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# A Note on Return on Foreign Assets and Foreign Presence for UK Multinationals

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### Abstract

Within the context of the international business literature on multinationality and performance we develop new data on the foreign presence and performance of large UK multinational enterprises (MNEs). There are 32 UK MNEs for which we can obtain data on both their degree of multinationality (measured by the ratio of foreign-to-total sales, F/T) and on their performance. Here, in addition to the traditional overall performance of the firm, shown as return on total assets (ROTA), we use new data on the return on foreign assets (ROFA). We conduct analytical work to show the positioning of the UK MNEs in the ROFA and F/T space and provide regression results showing a linear relationship between multinationality and performance, using the new ROFA metric.

Key Words: UK multinationals; return on foreign assets; foreign-to-total sales; performance; multinational strategy.

# **A Note on Return on Foreign Assets and Foreign Presence for UK Multinationals**

## **Introduction**

A neglected method of assessing the international competitiveness of UK business is to study the performance and strategic positioning of the 37 UK firms listed in the *Fortune* 500 ranking of the world's largest firms. Of these 37 firms, under a dozen are in the manufacturing sector, whereas the majority are in services. A study of these successful world class firms would provide insight into the nature of competitiveness in Britain. Here we study the relationship between multinationality and performance for these large UK firms.

There are no previous studies which have examined the performance of UK firms in the manner attempted here, which is to test return on foreign assets (ROFA). We discuss this further below. Also no prior studies have examined the relationship between ROFA and the return on home assets (ROHA) and return on total assets (ROTA), as we do here. We discuss and clarify how geographic segment data can be used to develop more accurate and statistically significant performance measures for large and highly geographically diverse MNEs. We discuss the relevant literature on multinationality and performance in the next section.

## **The Literature on Multinationality and Performance**

The relationship between firm performance and the degree of multinationality has been tested in many previous studies in the international business literature. This body of literature explores the basic issue of whether multinationality, defined as the geographic scope of international activities of the multinational enterprise (MNE), improves the

financial performance of the firm. For a recent review see Lu and Beamish (2004); Contractor et al. (2003); Tallman and Li, (1996); and Hitt et al. (1997). In theoretical terms, a broad geographic scope of operations may yield superior performance for the MNE by allowing the firm to maximize its firm-specific advantages (FSAs) internally across borders (Rugman, 1981). The MNE can also exploit inter-relationships between geographic and industry segments (Porter, 1985) in terms of sharing or coordinating its activities in different countries. Empirically, however, this relationship has been difficult to establish, as many studies have suffered from an incomplete assessment and analysis of the costs and benefits of an internationalization strategy. Furthermore, often the data used in such studies fail to provide a proper measurement of the success of international as opposed to domestic or total activity of the firm, (Sullivan, 1994 b); (Geringer et al., 1989).

In general, prior research finds a positive relationship between an MNE's possession of proprietary firm-specific assets (FSAs) and profitable international expansion (Dunning, 1993, p. 148-154; Caves, 1996; Pearce, 1989). Strategically, the possession of FSAs provides an MNE with a unique advantage in international markets which, when embedded or internalized in the MNE's structure by foreign direct investment and transferred across borders, gives rise to further leveraging opportunities of these strategic resources that in turn yield higher performance outcomes than if the MNE's geographic scope were more limited. The sources of performance advantages of multinationality are not mutually exclusive; indeed, Kim, Hwang and Burgess (1993) report that an MNE may achieve a higher return on cross-border asset deployments, simultaneously diversify market risk, and reduce the variance in its cash flows.

While there is significant consensus in the MNE literature as to sources of performance advantages of extending geographic scope, its measurement has been more difficult. In measuring the performance of MNEs, the majority of studies since 1970 have used foreign-to-total (F/T) sales as an indicator of the geographic dimension of MNE activities. Ruigrok and Wagner (2003) provide a summary. However, Ramaswamy (1993) and Tallman and Li (1996) favor a configuration measure of multinationality based on country scope. Other exceptions also include Michel and Shaked (1986) using a count of foreign direct investments of a firm alongside international sales, Lu and Beamish (2004) using both a country and subsidiary count, and Kim, Hwang and Burgess (1989) employing an F/T employee ratio.

