

STRATEGIC POSITIONING OF MULTINATIONALS IN THE OIL INDUSTRY: DOES IT MATTER TO PERFORMANCE?

Abstract

This study investigates whether multinationals in the oil industry have adopted distinct strategic positioning and whether there is some association between strategic positioning and firm performance. A cluster analysis of 50 MNCs, whereby the centroids were theoretically defined after Chrisman, Hofer and Boulton's (1998) typology of generic strategies (operationalized by the relative emphasis on 21 competitive methods), identified 14 distinct clusters. No statistically significant difference in firm performance – in terms of return on capital employed (a measure of past performance) and Tobin's Q (a measure of expected performance) – was found across the 50 firms in each of the eight years (2000 – 2007) of this study. This finding suggests that a phenomenon of equifinality seems to be present, that is, distinct strategic strategies would lead to similar performance results. However, further analysis indicated that strategic consistency – sticking to one given strategic positioning for more years – seems to lead to better performance.

INTRODUCTION

The oil industry plays an outstanding role in the economy, since companies and consumers depend heavily on their products, particularly fuels and petrochemical inputs. Oil companies have experienced several transformations, either imposed by governmental policies – for instance, privatization and regulation – or forced by changes in the nature of competition, which have led to partnerships, mergers, acquisitions, and internationalization. In response to changes in the competitive environment, companies need to make decisions about their strategic positioning in order to preserve or improve their performance levels, as

capital market investors put ever more pressure on them.

The purpose of this study is to investigate whether strategic positioning decisions made by multinationals in the oil industry seem to be associated with differences observed in the level of their organizational performance.

In order to answer this question, this paper has been organized in five parts. After this introduction, a theoretical reference is presented to cover concepts of generic competitive strategies and of strategic groups, as well as concepts of organizational performance. Then, the data collection and treatment methodology is justified. Findings are subsequently presented and discussed, sufficing to answer the research question. Finally, conclusions and suggestions for future studies close the paper.

THEORETICAL BACKGROUND

The literature suggests that several factors seem to exercise influence on company performance, which could be classified in the realm of three major areas of influence: the external environment, each company's idiosyncratic characteristics, and the strategic positioning they adopted (McGahan and Porter, 1997, 2002; Roquebert, Phillips and Westfall, 1996; Rumelt, 1991).

In this paper, we are interested in assessing, particularly, the impact of strategy upon performance.

Typologies of generic competitive strategies

The position of a company's offer – in terms of the attributes that said offer presents to clients and their comparison with what is offered by competitors and substitutes – is, in most situations, a multidimensional construct.

Though a company's strategy may be described by means of the emphasis that it

employs in each competitive variable (for instance, branding, quality, services, etc.), the position (or score) of a construct along a variable may be understood as a point along a line; considering two variables simultaneously, there are points in a diagram; three variables may be visualized, with some effort of the imagination, as points in space; from four variables onwards, visualization starts to become more difficult – and this is a disadvantage of schemes based on individual scores of component variables.

On the other hand, typologies, or classification schemes, capture the essence of the various relevant characteristics, simplifying the understanding and visualization of complex combinations. According to Hambrick (1983), the use of typologies reduces the vast array of combinations that a researcher would have to consider, given that the types (or categories) of a typology would represent general characters (archetypes or *gestalts*), which would define a holistic package of attributes. Once the corresponding archetype is identified, several other characteristics could be inferred (Miller, 1981). The choice of which dimensions would better represent a given construct may be based on theory and on conceptual reflections; but the dimensions and categories (types) of the model may be derived empirically, from the classification of a set of observations – in this case, one would have a taxonomy.

Among the more renowned and referenced typologies of generic competitive strategies, there are Porter's (1985) and Mintzberg's (1988).

Porter's (1985) typology is based on two dimensions:

- competitive advantage over competitors (low cost and differentiation); and
- breadth of target-market (broad vs. narrow coverage of market segments).

Mintzberg's (1988) typology implicitly ignores the issue of costs and focuses on the distinction between five types of differentiation:

- by quality;
- by project

- by support;
- by image;
- by low price...

... and another positioning based on imitating competitors:

- non-differentiation.

However, the implicit supposition in Porter's (1985) typology that simultaneous search for differentiation and low cost would not be possible, in theory, except for (supposedly rare) particular circumstances, was criticized by several other researchers who found empirical evidence (e.g., Miller and Dess, 1993) and conceptual justifications (e.g., Dess and Davis, 1984; Hill, 1988; and Wright, 1987) to argue that emphasis on both competitive dimensions could be simultaneously achieved with success.

Miller and Dess (1993) proposed a new typology, according to which the concepts of cost, differentiation, and scope of target market would comprise dimensions of strategic positioning. Instead of assuming discreet positions, companies would occupy positions in a continuum along the three dimensions. Considering, in order to simplify the analysis, that each of these dimensions could assume values at three levels (e.g., high, middle, and low), there would then be $3^3 = 27$ possible combinations. Nevertheless, only some of these combinations would be of practical interest (e.g., the combination between high cost and low differentiation has obviously no appeal). On behalf of parsimony, Miller and Dess (1993) limited their model to seven more plausible combinations:

- differentiation + low cost + narrow scope;
- differentiation + low cost + broad scope;
- differentiation + narrow scope;
- differentiation + broad scope;
- low cost + narrow scope;

- low cost + broad scope; and
- stuck-in-the-middle (characterized by an intermediary positioning in each of the three dimensions of cost, differentiation, and scope of target-market).

