Assessment of competitive distance among companies in the ground coffee producing sector

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Abstract
Brazilian ground coffee producing sector is exposed to fierce competition, specially the cooperatives which are required to face new challenges and competitive strategies. This paper aims to assess the competitive distance among the 5 best coffee cooperatives in order to identify which are the main existing competitive differentials adopted.

Keywords: Competitive Distance; Competitive Variables; Competitive Profile.

Introduction
Companies are focusing on explore their competitive advantages aiming to reduce the impact of the global competitiveness. The global market became the main concurrent of the companies, which discovered the need for quantifying their competitiveness in order to keep alive on the global market.
In such a scenario, companies are seeking for more projection adopting as competitive priorities the 5 basic objectives of the productive systems (SLACK et al, 2002): price, quality, delivering time, variety and flexibility.
The main factor of the strategic planning of the companies is the focus of the operational guidelines on the areas of management, manufacturing, marketing and finances, aiming a better position on the market (MARTINS; LAUGENI, 2006). This understanding of competitiveness can be found in all of the sectors of industry, like the Brazilian ground coffee producers.
Coffee production in Brazil represents 30% to 40% of the global coffee production, what makes the country the biggest producer in the world. According to Gomes; Rosado (2005), the coffee industry has a great growth potential as in the internal market, as well in the external, what makes the companies to seek for more competitiveness.
Rego; Oliveira (2012) highlight the good expectation of the coffee market caused by the high prices of the rough coffee and the ground coffee, even during the instable economic period. However, the coffee exporters must adopt prudent financial strategies in order to keep themselves active on the global market.
The aim of this paper is to assess the competitive distance among the 5 best coffee cooperatives in order to identify which are the main existing competitive differentials adopted.

**Methodology**

This is an exploratory research conducted with cooperative companies and publicly traded, that aims to know the competitive behavior of these enterprises by analyzing the competitive profile of each company according the procedure proposed by Lucato; Vieira Junior (2009).

The criteria for the choice of the companies were:
1 – the company must be listed by ABIC (Brazilian Association of Coffee Producers Industry) among the best 100;
2 – the company must be a cooperative company publicly traded.

The standard company must be choosen among these companies and must be among the best 3 in the ranking of ABIC.

The data of the companies were obtained from the financial reports published on the site of BOVESPA (Stock Exchange of São Paulo – Brazil: www.bmf.bovespa.com.br). With these data it was possible to calculate the competitive distance among the selected companies.

**Brief review of theory**

The increase of the market share of a company depends on its capacity to reach high levels of productivity and to make it increase continuously (PORTER, 1993).

The fight for competitiveness makes companies to seek its competitive degree in relation to its competitors. Hamel; Prahalad (1995) highlight that the need for creating competitive advantages is underlying for the companies survival inside a competitive environment. So, defining the competitive profile as a way to study the growth strategy to be adopted increases the chance of competitiveness face to the internal and external concurrence.

In such a scenario, chances of growth and profitability increase when a competitive advantage arises. However, if the competitive advantage is very evident there is a great chance of reduction of the concurrence acting on the market, or they will change their actions trying to nullify the advantage (ZACCARELLI, 1995).

It is not possible to manage what is not measurable. This thinking makes companies to search competitive structures to reach a better position on the market.

The competitive profile is a set of results obtained by a company in its competitive factors, resuming its competitive position in a determined market (ZACCARELLI, 2004). Lucato; Vieira Junior (2009) defined the competitive profile of a company as the set of the values of these competitive variables in a determined period of time.

The competitive variables are intended to measure the competitive performance of a company on the market under the following focuses: market, strategies, production,
finances, people mobilization, environmental, global integration and connectivity (Lucato; Vieira Junior, 2009).

For this study, the variables adopted to determine the competitive profile of each company are the same suggested by Lucato; Vieira junior (2009) – six quantitative variables and six dichotomous variables, adapted for the ground coffee sector, as described below.

Quantitative variables
- Market share;
- Sales growth;
- Return over investment (ROI);
- Current liquidity index (CLI);
- General liquidity index (GLI);
- General indebtedness index (GII).

Dichotomous variables
- Being awarded the ABIC Quality Seal;
- Being certified by ISO 9001 quality standard;
- Being certified by ISO 14001 environmental standard;
- Being permanently active on the global market;
- Being able to make online transactions;
- Practice of at least 5 basic principles of the modern human resources management.

Once the competitive profile is defined, it is necessary to establish a company as the competitive standard for the calculation of the competitive distance among the companies being studied. The competitive standard can be defined from a set of criteria: the company with the best financial results; the company with the greatest market share; the company that is recognized by the market as the reference, among other criteria. The competitive standard does not have to be necessarily the best one, but must be a reference in some of the competitive factors adopted for the analysis.

