Market orientation among food processing SMEs in Hungary

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Abstract

Understanding the customers’ mind and integrating it into the enterprise everyday activities is becoming the key issue of surviving the competition of the market. The MARKOR (market orientation measure) (Kohli, Jaworsky and Kumar, 1993) and MKTOR (market orientation) (Narver and Slater, 1990) scales are the tools to describe the positions of the companies in the evolving process. These models were chosen because these are the most well-known, and most frequently tested in several countries (eg. Matsuno, Mentzer and Rentz, 2005; Werhees and Meulenberg, 2004; Mavondo, 1999; Farell and Oczkowski, 1997).

The research program consists of four steps. In the second step (shown in this article), in 2010 we investigated 250 agricultural and food industrial SMEs with internationally used standard questions about their experience about areas that have an influence on marketing activity. Based on the investigations the adopted MARKOR and MKTOR scale (on condition of the results) is suitable for carrying out further investigations into the database of the small and medium sized enterprises operating in the food industry.

Besides all these the analysis of each variable group gives the opportunity to identify some observed characteristics in the variable groups.

Key words: market orientation, food industry, SMEs, SEM

Introduction

The results shown in our presentation are parts of a research program that includes several steps, and the purpose of which is to form a market orientation model applicable for branch, small- and medium sized enterprises which handle the unique features of the marketing activity rooting from SME’s properties properly, but at the same time takes into account the branch specialities of food industry.

The research program consists of four steps. The first one was a nationwide survey carried out in 2009 with 100 dairy and meat industrial small and medium sized enterprises. Its aim was to map the general entrepreneurial practice and opinion about marketing. In the second step, in 2010 we investigated 250 agricultural and food industrial SMEs with internationally used standard questions about their experience about areas that have an influence on marketing activity. The third step is still being carried out at present and it deals with the spread of the research onto several countries. The questionnaires are being filled by Croatian food-industrial enterprises. The last step of the research is to create a market orientation model already mentioned in the introduction, which takes into account the characteristic of SMEs, and which is based on international results.

This current article investigates the applicability of MARKOR and MKTOR scales used in the second step of the research among the SMEs in Hungary.

The aim of the article was to examine the factors of the MARKOR and MKTOR scales, as well as the 49 variables constituting the factors in the database that consists of 168 items in the Hungarian food processing SMEs. The key questions were the following:
Can the three-three factors in the two scales be considered one dimension?

Does each factor have enough discriminating ability, that is do we have the right to separate the variables constituting the factors into three-three factors?

Methodology

The methodology is shown divided into two areas, the methodology of data collection and data analysis.

The data were collected in the summer of 2010 with the help of the interviewer’s network of a Hungarian market research company. The places of the data collection were the seats of the enterprises involved into the research. Face-to-face interviews were made with the marketing leaders of the enterprises, or if they were not available, then the first leader of the company. In our present article we show the results of the food industrial enterprises, as the two sectors showed a significant difference. The composition of the sample accordingly to size categories is shown in Table 1.

Table 1. The composition of the research sample according to size categories in the food industry

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>Head</th>
<th>Composition %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9 people</td>
<td>136</td>
<td>71,2</td>
</tr>
<tr>
<td>10-49 people</td>
<td>42</td>
<td>21,9</td>
</tr>
<tr>
<td>50-300 people</td>
<td>13</td>
<td>6,9</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100</td>
</tr>
</tbody>
</table>

The questionnaire applied in the research contains 5 major groups of questions. In the first one the judgement of the external environment surrounding the company was investigated, in the second one the internal processes were surveyed (management, company strategy, marketing organisation, innovativeness, company culture, HR policy, marketing tools and abilities, organizational learning). In the third part market orientation was analyzed with MARKOR and MKTOR scales. In the fourth part we put questions about the financial and non-financial productivity of the company, while in the last part the background variables got a place (seat, number of employees, legal form of the company, average market share, net annual income, annual balance-sheet, ownership structure).

The data were analyzed with the structural equation modelling (SEM) method. The SEM is suitable to make revealing analysis as well as to verify previous predictions. In the article the SEM method was used to fortify the applicability of previously constructed models, or to justify their refusal. From among the SEM program packages the AMOS 7.0 program was used because it conforms the SPSS statistical program and it applies SPSS database without data-transformations. The AMOS is suitable to create models in a simple and fast way as well as to visualize them graphically. The excel program was applied to define the probability of the Chi2 distribution.

In order to be able to use the applied mathematical-statistical method, we deleted those items from the database that contained missing values in any of the variables involved into the database.

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During the analysis of the variables that are part of the database of the MARKOR and MKTOR scales we stated that it is possible to decrease the one-dimensional variables in a way that the refusal of the one-factor model cannot be justified in case of 5 of the examined six factors. We also stated that the one-dimensional factors have a statistically justifiable discrimination effect compared to each other.
Results

We introduced the main results in this part of the article.

Hypothesis: The factors of MARKOR and MKTOR scales can be regarded as one-dimensional

The process of the one-dimensionality examination of the three-three factors of the two scales is shown through the example of MARKOR scale’s “Intelligence dissemination” factor. In the database eight variables belong to the “Intelligence dissemination” factor. If the factor can really be regarded one-dimensional, then a common factor determines them through a regressive connection. The common factor is not expected to determine the total variance of the measured variable, this is why an error factor is linked to each variable. It belongs to the total identification of the model that the variance of the common factor and the regression weights belonging to the error factor must be given; in our case 1 is the suitable value.

The obtained probability referred to that that hypothesis which the “Intelligence dissemination” factor’s eight variables rely on a one-dimensional model must be refused. The correction of the model was solved by deleting the variables one after the other in it. The variable to be deleted was chosen based on a matrix coming from the standardized differences of the covariance matrixes supposing and not supposing a one-dimensional model.