Chrisman, Hofer, and Boulton (1988) suggested a classification model based on three dimensions:

- breadth of market scope (broad vs. narrow);
- type of competitive weapon accounting for all or most of the firm's revenues [low cost / low price, balanced use of low cost / low and differentiation price, differentiation, or no competitive weapon (that is, neither lower cost nor differentiation concerning competitor offers)]; and
- presence of segment differentiation (yes, i.e., different types of competitive weapons used in different segments vs. no, i.e., same type of competitive weapon used in each of the segments served by the company).

The word "utility" was used by Chrisman et al. (1988) to assign a strategic positioning that would simultaneously employ the low and differentiation methods in their main product/market segment(s). It should be noted that the use of low cost in a segment and differentiation in another shows diversity per segment (that is, different positioning in different segments) and not necessarily utility (which would indicate that both competitive methods would be used at the same time in the same segment or segments). A company may also use both methods simultaneously in a given segment while using only one of them in another segment – which characterizes diversity per segment. So, if the segment (or segments) where both methods are used simultaneously is responsible for most corporate revenues, this strategy would be classified as segmented utility or segmented utility focus, depending on an either broad or narrow scope, respectively.

When adopting differentiation as a competitive method, a company would try to

incorporate new attributes or to increase the level of their existing product attributes in relation to their competitors in order to attract customer preference. Concerning cost leadership, Chrisman et al. (1988) considered that a low cost position per se would not generate competitive advantage unless it were translated into low price to customers. Chrisman et al (1988) considered that eliminating or reducing benefits less appreciated by customers may develop cost advantage in products that, despite reduced level of benefits, would still be differentiated if they continued to tend to the attributes considered relevant for the market they are to serve. The utility strategy could be referred to as a balance between cost X benefits, where the companies adopting it would reconcile two competitive advantages to create greater economic value in relation to their competitors.

The strategy of no competitive weapon, presented in Chrisman et al.'s (1988) typology, would be related to those companies that do not use any particular competitive weapon and are, at most, content with meeting excess demand. These companies have no type of competitive advantage, except maybe for being in the right place at the right time.

Considering the combinations of two levels of scope and two levels of diversity in their positioning per segment with the four competitive methods, Chrisman et al.'s (1988) typology would be composed of a set of $2 \times 2 \times 4 = 16$ strategic types. However, a combination of using position diversity per segment with using no competitive weapon is internally inconsistent, since without choosing any competitive method a company cannot present different competitive methods in different segments both in the case of broad scope and in the case of the narrow scope. After excluding these two strategic types, Chrisman et al.'s (1988) typology shows a total of 14 strategic types (see Table 1, which presents the association between every strategic type of Chrisman et al. (1988) and the respective empirically derived cluster, as detailed further ahead).

				Type of competitive method responsible for most corporate revenues			
				Cost/price	Utility	Differentiation	None
Diversity of competitive method between segments	With diversity per segment	Breadth of market	Broad scope	<i>cluster 1</i>	<i>cluster 2</i>	<i>cluster 3</i>	
			Narrow scope	<i>cluster 4</i>	<i>cluster 5</i>	<i>cluster 6</i>	
	Without diversity per segment		Broad scope	<i>cluster 7</i>	<i>cluster 8</i>	<i>cluster 9</i>	<i>cluster 10</i>
			Narrow scope	<i>cluster 11</i>	<i>cluster 12</i>	<i>cluster 13</i>	<i>cluster 14</i>

Table 1 – Association between the strategic types by Chrisman et al. (1988) and *clusters* derived in the study

Performance

As presented in the previous sections, the purpose of strategic management in the companies is to obtain, by means of adequate positioning within the industry, higher performance in a sustainable manner. Measuring performance, however, is something that requires adequate metrics, given the multidimensional nature of the concept to be measured. According to Chakravarthy (1986), any measurement of performance must reflect the efficiency of a company's positioning in the industry and provide managers with some reference on the quality of their decisions, which can be made by means of compound indicators composing multiple measurements of the different dimensions involved.

According to Barney (2007), a company presents higher performance when it can actually create more economic value than its competitors. Despite the simplicity in this definition of performance, it proves to be less than practical since the concept of economic value, as defined by the difference in the value of benefits created for the customer and the production costs incurred, is difficult to measure. Barney classifies the most common performance measurements in four groups that are profitability ratios, liquidity ratios, leverage ratios, and activity ratios.

In order to create an indicator that could be used as a determinant for new investments, Tobin and Brainard (1968) developed a quotient that became known as Tobin's Q, a variable that was successful in different research applications in the area of economics and finance.

Defined as the ratio between a company's market value (given by the value of its shares in the stock market) and the replacement value of its assets, Tobin's Q represents an investor assessment of expected future profits in comparison with the disbursements that would be necessary to build the company's physical assets from scratch.

If $Q > 1$, it shows that the market expects the company to be able to generate cash flow that, discounted to present value, would be higher than the value to replace its assets.

