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International transfer pricing and income shifting: evidence from the UK

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ABSTRACT

The potential use of international transfer pricing (ITP) as an income-shifting mechanism by multinational enterprises (MNEs) has long been recognized. However, there is relatively little evidence to substantiate or discount this claim in relation to UK-based foreign-controlled enterprises (FCEs). This paper examines the possible use of ITP as an income-shifting mechanism by FCEs operating in the UK. The methodological approach involves the comparison of the profitability (performance) and dividend (post-performance) distributions of a sample of FCEs with those of UK-controlled enterprises (UKCEs) over a two-year period. The two samples are matched on the basis of their total assets (capability). Results reveal significant differences in the profitability and dividend distributions of the two groups. FCEs underperform UKCEs, but their level of dividend distribution outstrips those of UKCEs. Based on this sample of seventy-two companies, a firm is more likely to be an FCE, rather than a UKCE, if it reports a combination of lower performance and higher post-performance distribution. Evidence of significant income shifting by FCEs is confirmed and the claim that ITP is the key mechanism for such shifts cannot be dismissed.

INTRODUCTION

This paper investigates the link between reported profitability and dividend distributions of UK-based foreign-controlled enterprises (FCEs) and UK-controlled enterprises (UKCEs) to determine whether international transfer pricing (ITP) is used for income-shifting purposes. ITP is concerned with the monetary value attaching to movements of goods and services between parts of the same enterprise which cross national boundaries. Its potential use as an income-shifting mechanism by multinational enterprises (MNEs) has long

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been recognized (Picciotto, 1992). Empirical evidence is, however, lacking with respect to FCEs' transfer pricing practices in the UK.

Positive correlation should exist between firms' capability, profitability and dividend distribution (Wheeler, 1990). Proceeding on this logical assumption, a sample of FCEs is matched with a sample of UKCEs on the basis of capability, and consequently, a comparison of the reported profitability (performance) and dividend (post-performance) distributions of the two samples is undertaken. The results reveal significant divergence in the performance and post-performance distributions of the two samples. We find an unusual relationship between the profitability and distributions of FCEs which suggests that transfer pricing is used to shift income from the UK. Logit regression estimates enable the headquarter or control location of firms to be predicted from a number of performance and post-performance explanatory variables. A firm is more likely to be an FCE when lower profits and higher dividend distributions are reported.

The rest of this paper is organized as follows. The next section reviews the literature on ITP and income shifting. The chosen research method is then explained and a subsequent section discusses the empirical results. Finally, the conclusions and implications for future research are reported.

INTERNATIONAL TRANSFER PRICING AND INCOME SHIFTING

One of the potential roles of ITP is to locate group profits artificially in countries where a tax advantage may be obtained. By manipulation of ITP, global tax liability can be minimized. Several well-known texts, such as Radebaugh and Gray (1997), Rugman and Hodgetts (1995) and Shapiro (1992) illustrate how this is achieved. Yet the issue is not merely one of academic or theoretical interest. Newspaper headlines like 'IRS investigates foreign companies for tax cheating' (*New York Times*, 18 February 1990), 'Inland Revenue probes tax avoidance at Sony' (*Sunday Times*, 22 March 1992), 'Apple Computer fights claim by IRS' (*New York Times*, 3 April 1993) and 'Transfer pricing comes out of the shadows' (*Financial Times*, 23 November 1995) testify to the practical significance. Research on the income-shifting role of ITP is, however, relatively scarce and mainly confined to the USA.

Grubert *et al*. (1993), Harris *et al*. (1991) and Scholes *et al*. (1992) report evidence of income shifting by US-based firms in response to tax incentives and differentials. When tax rates, bases and rules differ across countries, it is generally not a matter of indifference where income is reported. Hence MNEs in high-tax countries tend to report higher US income and those in low-tax foreign countries tend to report lower US income. Harris (1993), Jacob (1996) and Klassen *et al*. (1993) find that US-based MNEs shift income between geographic locations in response to changes in tax rates and

rules. The volume of intra-firm international transfers appears to suggest that transfer prices are the mechanism for income shifting. However, direct evidence of ITP playing this role is difficult to obtain due to the sensitivity of the issue for both MNEs and fiscal agencies.