From among the covariance-differences after standardization was chosen the value referring to the greatest difference. Based on this from the original – AMOS model which is suitable for testing one-dimensionality and which refers to the flow of information – model that variable was deleted where the Chi² statistics showed the bigger fall.

After deleting one variable a significance examination was also carried out on the decreased size model, after that other variables were deleted. Based on this theory in case of both scales and in case of all their factor-groups the deletion process resulting in one-dimensional models was carried out. The results of the deletion process are shown in Table 2.

Assumption of a co-variance connection between the error factors

Besides creating one-dimensional models our other aim was to keep as many variables as possible.

We want to increase the number of the remaining variables, so we accepted a covariance connection between the error factors linked to each variable. The degree of freedom of the model enlarged with covariance connections changes compared with the original mode, and if it is bigger than zero, then the significance level of the Chi² statistics can be calculated, the hypothesis examination can be carried out.

Table 2. Acceptable one-dimensional models

<table>
<thead>
<tr>
<th>Nomination of factor</th>
<th>Number of variables in the original model</th>
<th>Number of kept variables</th>
<th>Chi²</th>
<th>Degree of freedom</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intelligence generation</td>
<td>10</td>
<td>6</td>
<td>10,430</td>
<td>7</td>
<td>0,166</td>
</tr>
<tr>
<td>Intelligence dissemination</td>
<td>8</td>
<td>4</td>
<td>4,79</td>
<td>2</td>
<td>0,930</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>14</td>
<td>9</td>
<td>37,049</td>
<td>26</td>
<td>0,074</td>
</tr>
<tr>
<td>MKTOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer orientation</td>
<td>8</td>
<td>4</td>
<td>3,542</td>
<td>2</td>
<td>0,170</td>
</tr>
<tr>
<td>Competitor orientation</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Interfunctional coordination</td>
<td>4</td>
<td>4</td>
<td>0,248</td>
<td>1</td>
<td>0,618</td>
</tr>
</tbody>
</table>

The investigation of the discriminating ability between the factors of the scale

The variables of a scale can be listed into separable factors if this separation can be justified statistically too. Two factors of a scale have enough discriminating ability if the two-factor model is statistically more suitable for the together handled variables of the two factors than the one-factor model.

We made one- and two-factor models and evaluated with the help of AMOS, then we compared the two models.
The significance of the difference between the two models can be established from the difference between the two \(\chi^2\) values. The difference can also be regarded \(\chi^2\) distributional (AMOS user’s guide), the degree of freedom is the difference between the two levels of independence. The difference is significant \((p<0.05)\), so the zero-hypothesis that there is no difference between the two models can be refused. Thus the two factors of the scale have a significant discriminating ability.

The summarized results of the discriminating-impact investigation between the MARKOR and MKTOR scales are shown in Table 3. In case of MKTOR scale only one factor pair can be created, since in case of on factor it was impossible to create a one-dimensional model, as we could see it previously.

### Table 3. Summary of the discriminating ability investigation between the factor pairs

<table>
<thead>
<tr>
<th>Factor pairs</th>
<th>(\chi^2)</th>
<th>Degree of freedom</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intelligence generation - Intelligence dissemination</td>
<td>35.649</td>
<td>3</td>
<td>8.88E-08</td>
</tr>
<tr>
<td>Intelligence generation - Responsiveness</td>
<td>141.02</td>
<td>1</td>
<td>1.59E-32</td>
</tr>
<tr>
<td>Intelligence dissemination - Responsiveness</td>
<td>66.98</td>
<td>1</td>
<td>2.74E-16</td>
</tr>
<tr>
<td>MKTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer orientation - Interfunctional coordination</td>
<td>84.592</td>
<td>1</td>
<td>3.67E-20</td>
</tr>
</tbody>
</table>

### Implications

During the analysis of the variables that are part of the database of the MARKOR and MKTOR scales we stated that it is possible to decrease the one-dimensional variables in a way that the refusal of the one-factor model cannot be justified in case of 5 of the examined six factors. We also stated that the one-dimensional factors have a statistically justifiable discrimination effect compared to each other.

**MARKOR scale, Intelligence generation factor**

The kept variables of the group refer to that the food industrial SMEs collect secondary information through basically informal channels, and those who go beyond it carry out market research within their enterprise by themselves. Besides this it is a well-known factor that these enterprises in Hungary employ only a few employees with marketing qualification. This is the reason for that the investigated enterprises consider these little information satisfactory.

**MARKOR scale, Intelligence dissemination factor**

Compared to the original model this is the factor where the fewest variables are kept (50%). It refers to that in case of the Hungarian food industrial SMEs one of the weakest elements of market orientation is the effective information flow. It is especially true for the division of information referring to the consumers within the company. From this we can conclude that the marketing function within the company operates separately from the other management fields, so it is unable to influence the whole company.

**MARKOR scale, Responsiveness factor**

The enterprises say their strong side is the ability to answer. They are highly convinced that they react to real consumer demands, however, they work out these answers based on very little consumer information. The question arises: how much do the reactions worked out in this way react the real consumer demands? Besides this a development conception based on the technological background also comes to the surface. It pushes the buyers’ information resulting from the market research into the background.

**MKTOR scale, Customer orientation factor**

The dropped variables support the preliminary assumption according to which the enterprises already feel commitment to customer orientation, however, it does not appeal in real activities.
Investigating the statements of the two scales together, we can say that the information collection – in case of food industrial SMEs – means the acquisition of secondary information, and it focuses mainly on the competitors’ activity and less on the consumers’ expectations.

References