Chung and Pruitt (1994) developed a simplified methodology for the calculation of an approximate Q, a simplification that turned the calculation of Tobin's Q into an easy operation by means of information that is commonly published in financial statements.

According to Chung and Pruitt (1994), Tobin's Q would be thus calculated:

$$Q = (VMA+VMD)/VRA$$

where:

VMA = market value of the company's own capital

VMD = VCPC-VCAC +VCE+VCDLP

VRA = VCAT

VCAT = accounting value of total assets

VMD = market value of the company's debt

VCPC = book value of current liabilities

VCAC = book value of current assets

VCE = book value of stocks

VCDLP = book value of long term debt

Another frequently used performance indicator is ROCE (return on capital employed), which measures the overall efficiency of corporate management to generate operational profits with the available assets. It is defined as (Ross, Westerfield and Jordan, 2000):

$$\text{ROCE} = \frac{\text{operational profit after tax}}{\text{interest-bearing liabilities} + \text{shareholders' equity} - \text{financial assets}}$$

According to Copeland, Koller, and Murrin (1995), the capital invested, which is the denominator in the ROCE formula, would correspond to the amount employed in company operations, which is composed of: operational working capital, fixed assets (net of accumulated depreciation) and other assets (already net of short term shareholders' equities that are exempted from interests). One of the limitations to the use of the ROCE is that its calculation is based on accounting values, which may undergo a series of distortions and do not necessarily correspond to the market value (HIRSCHEY and WICHERN, 1984).

While Tobin's Q is a measure that indicates expected future performances, ROCE measures past performance.

DATA AND METHODS

The objective of this study is to check whether there is any association between the strategic positioning of multinational oil companies and their performance.

In this study, we chose Chrisman et al.'s (1988) typology to represent the alternatives for a company's strategic positioning. This choice is due to the apparently reasonable fact that oil companies may have achieved a position of balancing low costs and differentiation (according to a theoretical argument provided by Hill, 1988). Furthermore, since several of these companies are active in different product segments and also in different countries, some may be employing different strategic positioning to different target markets. Broad scope strategies were considered to be those adopted by integrated oil companies operating in both exploration and production activities as well as refining, distribution, and marketing. Those operating only in exploration and production were considered as companies of narrow scope strategies.

Performance was measured by means of two indicators: Tobin's Q and ROCE (return on capital employed).

For the purposes of this study, the target population was defined as diversified oil companies (that is, acting in more than one product-market segment) operating on the exploration and production activity (whether or not operating in other productive activities of the oil chain or related industries). The first criterion is justified since Chrisman et al.'s (1988) typology has a dimension that refers to different corporate positions across segments, while the second criterion is due to the importance of exploration and production activities, since profits therefrom do correspond, not rarely, to 70% of the total profits of oil companies.

The sample was composed of open capital companies listed in the ranking by PIW (*Petroleum Intelligence Weekly*), the main business journal in the industry, whereto other companies were added because of their representativeness in the industry, in terms of both their market value and the volume of oil produced as verified in the end of year 2007. The final sample was composed of 50 companies (Table 2).

ExxonMobil(USA)	ENI (ITA)	Devon (USA)	Noble (USA)	XTO (USA)
BP (UK)	Repsol-YPF (SPA)	Anadarko (USA)	Suncor (CAN)	EOG (USA)
Shell (UK/NL)	Rosnet (RUS)	Apache (USA)	Murphy Oil (USA)	Denbury (USA)
Petrochina (CHI)	Sinopec (CHI)	Occidental (USA)	MOL (HUN)	Plains (USA)
Chevron (USA)	Statoil (NOR)	CNR (CAN)	Nexen (CAN)	Pioneer (USA)
Total (FRA)	Marathon (USA)	CNOOC (CHI)	Santos (AUST)	Forest (USA)
Conoco (USA)	OMV (AUS)	Talisman (CAN)	Imperial (CAN)	Cabot (USA)
Petrobras (BRA)	Encana (CAN)	Husky (CAN)	Newfield (USA)	Premier (USA)
Gazprom (RUS)	Petrocanada (CAN)	Chesapeake (USA)	Pogo (USA)	Berry (USA)
Lukoil (RUS)	Hess (USA)	Woodside (AUST)	Dominion (USA)	Questar (USA)

Table 2 – Sample of companies used in this study

Data were collected for the years 2000 to 2007. This horizon was chosen as a function of the relative stability in oil prices during this period which was characterized by a high trend started in December 1998 that was maintained to the end of 2007, the last year with annual accounting statements published when this study was undertaken.

Operationalization of the strategic types by Chrisman et al. (1988) is specific to each industry, since cost determinants as well as factors defining differentiation vary from industry

to industry. The competitive methods adopted for this study were based on the 18 methods of a study on the competitive strategies adopted by oil companies, conducted by Carneiro (1997), which were obtained from conversations with academic experts and validated by Petrobras (the largest Brazilian oil company) top management. After additional thoughts on which variables would be relevant to represent corporate strategies in this study that could best reflect the strategic dimensions of Chrisman et al.'s (1988) typology (it is worth recalling that Carneiro's 1997 research used the typologies by Porter (1985) and Mintzberg (1988)), 21 strategic variables were considered, as in Table 3.