An indirect method to detect income shifting is applied by Crain and Stitts (1994), Kim and Lyn (1990) and Wheeler (1988, 1990). Taking matched samples of FCEs and US-controlled enterprises, performance as measured by gross profit margin or rate of return on assets or some other profitability index is compared. Each of these studies reported the performance of US-controlled enterprises to be significantly higher than those of FCEs. Wheeler (1988) extended the analysis to investigate post-performance distributions of FCEs and US-controlled enterprises. For the period 1972–83, he found that:

1 the rate of return on assets for US-controlled enterprises was six times larger than that reported by FCEs;
2 distributions to shareholders by FCEs increased sixfold whilst the FCEs' return on assets declined over this time period.

This study obtained data from the Statement of Income filed by FCEs with the Internal Revenue Service. It is noteworthy that the number of statements FCEs filed increased substantially during this time span. Wheeler concluded that improper transfer-pricing policies appeared to be the only plausible explanation for the discrepancies discovered.

However, an alternative explanation for differences in performance between FCEs and US-controlled enterprises relates to operational and strategic factors. Managerial skill and experience, start-up costs, age of investment, nature of the product and the production process are some of the reasons why performance differs (Gideon, 1990). Additionally, Buckley and Hughes (1997) argue that differing cost principles, as illustrated by the use of target costing in Japanese enterprises, justify the application of transfer prices which are perceived as 'fair' for that national business culture. The significance of these arguments is likely to be greater when individual FCEs and UKCEs are compared. When samples of FCEs and UKCEs are the focus of analysis, the effect of operational, strategic and cultural factors is likely to be mitigated.

Occasional anecdotal evidence (*Sunday Times*, 22 March 1992) indicates that differences in performance exist between FCEs and UKCEs. British MNEs paid more than five times as much tax per pound of turnover than their Japanese counterparts. In 1988–89 and 1990–91, the Inland Revenue collected less than £40 million in profits tax from the ten largest Japanese firms in the UK which represented only 0.6% of their combined UK turnover. This is in stark contrast to the £14 billion profits tax which the largest ten British companies paid during the same period. Whilst culture and other operational or strategic factors may influence performance, the potential significance of

ITP cannot be ignored. Using UK data, this study investigates the use of ITP as an income-shifting mechanism.

RESEARCH METHOD

Sample selection and data collection

The aim of this study is to determine whether the profitability (performance) and dividend (post-performance) distributions of FCEs operating in the UK reveal evidence of the use of ITP for income shifting. The approach employed involves a comparison of the profitability and dividend distributions of a sample of these FCEs with those of their UK-controlled counterparts. The underlying assumption is that capability (as measured by total assets) is related to performance (as measured by returns) which in turn relate to post-performance events (as measured by dividend payouts).[1] The approach is applied to a sample of thirty-six FCEs operating in the UK which are matched with thirty-six UKCEs on the basis of total asset value. Within the constraint of total asset values for each sample being equal in 1992 and 1993, an effort to create a UKCE sample which reflected the industry sector composition of the FCEs is made. By controlling the capability of the two samples over the period of analysis, similarities and differences in performance and post-performance are observed.

One hundred and forty FCEs were randomly selected from the *Times 1000* (1994), *Kompass* or Dun & Bradstreet's *Who Owns Whom* (1993). A letter was mailed to each of them requesting copies of their 1992 and 1993 annual reports and accounts. Seventy-nine responses were received. Thirty-three of the respondents provided the reports of their parent companies which presented financial data in their home currency and were therefore not usable. Seven respondents contended that, being private companies, they are not required by law, and were therefore unwilling, to agree to our request. Three respondents gave other reasons for not providing their reports. The remaining thirty-six respondents provided usable 1992 and 1993 annual reports for the purpose of our study. Usable means that the reports are in English, denominated in pounds sterling and identify the firm's UK operations.