The calculation of the competitive distance among the standard company and the other companies must consider 3 stages, according to Lucato; Vieira Junior (2009):

- First step: is the calculation of the Euclidian Distance among the standard company and the others, by using the quantitative competitive variables:

\[ d_e (S, X) = \sum_i \left[ z_i (S) - z_i (X) \right]^2 \] .................................................................................. (1)
Where:

d_{d}(S,X) \rightarrow \text{competitive distance among the standard company (S) and the studied company (X)};

z_{i}(S) \rightarrow \text{quantitative competitive variable } i \text{ for the standard company } S;

z_{i}(X) \rightarrow \text{quantitative competitive variable } i \text{ for the studied company } X.

-Second step: calculation of the Binary Distance among the standard company and the others, by using the dichotomous competitive variables:

\[ d_{b}(S, X) = \frac{b + c}{a + b + c + d} \]  

(2)

Where:

d_{b}(S, X) \rightarrow \text{Binary distance among the standard company S and the studied company X};

a \rightarrow \text{number of events in which companies S and X present the defined attribute};

b \rightarrow \text{number of events in which company S does not present the defined attribute but company X presents the defined attribute};

c \rightarrow \text{number of events in which company X does not present the defined attribute but company S presents the defined attribute};

d \rightarrow \text{number of events in which companies S and X do not present the defined attribute}.

-Third step: calculation of the Competitive distance by using the combined similarity coefficient, considering the number of variables used in each case:

\[ d_{c}(X, S) = \frac{n_{c} \cdot d_{c}(S, X) + n_{b} \cdot d_{b}(S, X)}{n_{c} + n_{b}} \]  

(3)

Where:

d_{c}(S, X) \rightarrow \text{Competitive distance among standard company S and the studied company X};

n_{e} \rightarrow \text{number of quantitative competitive variables used on the calculation};

d_{e} \rightarrow \text{Euclidian distance among S and X};

n_{b} \rightarrow \text{number of dichotomous competitive variables used on the calculation};

d_{b} \rightarrow \text{Binary distance among S and X}. 
### Competitive Profile of the Companies

According to the described above, the companies to be studied were chosen from the ranking of ABIC that enroll the 100 biggest ground coffee industries. These companies should be cooperatives and publicly traded, and were identified as S (standard), A, B, C and D. The standard company S must be among the best 3 of the same ranking. Table 1 presents the data obtained for each company for the year 2011. For the dichotomous competitive variables it is considered 1 if the company presents the attribute, and 0 if the company does not present the attribute.

#### Table 1 – Competitive variables of companies S, A, B, C and D for the year 2011.

<table>
<thead>
<tr>
<th>Qualitative variables</th>
<th>Company S</th>
<th>Café A</th>
<th>Café B</th>
<th>Café C</th>
<th>Café D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share</td>
<td>0.015950</td>
<td>0.103432</td>
<td>0.005850</td>
<td>0.005850</td>
<td>0.028629</td>
</tr>
<tr>
<td>Sales growth</td>
<td>0.333283</td>
<td>0.682033</td>
<td>-0.000382</td>
<td>0.252291</td>
<td>0.540621</td>
</tr>
<tr>
<td>ROI</td>
<td>-0.045944</td>
<td>0.284791</td>
<td>0.001702</td>
<td>0.003376</td>
<td>3.301465</td>
</tr>
<tr>
<td>CLI</td>
<td>1.149712</td>
<td>1.439115</td>
<td>1.419238</td>
<td>1.927019</td>
<td>0.745939</td>
</tr>
<tr>
<td>GLI</td>
<td>1.069315</td>
<td>1.101421</td>
<td>1.034956</td>
<td>1.583659</td>
<td>0.466523</td>
</tr>
<tr>
<td>GII</td>
<td>1.452332</td>
<td>3.622922</td>
<td>0.031814</td>
<td>0.021148</td>
<td>-6.364517</td>
</tr>
<tr>
<td>Dichotomous variables</td>
<td>Café S</td>
<td>Café A</td>
<td>Café B</td>
<td>Café C</td>
<td>Café D</td>
</tr>
<tr>
<td>ABIC quality seal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ISO 9000</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ISO 14000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Global market</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Online transactions</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Human resources principles</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

With these data it was possible to trace the competitive profile of each company for the year 2011.