Strategic variable	Operacionalization
1) Service Level	Sale Expenses / Sales Revenue
2) Funding to Sales	Average Collection Term
3) Product Quality	Refining Conversion Intensity (%)
4) Inventory Level	Number of Inventory Days
5) Control of Distribution Channels	Volume of Sales in Own Service Stations (%)
6) Breadth of Product Line	Availability of Refining Capacity
7) Price Policy	Gross Margin
8) Availability of Raw Material	Volume of Reserves / Volume Produced
9) Innovation in Production Processes	R&D Expenses / Sales Revenue
10) Cost Management	Total Operational Costs / Sales Revenue
11) Capital Structure	Ratio between net debt and capital employed
12) Operational Leverage	Fixed Costs / Total Costs
13) E&P Costs (explorat. & product.)	Costs of Acquisition + Exploration + Production per barrel
14) Exploratory Efficiency	Percentage of company success in drilling wells
15) Refining Capacity	Production capacity in wholly-owned refineries + proportional capacity in partnerships
16) Use of Production Capacity	Volume processed / Refining capacity
17) Employee Productivity	Operational profitability / Number of employees
18) Capital Intensity	Operational Capital / Total Revenues
19) Company Size	Total value of assets
20) Differentiated Presence per Segment	Local margin – Margin in other regions
21) Degree of Internationalization	Local Sales Revenue / Total Sales Revenue

Table 3 – Strategic variables used in this study and their operationalization

Concerning the definition of performance variables, Tobin's Q, in accordance with the formulation by Chung and Pruitt (1994), was chosen as the future performance indicator (expected) while ROCE was chosen to represent past performance.

Values of strategic variables and performance indicators were obtained from annual reports as well as from other communication and investor relations materials disclosed by the companies.

Considering that corporate business strategies are hardly ever implemented in a one year period, this study attempted to identify a company's strategic positioning in a given year by resorting to the average values (moving average) of the variable strategies in the last quarter. In the accounting years where data referring to a given company's own capital market value were found to be missing, estimated values were calculated on the basis of the first value informed in previous years, multiplied by a factor proportional to the rate of net profits obtained in both years. This method was particularly useful to estimating the market value of some companies privatized in the late 1990's whose shares, in the early years of the timeframe of this study, were not yet negotiated in the stock market.

In order to ensure that the distribution of values for the variables under analysis became homogeneous, the Z transforms of the variables were calculated, thus avoiding distortions resulting from the different scales adopted in the measurements.

Cluster analysis was used for the identification of strategic groups. According to Hair et al. (2005), cluster analysis may be used with exploratory purpose in forming a taxonomy (empirical classification of objects) or with confirmatory purpose, starting from a previous theoretical classification that will be compared to the empirical data. Here, the cluster analysis was performed as confirmatory for each year of the period under study, where the generic strategies of Chrisman et al.'s (1988) typology were used as theoretical framework to form clusters (strategic groups) of companies. A corresponding cluster was associated to each type of strategy in Chrisman et al.'s (1988) classification scheme. The methodology used for cluster formation and analysis followed the stages below:

- a) To each of the 14 strategic types by Chrisman et al. (1988), the typical values of each of the 21 strategic variables were defined (shown in Table 3), thus forming theoretical (centroid) references to represent a typical company in each of 14 theoretical clusters; these typical values were defined as the value expected, in

theory, for each strategic variable (measured in percentiles, at every 12.5% of the distribution of values for each variable) and are presented in Tables 4 and 5.

- b) By using the Euclidean distance as a measure of similarity, each of the 50 companies studied here was associated with a particular cluster according to the proximity of the values of its strategic variables to the theoretical values used to define the clusters; in this procedure intra-cluster variations were minimized and inter-cluster variations were maximized.
- c) After each company's allocation to its respective cluster, the group's reference (centroid) was recalculated. The procedure was repeated until all companies were associated with a cluster. As a confirmatory test of model stability, the initial cluster centroids were compared with the final ones in order to identify whether there had been statistically significant changes in their values. In this procedure, Wilconxon *Signed* non-parametric statistical test was used.

Competitive Method	Broad Scope				Narrow Scope			
	Cost Price	Utility	Diferenti- ation	None	Cost Price	Utility	Diferenti- ation	None
Service Level	3	6	6		2	5	5	
Funding to Sales	3	6	6		2	5	5	
Product Quality	3	5	7		1	3	5	
Inventory Level	2	5	6		2	5	6	
Control of Dist. Channels	3	5	7		1	1	1	
Breadth of Product Line	1	1	1		0	0	0	
Price Policy	1	3	5		3	5	7	
Availability of Raw Mats.	7	5	4		7	5	4	
Innov. in Prod. Procs.	7	6	3		6	5	2	
Cost Management	3	6	7		2	5	6	
Capital Structure	6	6	6		2	2	2	
Operational Leverage	7	6	4		6	5	3	
E&P Costs	2	2	2		6	6	6	
Exploratory Efficiency	7	5	3		7	5	3	
Refining Capacity	7	5	2		1	1	1	
Use of Ref. Capacity	7	5	2		1	1	1	
Employee Prod.	6	5	3		7	5	3	
Capital Intensity	3	5	7		2	4	6	
Company Size	6	6	6		2	2	2	
Diff. Presence p/ Segment	6	6	6		6	6	6	
Degree of International.	6	6	6		6	6	6	