Few studies try to test F/T assets. Testing multinationality by F/T assets has been eschewed, as valuation problems, (mainly of new investment and depreciation accounting policies) compound the difficulties in recording accurate asset values for firms, particularly for their international operations (Geringer et al., 1989). One notable exception is Daniels and Bracker (1989) who show that assets and sales converge as a measure of multinationality.

Sullivan (1994) introduces a composite index of multinationality encompassing several facets of the F/T variable, i.e., for sales, assets, and employees, as well as a scope measure and the Kogut and Singh (1988) cultural variable. Sullivan suggests that composite measures are superior to single item measures, although the latter usually produce stronger statistical results in validating the multinationality and performance relationship. Ramaswamy, Kroeck and Renforth (1996) question the validity of such composite measures, where the index constituents are too varied to be rationalized into a composite measure.

The dependent variable for performance usually uses accounting-based measures. These include consolidated profit as a ratio to either total assets, to give return on total assets (ROTA), or to give return on sales (ROS). The minority of studies using market based measures have taken either return on equity (ROE), (Buhner, 1987 and Rugman, Lecraw and Booth, 1985); or Tobin's Q, a ratio defined by the market value of assets divided by their book value (Lu and Beamish, 2004; Whited, 2001). In all of the recent studies of multinationality and performance, the dependent variable of performance has been defined on the basis of consolidated values, usually of the parent company (of profits, assets and sales), as limitations of data availability or research design have prevented the breakdown of performance by geographic segments to give an arguably more accurate picture of the MNE's performance.

Most of the studies of non-UK firms in the literature find a positive multinationality/performance relationship. Vernon (1971) found that, for 1964 data, MNEs outperformed non-MNEs as they earned higher return on sales (ROS) and post-tax return on total assets (ROTA). Daniels and Breaker (1989) also used ROS and ROTA, and they found that performance improved significantly as foreign-to-total (F/T) assets and sales reached 50 percent, with an insignificant rise in performance as multinationality exceeded this threshold. Geringer, Beamish and daCosta (1989) considered US and European MNEs and related performance measures ROS and ROTA to F/T sales. They find a positive linear relationship with the 'internationalization threshold' idea, but at the 60-80 percent level. The Kim, Hwang and Burgess (1989) study of 62 US MNEs found that geographic diversification had a positive moderating effect on product diversification and profit performance.

A further refinement to these studies reporting a positive relationship is in Delios and Beamish (1999), where they use a measure of geographic scope (the simple count of subsidiaries, rather than F/T, which is a continuous variable). Across 399 Japanese manufacturing firms, and assessing internal investment levels in R&D and advertising, they find that the observed relationship between geographic scope and performance is spurious. Rather it is the possession of proprietary FSAs that is the foundation of superior performance and not geographic scope *per se*, although higher geographic scope on its own is positively related to higher firm profitability (Delios and Beamish, 1999).

The studies of the multinationality and performance relationship for UK MNEs have similar research designs, and they are similarly characterized by the empirical inconsistency of the direction of the multinationality/performance relationship. There are no up-to-date published studies in the last 15 years using data specifically for UK MNEs. The most prominent of the UK studies include Grant (1987); Grant, Jammine and Thomas (1988); Dunning (1985); and Kumar (1984). Of these, both Kumar (1984) and Dunning (1985) found statistically insignificant relationships and is therefore not considered further.