The next step was to match the thirty-six FCEs with UKCEs of similar capability.[2] Total assets was used as the measure of capability. A total of seventy-two firms (thirty-six FCEs and thirty-six UKCEs) thus make up our sample. An industry sector breakdown of sampled firms is provided in Table 1. Industrial match is inexact with pharmaceuticals unrepresented in the UK-owned sample and engineering and construction possibly being overrepresented. Future studies may need to alleviate this, but it should be recognized that all of the companies sampled are sufficiently large to exhibit some degree of diversification. Hence, the industry classification based on the main activity is itself inexact. The apparent disparity in the UK sample was

Table 1 FCEs and UKCEs by industry

	FCEs	*UKCEs*
Engineering and construction	1	6
Services including banking and financial services	12	11
Electronics and electrical	2	5
Computer and information technology	5	3
Retail and departmental stores	2	1
Photographics	1	1
Food, beverages, etc.	3	5
Fuel and energy	1	3
Manufacturing	5	1
Pharmaceuticals	4	–
	36	36

necessitated by the need to equate the asset values in aggregate with those of the foreign-controlled sample of enterprises for both 1992 and 1993.

For each company, summary data were extracted on their:

(i) Capability as measured by total assets. For the UK sample, use was made of the segment report relating to UK assets.
(ii) Performance as measured by profit before taxation and turnover. Again, use was made of the UK data in the segment report.
(iii) Post-performance events as measured by the absolute amount of dividend paid, and dividend per share.

A summary of the data obtained is presented in Table 2. Preliminary overview of this data reveals a number of points. First, the two samples are similar in terms of their collective capability in that they hold similar amounts of *total assets* in the same location, namely the UK. No difference is revealed in the measures of capability for the two samples. This indicates that the matching process was successful and our two samples are therefore considered to possess identical capabilities.

Second, from the performance data it is clear that differences, at least in nominal terms, exist between the two groups. This difference holds good for all the ratios and in both time periods. The figures in Table 2 indicate that the performance of FCEs is lower than that of UKCEs. For example, the *turnover* generated by FCEs, with a mean of £738 million in 1993, is only 66% of the £1,116 million average for UKCEs. One possible explanation is that FCEs collectively are experiencing difficulty in gaining market share in the UK. Another possibility is that sales revenue is being underpriced for intra-group trade. Similar differences exist in the *net income* of the two groups. UKCEs consistently reported greater income than their foreign counterparts. Furthermore, when income is expressed over total assets (*return on total assets*), the mean return for FCEs is −20% and −226% as compared

Table 2 Preliminary univariate data comparison

Variables	*Location of control*	*1993*		*1992*	
		Cases	*Mean*	*Cases*	*Mean*
1. Capability					
Total assets	Foreign	36	£1,013m	36	£1,025m
	UK	36	£1,010m	36	£1,010m
2. Performance					
Total turnover	Foreign	34	£738m	34	£698m
	UK	36	£1,116m	36	£1,102m
Net income	Foreign	36	−£90m	36	−£165m
	UK	36	£84m	36	£55m
Return on total assets	Foreign	36	−20%	36	−226%
	UK	36	8%	36	7%
Return on total turnover	Foreign	34	−20%	34	−79%
	UK	36	7%	36	5%
3. Post-performance					
Amount of dividend payout	Foreign	28	£847m	27	£1,796m
	UK	34	£28m	34	£24m
Dividend per share	Foreign	31	£0.3924	29	£0.8577
	UK	35	£0.0945	35	£0.0935
Dividend per £ of total turnover	Foreign	28	£1.7878	27	£5.7603
	UK	34	£0.0232	34	£0.0217
Dividend per £ of total assets	Foreign	28	£2.2850	27	£8.1472
	UK	34	£0.0322	34	£0.0264

to the 8% and 7% of UKCEs in 1993 and 1992, respectively. Such lower returns may be achieved through the overpricing of UK-bound goods and services. There is an expectation therefore that the 'poor' performance of FCEs is reflected in their post-performance distributions.