Table 4 – Theoretical values (percentiles) of the strategic variables of each strategic type of Chrisman et al.'s (1988) typology with differentiation per segment

Competitive Method	Broad Scope				Narrow Scope			
	Cost Price	Utility	Diferentiation	None	Cost Price	Utility	Diferentiation	None
Service Level	3	6	6	4	2	5	5	4
Funding to Sales	3	6	6	4	2	5	5	4
Product Quality	3	5	7	4	1	3	5	4
Inventory Level	2	5	6	4	2	5	6	4
Control of Dist. Channels	3	5	7	4	1	1	1	1
Breadth of Product Line	1	1	1	1	0	0	0	0
Price Policy	1	3	4	4	3	5	7	4
Availability of Raw Mats.	7	5	4	4	7	5	4	4
Innov. in Prod. Proc.	7	6	3	4	6	5	2	4
Cost Management	3	6	7	4	2	5	6	4
Capital Structure	6	6	6	6	2	2	2	2
Operational Leverage	7	6	4	4	6	5	3	4
E&P Costs	2	2	2	2	6	6	6	6
Exploratory Efficiency	7	5	3	4	7	5	3	4
Refining Capacity	7	5	2	4	1	1	1	1
Use of Refining Capacity	7	5	2	4	1	1	1	1
Employee Prod.	6	5	3	4	7	5	3	4
Capital Intensity	3	5	7	4	2	4	6	4
Company Size	6	6	6	6	2	2	2	2
Diff. Presence p/ Segment	2	2	2	2	2	2	2	2
Degree of International.	2	2	2	2	2	2	2	2

Table 5 – Theoretical values (percentiles) of the strategic variables in each strategic type of Chrisman et al.’s (1988) typology without differentiation per segment

After the strategic groups for each year were formed, we identified the cluster in which a company was classified the greatest number of times – this cluster was named the company’s “dominant cluster” (or “dominant strategic group”).

Once the clusters were formed, the average values of each group’s performance variables were calculated and Kruskal-Wallis’ non-parametric *H-Test* was run to verify performance variations between strategic groups (clusters).

Non-parametric statistical methods were needed because, in some cases, data did not comply with the assumptions for the correct use of parametric methods, particularly as far as homocedasticity is concerned.

Based on the dominant strategic group criterion, the companies were associated to the clusters corresponding to their more frequent positioning, and a new comparison of performance indicators was conducted, this time with the average performance values for the companies in the entire period. Additionally, a comparison between company performances

was made whose criterion was the number of (not necessarily consecutive) years they remained in their respective dominant strategic group in order to verify a possible association of with organizational performance.

FINDINGS

Tables 6 and 7 present the average values of Tobin's Q and ROCE performance variables for the companies belonging to the clusters (strategic groups) that were formed, on an annual basis, in the period under study. Blank positions mean that no firms were associated with a given cluster in the respective year. At the bottom of the table, there are values of the chi-square statistics calculated for Kruskal Wallis Test each year. At the .10 significance level, no statistically significant differences in Tobin's Q values could be found among the clusters for any given year, except for year 2007 (significance level < .08). Consequently, there is no statistical evidence that strategic positioning would be associated with differences in past performance. On the other hand, a comparison of ROCE values, paints a different picture. Except for the period 2004-2006, one can say that at least two clusters presented statistically significant (at .10 level or lower) differences in performance.

	2000	2001	2002	2003	2004	2005	2006	2007
Cluster 1	2.3000	-	-	-	-	-	-	1.4962
Cluster 2	1.3201	1.4521	1.3393	1.2612	1.2312	1.4390	1.4609	1.8683
Cluster 3	-	1.1372	1.1178	1.1028	1.1869	1.2461	1.2699	1.4148
Cluster 4	-	-	-	1.3070	1.1943	1.2436	1.4789	1.4798
Cluster 5	1.3646	1.4232	1.3592	1.1432	1.3448	1.2021	1.3614	1.3301
Cluster 6	1.3770	1.1804	1.1652	1.2378	1.3149	2.2406	2.4146	-
Cluster 7	-	-	-	-	-	-	-	-
Cluster 8	1.6943	1.9658	1.6914	1.7196	1.5664	1.6021	1.7889	2.0107
Cluster 9	-	0.8307	0.8569	0.9928	1.0885	1.3176	1.1914	1.2101
Cluster 10	1.0901	1.1150	1.1235	1.1644	1.2316	1.4599	1.8479	1.7684
Cluster 11	1.5413	1.5944	1.5029	1.3996			1.1665	2.4158
Cluster 12	1.0750	0.7137	1.1477	1.5450	1.6676	1.5358	1.3851	1.8215
Cluster 13	1.3694	-	-	-	-	-	-	-
Cluster 14	1.5947	1.3296	1.3962	1.2738	1.5038	1.7374	1.7138	1.9000
Chi-Square	10.2857	13.9591	12.1276	12.4532	11.3602	10.8866	15.4908	16.9658
df	9	9	9	10	9	9	10	10
Asymp. Sig.	0.3279	0.1238	0.2062	0.2559	0.2518	0.2836	0.1152	0.0751