Grant (1987) tests the multinationality/performance relationship for UK MNEs. He takes the largest 304 quoted manufacturing companies (in *The Times 500* list) for the period 1972-1984, using return on sales (ROS), return on net assets (RONA), and return on equity (ROE) as measures of performance, with an overseas production ratio (OP/S), essentially subsidiary sales, to measure the degree of multinationality. Multinationality is positively related to all three measures of performance, as well as firm size, but varies substantially between different SIC industry groups, and it explains only 25 percent of inter-firm profitability. To test the effects of geographic influences on performance,

Grant (1987) decomposes foreign sales into the regions of Europe, the United States and the Rest of the World, and regresses these region-specific measures of multinationality on the three measures of performance. While the measures of performance (ROS, ROA, ROE) are not similarly decomposed by region to form a consistent symmetry of measures in the relationship, the results indicate a consistency between the positive coefficients on each of the regional sales ratios.

The implications of the Grant (1987) study are taken up further by using the same 304 firms in Grant, Jammine, and Thomas (1988), to test for the separate effects of product and geographic diversification on the UK firms. Product diversification is tested using a Herfindahl-type continuous measure in a quadratic function. The underlying causal relationship indicates that product diversity does not increase profitability, and there is limited evidence to suggest that profitability encourages product diversity. This contrasts with the relationship identified with geographic diversification (multinationality) which shows a strong two-way causation, where profitability in the home market encourages international expansion, and, in turn, international expansion generates higher profits (Grant et al. 1988).

### **Testing Foreign Performance (ROFA) and Foreign Presence (F/T)**

In this research the degree of multinationality is proxied by the ratio of foreign (F) to total (T) revenues, using data from the annual reports of firms. The F component usually consists of two items: the exports (X) of the parent firm from its home country plus the sales (S) of its foreign subsidiaries. Sometimes X and S are separated. In such cases S represents the current flow of sales of the foreign subsidiaries. We first report the total revenues (TR) of the 33 UK MNEs and their foreign revenues (FR), where FR is the sales



of the foreign subsidiaries, as discussed above. Although there are 37 UK MNEs in the top 500, we can obtain only segmented revenue data on foreign revenues for 33 firms. These data have been converted into US dollars using the average rate of foreign exchange in 2003 as reported by the Federal Reserve; they are shown in Table 1. We also report the F/T for the year 2003 of these 33 firms, shown as FR/TR, also in Table 1.

Table 1 here

The basis of measuring the international performance of the MNEs in this study relies on using geographic segment data on foreign sales, foreign assets, and foreign profits as opposed to data consolidated at the group or aggregate level as given in the group profit and loss account and consolidated balance sheet which reports total sales, profits, and assets. In this respect, this study is unique in that the measure of performance corresponds specifically to an MNE's foreign performance, and not to the total performance at the group level, as used by all other studies examining the performance and multinationality relationship. Additionally the data were collected directly from annual reports as opposed to obtaining them from secondary sources. The data collected include foreign sales, foreign profits, and foreign assets where these geographic segment data will associate sales, profits, and assets with the actual location of production or provision of service as opposed to the location of sales. This is the methodological basis used for accurately measuring the true scope and performance of an MNE's international activities.

Caution needs to be exercised in that accounting conventions vary between companies. Geographic segment data are rarely given in a single standardized format, so direct comparisons of segment data between companies cannot be made with a sufficient degree of accuracy. While a growing number of regulatory accounting conventions

require geographic segment reporting, these do not specify the exact ledger in the accounts from which these segment data should be drawn. In this respect, direct inter-company comparisons cannot be made because of the differential way companies treat common items (including tax, interest, amortization of goodwill, exceptional items, and inter-segment additions and deletions) in the reporting of segmental assets, profits and sales. However, it is possible to make comparisons between companies based on performance ratios that are consistent across companies. This is because the accounting convention between different lines in the consolidated accounts for sales, assets, and profits also correspond to the same lines in the geographic segment accounts, so that performance ratios may be generated that are comparable across companies. To this end, geographic segment data is used to calculate the return on foreign assets (ROFA), a ratio calculated by dividing foreign profits by foreign assets, giving the level of profit generated per unit of foreign assets employed.