Third, post-performance data reveal an opposite trend to performance. Despite the poor performance reported by FCEs, their mean dividend payout was significantly higher than UKCEs'. For example, FCEs' average payout of £1,796 million in 1992 compares to UKCEs' £24 million. This practice suggests that cash flow is not adversely affected by operational losses; that is, dividend does not appear to be a function of income. UKCEs exhibited a more traditional pattern with average *dividend per share* holding steady at 9 pence per share for both years, whilst those of FCEs fluctuated wildly, with a high of 86 pence in 1992 and 39 pence in 1993.

In summary, clear patterns may be detected from the above data. On the one hand, FCEs report lower performance in comparison to UKCEs, while, on the other hand, their post-performance activities suggest the exact opposite as their dividend payouts clearly outstrip those of their domestic counterparts. This performance and post-performance divergence requires further examination.

Statistical analysis

To investigate differences between FCEs and UKCEs performance and post-performance, a regression methodology is utilized. In this instance, the dependent variable is necessarily classified as a binary choice variable (that is, a company is allocated a value of 1 if it is an FCE and 0 if it is a UKCE). Given the dichotomous nature of the dependent variable, a logit model is employed in this study (Dietrich and Sorensen, 1984). Logit analysis, while accounting for the stochastic element in the outcome attributable to the disturbance distributions, relates the probability of an event to some measurable firm performance factors. The estimation allows a comparison of the relative importance of the explanatory variables.

The model we estimated is algebraically stated as:

$$Y_i = \alpha + \sum X_{ij}\beta + \mu_i \tag{1}$$

where, for the *i*th firm,

Y = the dependent variable which is 1 if the firm is foreign-controlled and 0 if the firm is UK-controlled;
α = the intercept of the equation;
X_j = the observation on the independent variable *j*;
β = the coefficient of the independent variable to be estimated from the data;
μ = stochastic disturbance term.

In this paper, $P(Y_i)$ is the probability of being foreign-owned or UK-controlled; X_i's are the capability, performance and post-performance measures of sampled firms; α and β are the parameters to be estimated.

Stated in its full form, our logit estimation equation is:

$$Y_i = \alpha + \beta_1(\text{Capability measure})_i + \beta_2(\text{Performance measure}) + \beta_3(\text{Post-performance measure}) + \mu_i \tag{2}$$

where, for firm *i*,

Y = location of firm's headquarters; 1 for FCE and 0 for UKCE;
μ = error term.

From the overview of data presented in Table 2, the *a priori* expectation is that the coefficient estimate on capability (β_1) should be insignificantly different from zero; that the predicted sign on β_2 should be negative, while β_3 should be positively signed.

FINDINGS

Equation (2) is estimated using alternative specifications for the performance and post-performance variables (as detailed in Table 2). An overview of the

coefficient estimate and associated statistics is provided in Tables 3a, 3b and 4a, 4b. For the results in Tables 3a and 3b, the model is specified as follows: the capability measure is *total assets*; the performance measure is *net income*; while the post-performance measure is *dividend per share*. Tables 3a and 3b differ in that the former refers to 1992 data while the latter is based on 1993 data.

Similarly, the specification in Tables 4a and 4b is as follows: *total assets*, is again used as the capability measure; the performance measure is *return on total assets*; and *amount of dividend payout* is employed as the post-performance measure. As before, Table 4a is based on 1992 data, while Table 4b relates to 1993 information. Alternative specifications of performance and post-performance using turnover variables are avoided to limit the possible influence of ITP. Across the respective specifications, a broadly similar picture emerges. First, as expected, the coefficient estimate on the capability measure (*total assets*) is insignificantly different from zero. This result indicates that the matching process in this respect was successful.