Table 6 – Average Tobin's Q for the strategic groups

	2000	2001	2002	2003	2004	2005	2006	2007
Cluster 1	13.69%	-	-	-	-	-	-	23.76%
Cluster 2	10.57%	14.77%	14.69%	12.68%	14.19%	19.88%	22.57%	18.09%
Cluster 3	-	11.32%	11.69%	9.79%	11.24%	14.58%	16.99%	18.08%
Cluster 4	-	-	-	9.87%	10.15%	13.39%	15.83%	16.66%
Cluster 5	7.84%	10.77%	11.51%	9.48%	12.05%	14.56%	17.41%	14.79%
Cluster 6	9.09%	9.46%	13.17%	13.66%	15.01%	18.99%	21.46%	-
Cluster 7	-	-	-	-	-	-	-	-
Cluster 8	9.90%	12.93%	14.51%	15.34%	15.25%	16.53%	19.34%	25.07%
Cluster 9	-	6.64%	8.20%	9.89%	12.72%	15.98%	16.10%	16.68%
Cluster 10	9.65%	13.25%	14.06%	15.05%	16.01%	18.80%	23.15%	22.78%
Cluster 11	18.23%	24.08%	22.62%	17.33%	-	-	12.51%	27.45%
Cluster 12	2.92%	0.99%	6.41%	12.28%	13.74%	14.76%	16.47%	15.97%
Cluster 13	4.39%	-	-	-	-	-	-	-
Cluster 14	6.24%	16.70%	15.22%	12.40%	13.77%	18.42%	16.87%	16.88%
Chi-Square	16.4931	22.0347	18.8378	18.8016	9.5805	11.5139	14.2586	16.4267
<i>df</i>	9	9	9	10	9	9	10	10
Asymp. Sig.	0.0573	0.0088	0.0266	0.0429	0.3855	0.2421	0.1615	0.0881

Table 7 – Average ROCE for the strategic groups

The strategic positioning of each company for each year is presented in Table 8. The *dominant cluster* column indicates the cluster where the company remained the longest as well as the duration of this permanence, measured in number of (not necessarily consecutive) years. An analysis of the data in Table 8 shows that some companies went from one cluster to another with frequent differences in their strategic positioning. Others, on the other hand, remained in the same cluster for the entire period, which is a sign of stability in their strategic positioning.

Companies	2000	2001	2002	2003	2004	2005	2006	2007	Dominant Cluster	Nr. of Years
Anadarko	14	5	5	5	4	4	14	5	5	4
Apache	5	14	14	14	5	4	4	14	14	4
Berry	11	11	11	11	12	14	14	12	11	4
BP	2	2	2	2	2	2	2	1	2	7
Cabot	5	5	12	12	14	14	14	12	12	3
Chesapeake	13	14	14	14	4	12	11	14	14	4
Chevron	2	2	2	3	3	2	2	1	2	5
CNOOC	11	11	11	11	14	14	14	11	11	5
CNR	11	14	14	14	14	12	12	4	14	4
Conoco	10	3	8	3	3	2	2	1	3	3
Denbury	13	14	14	14	14	12	14	14	14	6
Devon	5	5	5	5	4	4	4	14	5	4
Dominion	6	14	14	14	14	12	12	4	14	4
Encana	10	10	10	10	10	10	10	10	10	8
ENI	2	2	3	9	9	9	9	9	9	5
EOG	6	5	14	12	14	14	4	14	14	4
Exxon	1	2	2	2	2	2	2	1	2	6
Forest	5	5	5	5	4	4	4	5	5	5

Companies	2000	2001	2002	2003	2004	2005	2006	2007	Dominant Cluster	Nr. of Years
Gazprom	2	2	2	2	2	8	8	2	2	6
Hess	10	3	3	3	8	9	3	8	3	4
Husky	10	10	10	10	10	10	10	10	10	8
Imperial	8	8	8	8	8	9	10	8	8	6
Lukoil	2	2	2	2	2	8	8	2	2	6
Marathon	10	3	9	3	3	3	3	3	3	6
MOL	8	9	9	9	9	9	9	9	9	7
Murphy	10	3	3	3	3	3	3	3	3	7
Newfield	5	5	5	4	4	14	14	12	5	3
Nexen	5	5	5	5	5	5	5	5	5	8
Noble	5	5	5	5	5	14	14	14	5	5
Occidental	6	6	6	6	6	6	6	5	6	7
OMV	10	3	9	3	9	9	9	9	9	5
Petrobras	8	8	8	8	8	8	8	2	8	7
Petrocanada	10	3	8	8	8	10	3	8	8	4
Petrochina	8	8	8	8	9	8	8	2	8	6
Pioneer	5	14	14	14	5	12	5	5	5	4
Plains	11	11	11	11	12	12	14	12	11	4
Pogo	5	5	5	4	4	14	14	5	5	4
Premier	12	12	12	5	14	14	14	14	14	4
Questar	6	5	14	12	12	12	14	12	12	4
Repsol	10	3	3	3	3	3	3	3	3	7
Rosneft	8	8	8	8	8	8	8	2	8	7
Santos	6	14	14	14	14	12	4	14	14	5
Shell	2	2	2	2	2	2	2	1	2	7
Sinopec	8	9	9	9	9	9	9	2	9	6
Statoil	10	10	10	10	10	10	10	10	10	8
Suncor	8	8	8	8	8	8	8	8	8	8
Talisman	5	5	14	14	5	12	4	4	5	3
Total	2	2	2	2	2	2	2	3	2	7
Woodside	6	14	14	14	14	6	6	14	14	5
XTO	12	14	14	12	12	12	14	14	14	4