Next we turn to the calculation of an appropriate measure of performance. When collecting geographic segment data from the annual accounts, most if not all companies report the geographic breakdown of results as a secondary segment, next to results reported by line of business. The most common data to be reported are segmental revenue, but where foreign profits are reported, then the foreign assets of the MNE are also likely to be available. In that case, it is possible to calculate the rate of return on assets by the geographic segment. In this respect, it is possible to make meaningful distinctions on the return on assets located in the home and foreign geographic segments as well as the (commonly used) returns on a total or consolidated basis. The return on foreign assets is called ROFA, and the return on home assets is called ROHA. Yet in most studies of the relationship between multinationality and performance, authors use

only return on total assets (ROTA), usually because (F) or geographic segment data is ignored or unavailable.

In this study, we generate separate performance measures for each geographic segment, in this case ROFA and ROHA for the foreign and home segments respectively. Given our emphasis on the international competitiveness of UK MNEs, we employ ROFA as the primary performance measure, and use both ROHA and ROTA to contextualize our analytical work with data on the comparative performance of different geographic segments. The emphasis on ROFA in this study isolates our measurement of performance towards specifically the international operations of the firm, thereby determining more precisely the performance of foreign subsidiaries than in studies using ROTA.

As geographic segment data reports activity by region or country of origin, there are unique values for profits and assets for home, foreign, and total (or global) geographic segments that in turn produce unique numerators and denominators in the performance measure ratio for each geographic segment. Thus, as profit and asset values are unique for each geographic segment, performance measures are calculated for foreign, home, and total segments separately to give a more accurate indication of the firm's international performance. Given this approach, it is not possible to average measures of ROFA and ROHA to give ROTA, or to assume that ROTA equals the sum of ROFA and ROHA. While total assets equals home plus foreign assets these measures of performance constitute unique ratios.

Of the 37 UK MNEs in the top 500, only 32 of them report segmented assets and profits; hence, we calculate ROFA for only these 32. These MNEs are shown in Table 2.

Table 2 here
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While Table 2 reports the foreign performance of the UK MNEs, shown as ROFA, we also report ROTA and the return on home assets of the parent firms (ROHA). All the three columns (ROFA, ROTA, and ROHA) are calculated separately from the notes in the annual reports of the firms. Since the degree of F/T varies by firm, it is not possible to average the ROFA and ROHA into a ROTA—it varies for each firm depending on its unique set of reported F/T in the annual report. There are unique values for each of the three performance measures, for each MNE, due to individual definitions in their accounting data. The diverse picture of performance of companies in Table 2 reveals that there are different dynamics at play that enable some companies to outperform others in terms of their foreign, as compared to their home or total, operations (and vice versa). Yet by calculating separately the returns on assets on a foreign, home, and total basis we are able to develop a more accurate and insightful analysis of the relative success of operations of the MNE.

We pull together the F/T data and the ROFA data to picture in a matrix the relationship between foreign presence and foreign performance. As an example, we show the data for 2003 in Figure 1. The UK firms with available data are positioned there. (We have similar charts for each of the years between 1996-2003, and these data are used in the regression).

Figure 1 here

To further understand these relationships, consider Figure 2. This reports the mean value of the (F/T) and (E/T) variables for the set of UK MNEs, again for one year of data, 2003. The average (F/T) is 48 percent, which gives average home-market sales of 52 percent. We also find that the average (E/T) is 64 percent. This means that the

‘foreign’ sales of UK firms in the rest of Europe (ROE) is 16 percent. It also means that the ‘foreign’ sales outside of Europe, i.e. the rest of the world (ROW), amounts to an average of 36 percent.

Figure 2 here

Given the evidence and insights confirming the regional nature of MNE activity in Rugman (2005) and Rugman & Verbeke (2004), we are able to use these regional sales (E/T) to address the issue of generating more accurate proxies for geographical configuration. Figure 2 confirms the existing theory and evidence of the regional multinationals, in that the majority of the largest UK MNEs are home-region oriented, since they average 52 percent of sales in the home region plus an additional 16 percent of sales in the rest of Europe, for a total of 64 percent intra-regional sales.