Second, in line with preliminary data results detailed in Table 2 and *a priori* prediction, the coefficient signs of performance variables are negative as predicted. It should be noted that the estimate in Table 3a is significant at the 5% level, while those in Tables 3b, 4a and 4b are significant at the 10% level. These results support our contention that despite matched capability, FCEs significantly underperformed UKCEs in both years.

Third, in both 1992 and 1993, the coefficients of post-performance variables returned positive signs as predicted. The estimate of *dividend per*

Table 3a Results of logit estimate: 1992 data

Variable[a]	*Coefficient*	*S.E.*	*Sig.*
CAPABLE2	0.3283	0.8258	.3077
PERFORM2	−1.4545	0.7121	.0411**
POST_PERF2	2.1263	2.0698	.1043
CONSTANT	6.3167	4.0706	.1207

Number of observations	64[b]
Log likelihood	85.11%
Goodness of fit	68.83%
Correctly predicted: FCEs	96.67%
UKCEs	44.11%
Overall	75.51%

Notes:

** Denotes significant at 5% level.

[a] The dependent variable is *Y*, which is 1 if the firm is foreign-controlled and 0 if the firm is UK-controlled. The independent variables are: CAPABLE2 = Capability measure (*Total assets*) in 1992; PERFORM2 = Performance measure (*Net income*) in 1992; POST_PERF2 = Post-performance measure (*Dividend per share*) in 1992.

[b] Eight cases were rejected because of missing data, leaving 64 valid cases.

Table 3b Results of logit estimate: 1993 data

Variable[a]	*Coefficient*	*S.E.*	*Sig.*
CAPABLE3	0.7919	0.7269	.2760
PERFORM3	− 1.1042	0.6307	.0800*
POST_PERF3	2.8780	1.6033	.0726*
CONSTANT	5.3629	3.4261	.1175
Number of observations	66[b]		
Log likelihood	66.58%		
Goodness of fit	61.43%		
Correctly predicted: FCEs	93.75%		
UKCEs	48.00%		
Overall	73.68%		

Notes:
* Denotes significant at 10% level.
[a] The dependent variable is *Y*, which is 1 if the firm is foreign-controlled and 0 if the firm is UK-controlled. The independent variables are: CAPABLE3 = Capability measure (*Total assets*) in 1993; PERFORM3 = Performance measure (*Net income*) in 1993; POST_PERF3 = Post-performance measure (*Dividend per share*) in 1993.
[b] Six cases were rejected because of missing data, leaving 66 valid cases.

share in 1993 (Table 3b) is significant at the 10% level. These results indicate that in spite of lower levels of performance, FCEs made higher dividend distributions in 1992 and 1993.

To summarize the three points above, it is obvious that despite having similar capability, FCEs underperformed their UK-controlled counterparts;

Table 4a Results of logit estimate: 1992 data

Variable[a]	*Coefficient*	*S.E.*	*Sig.*
CAPABLE2	− 0.0008	0.0002	.7413
PERFORM2	− 1.0252	0.0453	.0777*
POST_PERF2	0.5857	0.4328	.1760
CONSTANT	− 4.5788	2.9411	.1195
Number of observations	61[b]		
Log likelihood	72.50%		
Goodness of fit	60.86%		
Correctly predicted: FCEs	97.06%		
UKCEs	62.96%		
Overall	81.97%		

Notes:
* Denotes significant at 10% level.
[a] The dependent variable is *Y*, which is 1 if the firm is foreign-controlled and 0 if the firm is UK-controlled. The independent variables are: CAPABLE2 = Capability measure (*Total assets*) in 1992; PERFORM2 = Performance measure (*Return on total assets*) in 1992; POST_PERF2 = Post-performance measure (*Dividend amount*) in 1992.
[b] Eleven cases were rejected because of missing data, leaving 61 valid cases.