Table 8 – Movement of companies among strategic groups

Table 9 shows companies in their respective dominant clusters. There, cluster composition and their correspondence with the strategic groups of Chrisman et al.'s (1988) typology may be viewed more clearly. Representing groups of companies that tried to obtain competitive advantage by means of differentiation strategies with cost control, clusters 2, 4, 5, and 8 were more numerous. The most numerous, however, was cluster 14, referring to narrow scope companies without differentiation per segment and median positioning in relation to variables referring to differentiation and low cost. An analysis of the strategic groups presented in Table 9 shows that most broad scope companies were allocated to groups that emphasized the differentiation dimension (clusters 2, 3, 8, and 9, related to differentiation and utility) while narrow scope companies are concentrated in groups that emphasize the cost

dimension (clusters 5, 11, and 12, related to cost/price and utility) or without any clear positioning (cluster 14).

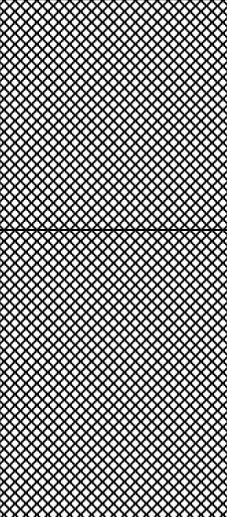
2000 - 2007		Cost/Price	Utility (Cost + Differentiation)	Differentiation	None
With diversity per segment	Broad	CLUSTER 1	CLUSTER 2 BP Chevron Exxon Gazprom Lukoil Shell Total	CLUSTER 3 Marathon Murphy Repsol Conoco Hess	
	Narrow	CLUSTER 4	CLUSTER 5 Anadarko Devon Forest Nexen Noble Pioneer Pogo Talisman Newfield	CLUSTER 6 Occidental	
Without diversity per segment	Broad	CLUSTER 7	CLUSTER 8 Imperial Petrobras PetroCanada PetroChina Rosneft Suncor	CLUSTER 9 ENI MOL OMV Sinopec	CLUSTER 10 EnCana Husky Statoil
	Narrow	CLUSTER 11 Berry CNOOC Plains	CLUSTER 12 Questar Cabot	CLUSTER 13	CLUSTER 14 Apache CNR EOG Chesapeake Denbury Dominion Woodside Premier Santos XTO

Table 9 – Strategic Groups formed in the dominant cluster analysis

This result is consistent with the study assumptions since, according to the definition adopted for oil companies, broad scope companies are integrated companies operating in the remaining steps of the chain of activities that add complementary value to the basic product – oil – thereby differentiating their offer in relation to the offer of narrow scope companies.

Concerning the main strategic groups of broad scope and differentiation per segment,

cluster 2 (of companies that adopt utility as competitive method) is found to have been formed by companies operating globally, amongst the main oil industry players, with the biggest revenues and net profits. These are differentiated offer companies that, by virtue of the scale of their operations, have also achieved good performance in the variables related to cost. Cluster 3 (of companies that adopt differentiation as a competitive method) was formed by companies that, despite operating globally, do not benefit from gains of scale like their peers from cluster 2. With regards to the main strategic groups of broad scope and without differentiation per segment, clusters 8 (of companies that adopt cost as competitive method), 9 (of companies that adopt utility as competitive method), and 10 (of companies that adopt no competitive method) are found to have been formed by companies, in average, of low degree of internationalization with a focus on their respective regional markets, which, by definition, represents lesser opportunities for differentiation per geographic segment than companies from clusters 2 and 3. In these groups, a greater number of state-controlled companies is found, which explains the regional emphasis of their operations.

Concerning the dominant strategic group of narrow scope and with differentiation per segment, cluster 5 (of companies that adopt utility as competitive method) is found to be formed by US and Canadian companies of global operations, considered large size participants in the upstream segment. These are companies that, in the time horizon of this study, have changed their positioning more frequently in relation to the others. Concerning the dominant strategic group of narrow scope and without differentiation per segment, cluster 14 (of companies without defined competitive method) is found to be formed mostly by US companies of regional operations considered middle size participants in the upstream segment. Like cluster 5 companies, these too have changed their positioning more frequently, having stayed, in average, about four years in their dominant cluster.

Kuskall Wallis' tests indicate that there are statistically significant differences (between

at least two clusters) in the average performance (both in terms of Tobin's Q (.10 level) and of ROCE (.02 level)) across clusters formed according to the dominant cluster criterion.

Comparing the results from this analysis of long term strategic positioning based on the dominant cluster criterion with the results obtained from the annual analysis, shareholders' perceived value in relation to the strategies adopted in the different clusters can only be verified as the horizon of the analysis is extended, which represents an indication that perceived value seems to be related to long term positioning. Table 10 presents the average values of performance variables for the companies grouped according to the dominant cluster criterion. The highest value of Tobin's Q was observed in cluster 8, corresponding to broad scope companies without diversity per segment that have adopted a differentiation strategy with cost control. This strategic group presented the second best average ROCE.