We now proceed to test the relationship between multinationality and performance for these 32 UK MNEs in a more analytical manner, by running the following linear regression, using OLS statistical techniques:-

$$ROFA = a_0 + b_1(F/T) + b_2(SIZE) + b_3(SIZE)^2 + b_4 \text{ industry} + e_i$$

The relationship is tested based on an unbalanced panel dataset containing 208 observations of the UK 32 MNEs for the years 1996-2003. The list of these variables is given in Table 3 with explanations. The summary statistics of the variables are shown in Table 4, and the results of the regression are shown in Table 5.

Tables 3, 4 and 5 here

The regression results show that there is a significant linear fit between ROFA as the performance measure and the degree of multinationality F/T. This indicates that the UK MNEs find foreign expansion profitable. In a previous study, Grant (1987),

discussed earlier, also found a positive linear relationship between the extent of foreign operations of UK multinationals and their overall performance (ROTA). In our regression we also find this positive linear relationship but for ROFA, a metric not constructed or addressed by Grant.

The average F/T of these 32 UK MNEs over the period 1996-2002 is 44 percent. It should be noted that the mean value for FR/TR at 44 percent differs from that in Figure 1 and 2, as the latter are for year 2003, whereas the regression data cover a longer time period.

There is a significant positive dummy for manufacturing. It indicates that manufacturing MNEs enjoy a 22.29 percent higher ROFA than service MNEs. It would therefore appear that UK MNEs can expand their foreign operations up to and above the average F/T of 44 percent, and expect an increase in ROFA. Although the explanatory power of these independent variables is low at 0.2, it can be concluded that foreign presence is beneficial for this set of the largest UK multinationals.

## **Conclusions**

In this work, we have investigated the internationalization characteristics of the 32 largest UK MNEs by examining their internationalization strategies within the context of new ROFA performance data. We show for the first time that performance differs across foreign, home, and total (or global) geographic segments. By isolating foreign performance through the new ROFA metric, we obtain statistically significant results, in contrast to the mixed results prevalent in many other studies investigating the multinationality and performance relationship.

This is the first study in the last 15 years to focus on the multinationality and performance of specifically UK MNEs. Like Grant (1987) we find a positive linear relationship between performance and F/T sales, but in terms of ROFA, not just ROTA. For the 32 UK MNEs identified and analyzed in this study, there is strong evidence that foreign operations, in the form of subsidiary expansion, increases their ROFA performance up to a high level of F/T. The 32 UK MNEs have a substantial foreign presence, with an average F/T sales of 44 percent, across the 1996-2003 period. We also find that UK manufacturing MNEs perform better abroad than do the UK service MNEs. Further research is required to expand this work to a larger set of UK MNEs and to examine the extent to which these large UK MNEs now operate largely within a European regional context, as argued by Rugman (2005). However, as a test of the UK MNEs in the top 500 this study provides new and useful information about the robust nature of the positive relationship between multinationality and performance.

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**Table 1: Foreign Revenues and Total Revenues for 33 UK MNEs (2003)**

<b>Company</b>	<b>FR</b>	<b>TR</b>	<b>FR/TR</b>
Abbey National	219	4139	5%
Alliance UniChem	9640	14379	67%
Anglo American	8910	18636	48%
AstraZeneca	29285	30801	95%
Aviva	16385	31657	52%
BAE Systems	11279	20544	55%
Barclays	5304	30831	17%
BP	192875	232571	83%
British Airways	4551	12563	36%
British American Tobacco	12045	18673	65%
BT	4311	32979	13%
Centrica	4956	29301	17%
Compass Group	13442	18442	73%
Corus Group	9486	12996	73%
Diageo	12841	15166	85%
GlaxoSmithKline	32742	35037	93%
GUS	2729	11677	23%
HBOS	3843	36867	10%
Hilton Group	2450	14593	17%
HSBC Holdings	25977	41072	63%
J.Sainsbury	4625	27909	17%
Kingfisher	9329	17737	53%
Lloyds TSB Group	3669	25368	14%
Marks and Spencer	1082	13104	8%
National Grid Transco	7033	15361	46%
Old Mutual	8903	10406	86%
Prudential	37931	51404	74%
Royal Bank of Scotland	8854	42916	21%
Royal Dutch Shell	126872	185075	69%
Royal Sun Alliance	7146	13241	54%
Tesco	11391	46212	25%
Unilever	40011	69765	57%
Vodafone	42029	49636	85%

