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Final Thesis

# **AHP and target markets selection**

An application to an Italian plastic products company

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# Introduction

Target market selection is a critical decision for companies that desire to internationalise or expand their trade networks. Management and marketing literature highlight the importance of adopting a systematic and data-driven approach to the issue, taking into consideration different criteria such as market size, profitability, presence of competitors, business risk. This aspect assumes particular relevance for SMEs, which often lack the necessary experience and resources to carry out structured market analyses. Analytic Hierarchy Process, the general theory for decision making developed by T. L. Saaty, represents a practical and efficient instrument for such a problem, allowing to rank market alternatives based on multiple criteria.

The thesis deals with a real-life target market selection problem concerning an Italian plastic products company. The study aims to provide the export executives with an intuition about the most appropriate new market to invest in (among a previously defined set of countries) within the scope of a market development strategy. At the same time, it offers the occasion of showing the potentialities of the Analytic Hierarchy Process and its applicability to business strategic decisions.

The thesis is structured as follows. The first chapter presents the general theory of the Analytic Hierarchy Process and its methodology. In the second chapter the issue of systematic international market selection is examined giving particular attention to case of SMEs. The third chapter focuses on multiple relevant criteria adopted for markets' evaluation and on the determination of the relative importance of said criteria. In the fourth chapter the results of the AHP are summarized and the robustness of the output is tested through sensitivity analysis. Lastly, the fifth chapter deals with the major critiques addressed to the AHP and exposes the limitations affecting the study.

# Outline of the case study

## The case study

The research was conducted within the context of Di Martino SpA, a well-known company located in the Italian province of Vicenza specialized in the production of plastic items for gardening and horticulture. Company management has been planning to approach new foreign markets and expand the trade network. The foreign trade office has been commissioned to assess different market opportunities starting from raw data provided by sectorial trade associations: this preliminary research led to the identification of a group of six countries as possible new target markets.

To determine priorities among the markets, a set of evaluation criteria were proposed to the export managers team on the basis of the study of past literature and export guides especially created for Italian SMEs. The team identified seven target market selection criteria and was appointed to weigh them (derive the importance of each criteria) based on their professional experience.

The following step involved collecting all data necessary to compare the countries with regard to each criterion. AHP was used to compute criteria's weights and determine the markets' final ranking. Results are tested through sensitivity analysis and in conclusion presented to the company.

## The company

Di Martino SpA is a company specialised in the manufacturing of plastic and resin tools for gardening and horticulture. It has been active since the 1960s and today exports in more than 80 countries. The company employs around 70 workers and is classified as a medium-sized enterprise according to the European definition<sup>1</sup>.

Di Martino has always been markedly focused on "individual" spraying. The core product is represented by hand-operated pressure sprayers of different dimensions and capacities, from the common vaporizer for watering flowers to the knapsack sprayers used for the treatment of plant diseases; the catalogue also includes pumps with Viton washers for spraying corrosive chemicals. The range is completed by plastic pottery, jerrycans, watering cans and various gardening tools. Production plant consists of 25 injection units for plastic moulding, 20 for blowing and 30 for

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<sup>1</sup> Medium-sized enterprises are defined as enterprises that employ fewer than 250 persons and either have an annual turnover that does not exceed EUR 50 million, or an annual balance sheet not exceeding EUR 43 million (European Commission, *User guide to the SME Definition*, 2015)

components assembly. The company offers different product lines each one has different technical specifications and market position, in order to satisfy both hobbyists and professional users. All products are manufactured in Italy within the production plants located in Borso del Grappa and Mussolente (province of Vicenza).

