRADE for each pair of countries would be the imports and exports of U.S. multinationals' foreign affiliates. To our knowledge, no such data exist. Because the TRADE measure is based on the imports and exports of both U.S.- and non-U.S.-controlled companies, our tests assume that, for all country-pairs, the trade between U.S.-controlled foreign affiliates is proportional to the total trade between two countries from all companies. To the extent this assumption is erroneous, mismeasurement is introduced in our tests. However, the direction of the bias is not apparent. Also the International Monetary Fund's Direction of Trade Statistics Yearbook-1993 consolidates data for Belgium and Luxembourg. Based on the countries' respective population, we assign 97 (3) percent of the trade data to Belgium (Luxembourg).

PAYFIN and RECFIN are restricted to the regressions for financial variables (dividends and interest) because we anticipate money center countries are more active in deployment of equity and debt capital than non-money center countries, but not necessarily more active in the deployment of intangible property (royalties) or human capital (management fees). Nevertheless, inferences are unaltered when PAYFIN and RECFIN are included in the royalties and management fees regressions as well as excluded from the dividend and interest regressions.

The Appendix contains a discussion of the data and dependent variable, descriptive statistics, and a variable analysis.

A recently released Ernst and Young survey of 210 multinational companies reports transfer pricing disputes most likely arise over charges for administrative or managerial services (Financial Times, July 17, 1995, pp. 1 and 14). Although our single equation estimates are consistent, they may not be efficient if the asymptotic variances are larger than
they would be using a system of equations estimation.

16 The positive coefficients on the explanatory payment variables likely arise because the dependent variables are correlated in the levels specifications and the inclusion of tax havens renders TRADE an imperfect control for size variation.

17 Ideally, future prosperity would be measured using a 1990 assessment of expected economic performance. Unfortunately, we are unable to identify a prediction of future economic performance that is available for all countries included in the study. Gross domestic product real growth rates are compiled from the following sources: International Monetary Fund International Financial Statistics, The Economist Intelligence Unit Country Reports, and International Marketing Data and Statistics. Rates are unavailable for Liechtenstein, which is assigned the mean rate of its bordering countries, and the Cayman Islands, which is assigned the mean rate for Caribbean countries.

18 No political risk measures are available for six countries in the study. These countries are assigned the risk measure of similar countries, politically or geographically. The Dutch rating is assigned to the Netherlands Antilles; the American rating to the Bahamas; the British rating to Bermuda and the Cayman Islands; the mean of the Dutch and Belgian ratings to Luxembourg and the mean of the German, Swiss and Austrian ratings to Liechtenstein.

19 Foreign currency exchange status is determined by analyzing detailed information in the COMTAX database. Countries are dichotomized based upon the presence of any currency exchange restriction on foreign-controlled companies.

20 The Internal Revenue Service's tax haven classification is used to determine tax havens. In 1990 the IRS classified the following countries as tax havens: Antigua and Barbuda, Aruba, Austria, Bahamas, Bahrain, Barbados, Belize, Bermuda, Cayman Islands, Costa Rica, Gibraltar, Hong Kong, Leeward Islands, Liberia, Liechtenstein, Luxembourg, Monaco, Netherlands, Netherlands Antilles, Panama, Singapore, Switzerland, Turks and Caicos Islands, and Windward Islands [Internal Revenue Service (1994)]. Using this classification, 42 percent of the country-pair observations and 46 percent of the cash transferred involve at least one tax haven. Tax havens are misclassified to the extent countries are tax havens with respect to the U.S. but are not tax havens with respect to the trading partner and vice versa.

21 We twice re-estimate the equations, first including a categorical variable indicating whether the paying country is a tax haven and, second, including a categorical variable indicating whether the receiving country is a tax haven. In the resulting eight regressions, the coefficient on one interaction between tax havens and the TAX variable (dividends paid by tax havens) is significantly different from zero. The coefficient on the interacted term is positive, implying that dividends paid by havens are less sensitive to the dividend tax burden than dividends paid by non-tax haven countries. This could reflect accumulations of excess cash in tax havens.

22 For a more complete discussion of effective international tax planning involving non-tax haven countries, see Wenhe [1995].

23 Professors Collins and Shackelford had an assignment agreement under the Intergovernmental Personnel Act of 1970 between the University of North Carolina and the Statistics of Income Division of the Internal Revenue Service. The agreement permitted them limited access to actual tax return data. They are subject to the same confidentiality requirements that bind Internal Revenue Service personnel.
The 1990 data base is the first SOI data base to include Form 5471 Schedule M information and also is the most current available data base at the time of this writing.

Rent and royalties are not separately reported. However, discussions with tax planners and taxing authorities indicate royalties comprise substantially all of the total. Thus, subsequent references and empirical tests will assume there are no rents. Also, we sum compensation and commissions are included in our measure of management fees.

For example, suppose a company reports management fees paid by a subsidiary in country X and management fees received by a subsidiary in country Y. The procedures in this study will estimate the management fees paid from country X to country Y. If no companies reported interest paid by a subsidiary in country X and interest received by a subsidiary in country Y, no estimate of the interest between countries X and Y will be made. However, because there exists at least one payment from country X to country Y (in this case management fees), zero is imputed as the amount of interest from country X to country Y. In addition, if there is at least one U.S. multinational with foreign affiliates in countries X and Y, but all companies' estimates for all four methods of payment from country X to country Y equal zero, the X to Y country-pair is deleted. This deletion procedure was necessary because determining the tax cost for each directional country-pair and payment method is extremely labor intensive. To compute tax costs for the complete set of possible country-method combinations would roughly double the number of payment-observations (with all additional observations having values of zero). We are unsure that the power from the additional zero values would substantially augment our tests, since approximately half of our dependent variable observations already are zero.

Only 374 of the 2,388 country-pairs are uni-directional, i.e., payments flow from country X to country Y, but not from country Y to country X.

Caution should be exercised in interpreting the correlations involving PAY because of the concentration of PAY values at zero. This potential problem is addressed in the subsequent regressions by using Tobit estimation procedures.
References