Note: British F500 Accounts denominated in GBP Sterling except for Anglo American, BP, HSBC. Currency converted using Federal Reserve (2004) average 2003 USD/£ exchange Rate of 1.6341. Note: Legal & General, Royal Mail, Standard Life, Wolseley are excluded from this table due to unavailability of data.

**Table 2: Foreign Performance of UK Fortune MNEs – 32 Firms (2003)**

<b>Company</b>	<b>ROFA</b>	<b>ROHA</b>	<b>ROTA</b>	<b>FR/TR</b>
Abbey National	2.47	-0.43	-0.39	5%
Alliance UniChem	18.04	15.07	16.97	67%
Anglo American	6.04	7.32	6.39	48%
AstraZeneca	37.79	19.59	31.93	95%
Aviva	2.87	37.92	17.53	52%
BAE Systems	3.29	21.74	6.79	55%
Barclays	0.98	0.83	0.87	17%
BP	14.31	16.06	14.61	83%
British American Tobacco	95.86	27.96	65.30	65%
BT	-34.54	21.78	15.44	13%
Centrica	58.56	36.65	38.42	17%
Compass Group	16.50	16.09	16.31	73%
Corus Group	5.50	-24.75	-7.62	73%
Diageo	37.90	7.39	28.54	85%
GlaxoSmithKline	88.97	32.97	63.21	93%
GUS	27.23	23.40	24.81	23%
HBOS	1.77	0.84	0.92	10%
Hilton Group	4.44	14.34	8.51	17%
HSBC Holdings	1.48	0.93	1.25	63%
J Sainsbury	13.98	9.38	10.00	17%
Kingfisher	-3.16	22.73	12.37	53%
Lloyds TSB Group	12.04	1.49	2.15	14%
Marks and Spencer	36.68	21.73	22.26	8%
National Grid Transco	5.90	11.42	8.77	46%
Old Mutual	15.70	-18.68	11.81	86%
Prudential	0.17	0.30	0.27	74%
Royal Bank of Scotland	0.70	1.37	1.16	21%
Royal Dutch Shell	14.03	7.56	11.96	69%
Royal Sun Alliance	-4.73	26.21	5.70	54%
Tesco	7.44	15.36	13.36	25%
Unilever	21.69	22.78	22.19	57%
Vodafone	5.71	16.90	6.32	85%
<b>Average</b>	<b>16.11</b>	<b>12.94</b>	<b>14.94</b>	<b>49%</b>

Note: British Airways, Legal and General Group, Royal Mail Holdings, Standard Life Insurance and Wolseley are excluded from this table due to unavailability of data.

**Table 3: List of Variables**

Variable	Explanation
ROFA	Return on Foreign Assets = (Foreign Profits/Foreign Assets) × 100
FR/TR	(Foreign Revenues/Total Revenues) × 100
TR	Total Revenues
TR <sup>2</sup>	Quadratic term of TR
IND	Industry dummy variable, 1 = manufacturing, 0 = services

**Table 4: Means, Standard Deviations, and Correlations**

Variable	Mean	Standard Deviation	1	2	3	4
1. ROFA	16.83	28.56				
2. FR/TR	44.35	26.92	0.29 *			
3. TR	22,360.89	32,594.04	-0.06	0.28 *		
4. TR <sup>2</sup>	1.56 E+09	5.67 E+09	-0.03	0.23 *	0.94 *	
5. IND	0.38	0.49	0.36 *	0.53 *	0.36 *	0.30 *

**Table 5: Regression Results, UK F500 Years 1996-2003**

Dependent Variable: ROFA	Coefficient	t-statistic	VIF
Independent Variable			
FR/TR	0.1736 *	2.21	1.41
TR	-0.0005 **	-3.18	9.24
TR <sup>2</sup>	1.95 E-09 *	2.09	8.79
IND	22.29 **	4.94	1.52
constant	9.45 *	2.42	