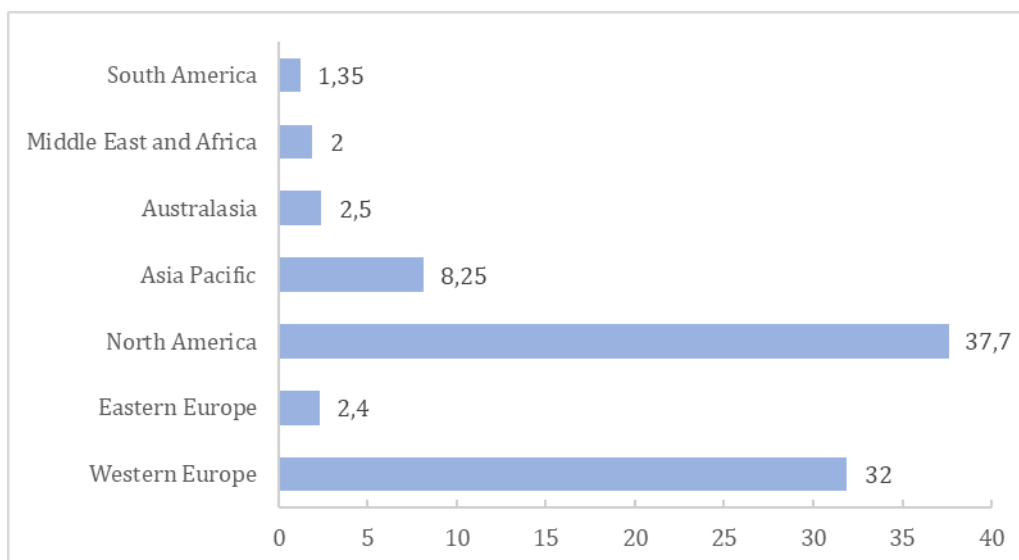
## The sector

From the Italian perspective, a relevant portion of the gardening market is occupied by garden machinery, including lawnmowers, hedge trimmers, blowers, chainsaws and various other equipment<sup>2</sup>. The company's business is thus not predominant in the sector, but is still considerable. According to the company, the main threat for sales is represented by Chinese competition: made-in-China manual items find indeed ready buyers thanks to very low prices.

The projections by Euromonitor International for the Italian gardening market forecast a constant growth in the sales in the next years, reaching a value of 3 billion Euro in 2022. The number for 2017 (latest figures) was 2.763 million Euro; around half the sales have focused on horticulture, a third of the total was represented by gardening tools, 12% by plants and flower pots and 8% by garden care items<sup>3</sup>.

From a more general perspective, the global gardening market registered in 2017 a total value of 86.166 billion Dollars; the geographic extension of the international gardening market is presented in Figure 1.

Figure 1 - Value of the global gardening market by geographic area (billion \$)



Source: Euromonitor International for MyPlant&Garden

<sup>2</sup> "Garden 2018, Non C'è Male", Marketing Giardinaggio, Nr. 241, November 2018, p. 8

<sup>3</sup> Euromonitor International for MyPlant&Garden (January 2019)

# CHAPTER 1

## The Analytic Hierarchy Process: an introduction

The Analytic Hierarchy Process (AHP) is a general theory for decision making developed by Thomas L. Saaty in 1971-1975<sup>4</sup>. Decisions generally consist in a discrete set of *alternatives* that are evaluated on the basis of a finite number of specific *criteria*. AHP can be viewed as a method to determine a full ranking of the *alternatives* by decomposing the decision problem into pairwise comparisons. In other terms, in the AHP every *alternative* is compared with the others on the basis of selected *criteria* each of which assumes different importance (weight) for the decision makers. This procedure makes it possible to simplify the problem and most importantly to generate a ranking of the alternatives (and thus determine which is the best one). In the AHP, a decision maker can incorporate and express judgements on both intangible qualitative criteria and tangible quantitative criteria<sup>5</sup>. The AHP not only represents a tool to identify the best decision but also provides a clear and rational orientation to the process of decision making<sup>6</sup>. For instance, it is important to underline that every ranking obtained with the AHP includes a measure of *consistency*.