Dominant Cluster	2	3	5	6	8	9	10	11	12	14
Tobin's Q	1.39	1.16	1.32	1.32	1.89	1.06	1.31	1.71	1.59	1.53
ROCE	0.16	0.12	0.12	0.14	0.17	0.12	0.16	0.21	0.12	0.14

Table 10 – Average value of performance variables per cluster (dominant cluster)

Table 11 shows the average values of performance variables according to the time each company remained in its respective dominant group. The sample was divided between companies that stayed up to four years and those that stayed more than four years in the same cluster. According to the results presented, 30 out of the 50 companies analyzed herein belonged to the same strategic group for most of the eight years under analysis, whereas 20 companies changed their strategies more frequently and did not repeat the same strategy more than four times. The effect of varying strategic positioning has apparently had an impact on company performance. Besides obtaining better ROCE, companies that changed their strategies less often and maintained the same positioning for at least five of the eight years under analysis obtained better results in Tobin's Q variable, which is a sign that investors seemed to have perceived greater value in strategic position stability. However, such

performance differences should be viewed as indicative only, given that results of Kuskall Wallis' tests were not statistically significant (.89 for Tobin's Q and .22 for ROCE).

Permanence		Tobin's Q	ROCE
Up to 4 years	Mean	1.3995	0.1353
	N	20	20
	Standard Dev.	0.2535	0.0300
More than 4 years	Mean	1.4630	0.1509
	N	30	30
	Standard Dev.	0.5499	0.0475
Total	Mean	1.4376	0.1446
	N	50	50
	Standard Dev.	0.4526	0.0418

Table 11 – Effect of strategic stability in company performance

CONCLUSIONS

The main objective of this research was to identify the strategies adopted by oil industry multinationals according to Chrisman et al.'s (1988) typology and their consequent impact on organizational performance. Tobin's Q was used as the metric for expected future performance and ROCE as an indicator of past performance. The relatively extensive window of time employed (eight years) has entailed the possibility of analyzing company performance on both an annual basis and a long term perspective.

The results obtained with the formation of strategic groups did not indicate, on an annual basis, any statistically significant differences in Tobin's Q across strategic groups (clusters), whereas statistically significant differences were observed when strategic groups were put together on the basis of the dominant cluster criterion. By definition, the criterion of grouping per dominant cluster has emphasized the more frequent positioning of companies throughout the study period. This type of analysis has provided a long term perspective that the annual base analysis did not offer. One may therefore conclude that shareholders perceived value in relation to strategies adopted was influenced by the long term perspective. Basically, the difference between measuring performance variables in an year-to-year basis and doing so in accordance with the dominant cluster criterion (long term) is that, in the

former, moving averages of three accounting years were used, whereas, in the latter, performance variables averages for the entire period were used. The effect of this latter approach is to further mitigate the year-to-year variations observed in company performance and positioning, and to provide the grounds for a more stable analysis of the relation between a company's strategic positioning to past performance and expected future performance.

It came out that most companies in the broad scope employed strategies that emphasize the differentiation dimension whereas narrow scope companies were concentrated in groups that emphasized the cost dimension without defined positioning. This result is consistent with the assumptions of this study since, according to the definition adopted for oil company, broad scope companies are integrated companies operating in the remaining steps of the chain of activities that add complementary value to the basic product – oil – thereby differentiating their offer in relation to the offer of narrow scope companies.

The main strategic groups have shown consistency when the profiles of their composing companies were analyzed. The strategic group that obtained the best performance was the one formed by companies that adopted a broad scope strategy with utility as competitive method and without diversity per segment. Though no statistically significant differences were found in the current analysis, Tobin's Q values for this strategic group always ranked among the top three during the study period. Additionally, this group obtained the second best average ROCE. When company performances were compared on the basis of their strategic commitment, average Tobin's Q and ROCE values for groups of companies with most constant positioning were found to be above all others. Though no statistically significant difference was found in this comparison, this result represents a sign of greater shareholders' perceived value as a function of companies' consistent strategic positioning.

This study indicates that Chrisman et al.'s (1988) typology seems to be adequate for the analysis of MNC's strategies in the oil industry both in terms of descriptive and explanatory

perspectives, since competitive strategies could be mapped and consistent groups were formed. The analyses developed in this research have brought forth not only the possibility of a company being differentiated and, at the same time, presenting low operational cost as a function of factors such as scale of operations, operational efficiency, and others, but also pointed at a group of companies that used this competitive method as the one where shareholders' perceived value was greater in the face of their strategic positioning.

One recommendation for future research is to apply the methodology used in this study to a horizon that will include 2008 and 2009 accounts in order to detect occasional changes to strategic groupings that may have occurred, given oil price variations.

Another interesting line of investigation would be a modification to the concept of segmentation. As adopted in this study, segmentation followed the geographic criterion. Alternatively, a criterion of segmentation per business units could be used, where diversity per segment would be measured by the company's positioning in its different areas of operations. Still another suggestion could be to test the use of other performance variables to measure company performance.

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