Table 4b Results of logit estimate: 1993 data

Variable[a]	*Coefficient*	*S.E.*	*Sig.*
CAPABLE3	−0.0001	0.0002	.6606
PERFORM3	−1.0147	0.0247	.0617*
POST_PERF3	0.6569	0.4976	.1868
CONSTANT	−5.1050	3.3818	.1312

Number of observations	62[b]
Log likelihood	74.88%
Goodness of fit	62.01%
Correctly predicted: FCEs	97.06%
UKCEs	60.71%
Overall	80.65%

Notes:
* Denotes significant at 10% level.
[a] The dependent variable is *Y*, which is 1 if the firm is foreign-controlled and 0 if the firm is UK-controlled. The independent variables are: CAPABLE3 = Capability measure (*Total assets*) in 1993; PERFORM3 = Performance measure (*Return on total assets*) in 1993; POST_PERF3 = Post-performance measure (*Dividend amount*) in 1993.
[b] Ten cases were rejected because of missing data, leaving 62 valid cases.

their post-performance distributions, however, suggest the opposite as greater dividend payouts were made by FCEs. The predictive implication of these findings is that, all things being equal, the probability that a firm is foreign-controlled increases as it reports a combination of lower performance and higher post-performance distributions.

CONCLUSIONS

This study investigates the possible use of ITP as an income-shifting mechanism by FCEs operating in the UK. Based on the assumption that capability (assets) and performance (profitability) should be positively correlated, with similar implications for post-performance events (dividend payouts), a comparison of the financial data of a sample of FCEs and UKCEs is undertaken. Our findings reveal differences between the performance and post-performance activities of the two samples. From the results, it may be possible to predict the control location (that is, either foreign- or UK-controlled) of sampled firms on the basis of their level of profitability and dividend payouts. The performance and post-performance activities of FCEs reveal an unusual relationship. Explanation of the differences is open to conjecture. At this stage, it is difficult to reject ITP manipulation as a plausible explanation for lower reported income, especially as these low performances do not appear to hinder superior or equal post-performance distributions by FCEs in comparison with UKCEs. There appears to be prima facie evidence of income shifting through ITP. This merits further investigation.

However, two constraints should be recognized for future research in this area. First, the need for any future study to ensure a more rigorous match between the enterprises sampled. This may recognize industry sectors, experience in the location, accounting disclosure compliance and time span of the study. In this last respect, a period of investigation which extends beyond two years seems merited. By these means, the methodological design of the current study may be improved.

The second constraint relates to the fiscal authority where the investigation takes place. The UK has long adopted the 'arm's-length' principle for ITP (Taxes Management Act, 1970), and possesses the power to substitute any transfer price which is believed to distort taxable income in the UK. However, the rules do not provide specific recommendations as in the USA and full texts of court cases are not available. Past tax audit investigations in this area are also veiled in confidentiality. The presumption is that Inland Revenue inspectors through their regular discussions with MNEs will effectively convey what is acceptable as a transfer pricing policy. This has certain real merits, not least being the development of a co-operative relationship which may ensure that relevant information is made available to the fiscal authority in a timely fashion. However, this development of co-operation requires confidentiality to be upheld and, consequently, a near-absolute embargo on information reaching the public domain.[3] Seeking evidence of ITP manipulation is a legitimate issue for academic enquiry. It is unfortunate that it must be undertaken in an indirect manner.

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NOTES

1 For an elaborate discussion of this assumption, see Wheeler (1988, 1990).
2 The UKCEs were selected from a list of UK firms whose annual reports and accounts for 1992 and 1993 are archived in Glasgow University. Each UKCE was closely matched with a respondent FCE on the basis of total assets.
3 The recent Inland Revenue consultative document on 'Modernisation of the Transfer Pricing Legislation' (1997) may have an influence but there is little likelihood that the introduction of self-assessment will result in publicly available data.

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