Number of observations 208  
Number of firms 32  
R-squared 0.2086  
Adjusted R-squared 0.1930

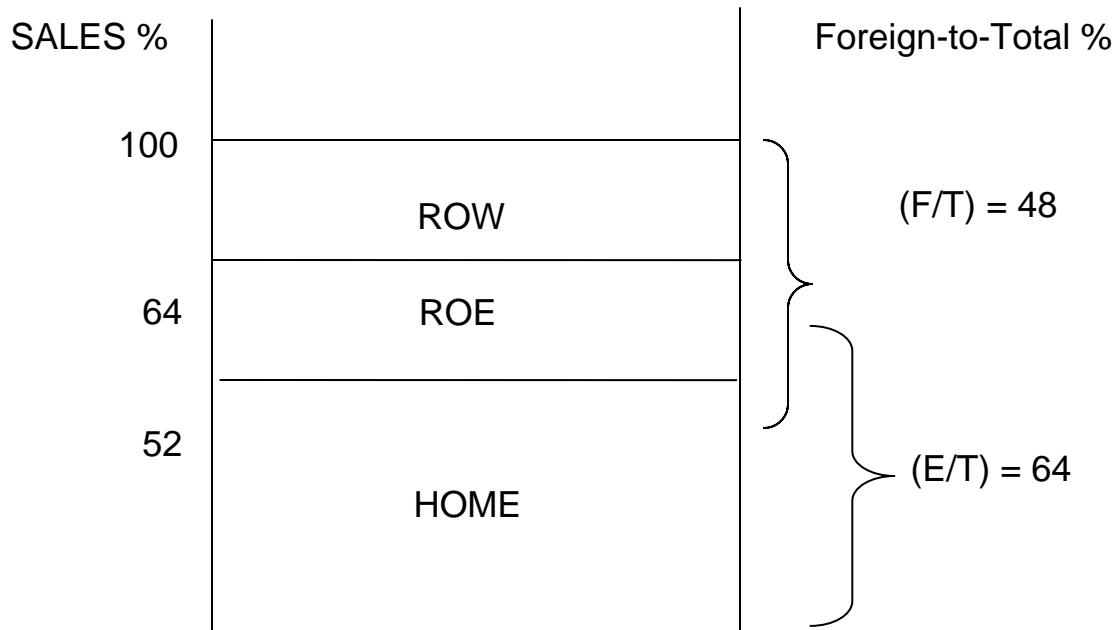
Note: \*\* means p-value ≤ 0.01  
\* means p-value ≤ 0.05

**Figure 1: Foreign Performance (ROFA) and Foreign Presence, 2003**

		<i>Foreign Performance (ROFA)</i>	
		<i>Low</i>	<i>High</i>
<i>International Presence (F/T)</i>	<i>High</i>	<b>1</b> Aviva Royal Sun Alliance BAE HSBC Corus Prudential BP Kingfisher Shell Vodafone Old Mutual	<b>3</b> Unilever BAT Alliance Unichem Compass Group Diageo GlaxoSmithKline AstraZeneca
	<i>Low</i>	<b>2</b> Abbey National      HBOS Lloyds TSB          BT Hilton                  Tesco Barclays Royal Bank of Scotland Anglo American Sainsbury National Grid	<b>4</b> Marks & Spencer Centrica GUS

Note: Several firms are excluded, due to unavailability of data, see notes to Tables 1 and 2  
 High and Low Foreign Performance differentiated by 2003 ROFA average of 16.11 for UK F500  
 High and Low International Presence differentiated by 50% F/T Revenues.

**Figure 2**  
**The Distinction Between (F/T), (E/T) and Home Sales**



Note: For the UK firms, their mean home sales = 52%; their mean (F/T) = 48%; their mean (E/T) = 64%

ROE means "rest of Europe": ROW means "rest of world"