The Analytic Hierarchy Process has been widely applied in different situations, generally<sup>7</sup>:

- *multicriteria decision making*: choices which involve the selection of one alternative from a set of alternatives, usually based on multiple decision criteria. Classic problems include product selection, supplier selection, policy decisions;
- *strategic planning*: AHP can assist an organization in selecting among alternative missions and strategies (an example coming from the literature is

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<sup>4</sup> Saaty, R.W. (1987) "The analytic hierarchy process - what it is and how it is used", *Mathematical Modelling*, Volume 9, Issues 3-5, pp. 161-176

<sup>5</sup> Badri, M. A. (2001), "A combined AHP-GP model for quality control systems", *International Journal of Production Economics*, Vol. 72, Issue 1, pp. 27-40

<sup>6</sup> Zolfani, S. H., Chen, I. S., Rezaeiniya, N. and Tamošaitienė, J. (2012) "A hybrid MCDM model encompassing AHP and COPRAS-G methods for selecting company supplier in Iran", *Technological and Economic Development of Economy*, Vol. 18, No. 3, pp. 529-543

<sup>7</sup> Forman, E. H. and Gass, S. I. (2001) "The Analytic Hierarchy Process: An Exposition" *Operations Research*, Vol. 49, No. 4, pp. 469-486



the exploration of different planning alternatives for the upgrading or replacement of milling machines at an Airbus plant in Germany<sup>8</sup>);

- *resource allocation*: apportioning limited resources among a set of alternatives (e.g. the allocation of electricity to industry in case of shortage, based on industries' contribution to health, welfare, employment, national defence, etc.<sup>9</sup>);
- *conflict resolution*: settling disputes between parties with apparently incompatible goals or positions (some examples include the proposed solutions for the Northern Ireland conflict<sup>10</sup> and for the Israeli-Palestinian conflict<sup>11</sup>).

## 1.1 Basic elements of linear algebra

Before introducing AHP's methodology, it might be useful to briefly revise some basic theory of matrices and linear algebra which is essential to its application.

### ***Reciprocal matrix***

A matrix  $A$  is said to be reciprocal if:

- a) for all  $i, j$ ,  $A_{ij} = 1/A_{ji}$
- b) the elements in the main diagonal assume value 1

### ***Eigenvalues and eigenvectors***

Given a non-zero vector  $v$ , it is said to be an eigenvector of a square matrix  $A$  if  $Av$  is a scalar multiple of  $v$ :

$$Av = \lambda v$$

where  $\lambda$  represents the eigenvalue associated with the eigenvector  $v$ .

Eigenvalues are the roots  $\lambda$ 's of the equation:  $\det(A - \lambda I) = 0$ , where  $I$  is the identity matrix.

### ***Perron-Frobenius Theorem***

A real square matrix with positive entries has a unique largest real positive eigenvalue  $\lambda_{\max}$  and the corresponding eigenvector  $v$  can be chosen to have strictly positive components.

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<sup>8</sup> Oeltjenbruns, H., Kolarik, W. J., Schnadt-Kirschner, R. (1995) "Strategic planning in manufacturing systems - AHP application to an equipment replacement decision", *International Journal of Production Economics*, Vol. 38, Issues 2-3, pp. 189-197

<sup>9</sup> Saaty, T. L. and S. Mariano, R. (1979) "Rationing Energy to Industries: Priorities and Input-Output Dependence", *Energy Systems and Policy*, Vol 3, pp. 85-111

<sup>10</sup> Alexander, J. M. and Saaty, T. L. (1977) "The Forward and Backward Processes of Conflict Analysis", *Behavioral Science*, Vol. 22, pp. 87-98

<sup>11</sup> Saaty, T. L. and Zoffer, H. (2013) "Principles for Implementing a Potential Solution to the Middle East Conflict", *Notices of the American Mathematical Society*, 60(10), pp.1300-1322

The Perron-Frobenius eigenvector assumes particular relevance in the AHP since it essentially provides the ranking of the alternatives (and the weight of the criteria) in the decision.

## 1.2 The AHP methodology

This paragraph will briefly explain the application procedure of the AHP method from a purely mathematical perspective; the section will strongly rely on the book by E. Mu and M. Pereyra-Rojas<sup>12</sup>. A concrete example will follow, to better clarify the process.

In order to prioritize the alternatives, the AHP involves a set of six stages. In the first step, the decision problem is simply broken down into a hierarchy of objectives, criteria and alternatives. The hierarchy scheme consists in the goal of the problem at the top, criteria in the middle and alternatives at the bottom.