#### Competitive profile for the year 2011

PC (S) = (0.015950; 0.333283; (-0.045944); 1.149712; 1.069315; 1.452332; 1; 1; 0; 1; 1; 1)  
PC (A) = (0.103432; 0.682033; 0.284791; 1.439115; 1.101421; 3.622922; 1; 1; 0; 1; 1)  
PC (B) = (0.005850; (-0.000382); 0.001702; 1.419238; 1.034956; 0.031814; 1; 1; 0; 1; 1)  
PC (C) = (0.005850; 0.252291; 0.003376; 1.927019; 1.583659; 0.021148; 1; 1; 0; 0; 1; 1)  
PC (D) = (0.028629; 0.540621; 3.301465; 0.745939; 0.466523; (-6.364517);1; 1; 0; 0; 1; 1)  

Same way, the competitive variables of the companies for the year 2012 were obtained and presented on Table 2.
Table 2 – Competitive variables of companies S, A, B, C and D for the year 2012.

<table>
<thead>
<tr>
<th>2012</th>
<th>Quatitative variables</th>
<th>Café S</th>
<th>Café A</th>
<th>Café B</th>
<th>Café C</th>
<th>Café D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share</td>
<td>0,020638</td>
<td>0,077622</td>
<td>0,004186</td>
<td>0,004186</td>
<td>0,014991</td>
<td></td>
</tr>
<tr>
<td>Sales growth</td>
<td>0,251149</td>
<td>-0,267646</td>
<td>0,178023</td>
<td>0,178023</td>
<td>-0,296410</td>
<td></td>
</tr>
<tr>
<td>ROI</td>
<td>0,051976</td>
<td>0,037852</td>
<td>0,002890</td>
<td>0,003720</td>
<td>0,462505</td>
<td></td>
</tr>
<tr>
<td>CLI</td>
<td>1,089119</td>
<td>1,646524</td>
<td>1,544909</td>
<td>2,075867</td>
<td>0,512885</td>
<td></td>
</tr>
<tr>
<td>GLI</td>
<td>1,145565</td>
<td>1,135536</td>
<td>1,141396</td>
<td>1,671213</td>
<td>0,477301</td>
<td></td>
</tr>
<tr>
<td>GII</td>
<td>1,383253</td>
<td>3,705867</td>
<td>0,030820</td>
<td>0,016856</td>
<td>-4,249273</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2012</th>
<th>Dichotomous variables</th>
<th>Café S</th>
<th>Café A</th>
<th>Café B</th>
<th>Café C</th>
<th>Café D</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABIC quality seal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ISO 9000</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ISO 14000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Global market</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Online transactions</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Human resources principles</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

With these data it was possible to trace the competitive profile of each company for the year 2012.

Competitive profile for the year 2012

PC(S) = (0,020638; 0,251149; 0,051976; 1,089119; 1,145565; 1,383253; 1; 1; 0; 1; 1; 1)
PC(A) = (0,077622; (-0,267646); 0,037852; 1,646524; 1,135536; 3,705867; 1; 1; 0; 1; 1; 1)
PC (B) = (0,004186; 0,178023; 0,002890; 1,544909; 1,141396; 0,030820; 1; 1; 0; 1; 1; 1)
PC (C) = (0,004186; 0,178023; 0,003720; 2,075867; 1,671213; 0,016856; 1; 1; 0; 0; 1; 1)
PC (D) = (0,014991; (-0,296410); 0,462505; 0,512885; 0,477301; (-4,249273); 1; 1; 0; 0; 1; 1)

Calculation of the Competitive Distance

From the competitive profiles for the year of 2011 the competitive distance was calculated as described previously.
With Equation (1) it was possible to calculate the Euclidian distance for each company for the years 2011 and 2012.

Table 3 – Values of distances

<table>
<thead>
<tr>
<th>Distance</th>
<th>Company</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Euclidian</td>
<td></td>
<td>2,243861</td>
<td>1,485059</td>
</tr>
<tr>
<td>Binary</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Competitive</td>
<td></td>
<td>1,121931</td>
<td>0,742529</td>
</tr>
</tbody>
</table>
Analysis

The following analyses are made for each company A, B, C and D in comparison with company S.

For the year 2012:
- Competitive distance kept almost the same for Company A when compared to 2011, even with a growth on its CLI and GLI;
- Competitive distance decreased and Company B increased a little its competitive performance compared to 2011. Its market share increased during the same period;
- Competitive distance of Company C increased in 2012 when compared to 2011, mainly because the Market Share and the Sales Growth presented a reduction;
- Company D presented a considerable reduction on its competitive distance to company S, but maybe it represent a change on the direction of the vector. The sales growth was negative.

Final remarks

The concept of Competitive Distance used in this paper is appropriate and allowed to reach two purposes: to show the grade of competitiveness of a company in comparison to its concurrency and to help managers to define the main aspects to promote improvement programs.

The values of Competitive Distance obtained in this paper shoed that all companies studied are in a different degree of competitiveness when compared to Company S. And the reduction presented by company D can be a result of a change of direction of the vector Competitive Distance, because the main change observed from 2011 to 2012 was a significant reduction on its sales growth.

References