The second step is aimed at determining the weights of the criteria. Weights are obtained through a pairwise comparison of the criteria with respect to the objective of the decision problem. In the AHP, comparisons are made using the numerical nine-point scale developed by Saaty (Table 1).

Table 1 - Fundamental scale of pairwise comparison

Intensity of importance	Definition	Explanation
1	Equal importance	Two elements contribute equally to the objective
3	Moderate importance	Experience and judgment moderately favour one element over another
5	Strong importance	Experience and judgment strongly favour one element over another
7	Very strong importance	One element is favoured very strongly over another, its dominance is demonstrated in practice
9	Extreme importance	The evidence favouring one element over another is of the highest possible affirmation
Intermediate values (2,4,6,8) can be used to express intermediate levels of intensity. Intensities of 1.1, 1.2, 1.3 etc. can be used for elements whose importance is very close.		

The result of the pairwise comparison of  $n$  criteria can be summarised in an  $(n \times n)$  evaluation matrix  $A$  in which every element  $a_{ij}$  represent the intensity of importance of the criterion in the row  $i$  relatively to the criterion in the column  $j$ .

$$A = \begin{pmatrix} 1 & a_{12} & \cdots & a_{1n} \\ a_{21} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & 1 \end{pmatrix}, \quad a_{ji} = \frac{1}{a_{ij}}, \quad a_{ij} \neq 0$$

<sup>12</sup> Mu, E., Pereyra-Rojas, M. (2017) *Practical Decision Making (1st ed.)*, Springer International Publishing, Ch. 2

The obtained matrix  $A$  is a reciprocal matrix; this is a basic consistency requirement: if a decision maker is not reciprocal, he may have misunderstood the problem. It is also clear that all the elements in the main diagonal of the matrix assume value 1, since they represent the case when a criterion is compared with itself. From the obtained matrix it is possible to derive the weights of the criteria: relative weights are given by the normalised Perron-Frobenius eigenvector ( $v$ ). Consequently, all criteria weights will sum up to 1.

The quality of the AHP's output is strictly related to the concept of consistency. A more detailed explanation of consistency and calculation of consistency index ( $CI$ ) will be faced in the following paragraph.

The third step is aimed at deriving the priorities of the alternatives with respect to each criterion separately. The process involves a pairwise comparison of the alternatives with respect to each criterion, following a procedure similar to the previous step. As before, a check for consistency is required.

In the fourth step Overall Priorities are derived. All the obtained alternative priorities are combined as a weighted sum, to take into consideration the weight of each criterion, and as a result Overall Priorities of the alternatives are established. The alternative with the highest overall priority constitutes the best choice.

In the fifth step Sensitivity Analysis is performed. A study of how changes in the weights of the criteria could affect the result is done to understand the rationale behind the obtained results.

The sixth and conclusive step involves taking the final decision based on synthesis results and sensitivity analysis.

### **1.3 Consistency**

As mentioned in the previous section, consistency measures the quality of the output of the AHP. In other terms, consistency ensure the absence of logical contradictions within the decisional process.

Some consistency is enforced in the AHP by imposing that matrix  $A$  is reciprocal. Despite this, explicit transitivity may not be achieved; for example, if we assume that for a random decision maker alternative  $a$  is better than alternative  $b$  and alternative  $b$  is better than alternative  $c$ , it is necessary to verify that he also prefers alternative  $a$  to alternative  $c$ . This may appear logical from a mathematical point of view, but decision makers might often be influenced by non-rational behaviours which end up distorting the results and creating inconsistencies. Consistency is not merely related to the compliance with the logical rationale of the preferences, but also involves a wise adoption of the correct estimates of preference intensity, since the use of disproportionate values may distort the results too. Another example of contradiction includes situations where preferences are uncertain or not clear: decision maker prefers  $a$  to  $b$ , but in some other times or circumstances prefers  $b$  to  $a$ . More generally, inconsistency might be caused by a series of different and sometimes

combined factors: poor understanding of the problem, high uncertainty in assessing the preferences, intransitivity, cheating attitude, etc. In all these cases complementary information about the problem is needed to enable decision makers to reduce inconsistencies.

Since numeric values are derived from subjective preferences of individuals, in AHP analysis some inconsistency is not only expected but also allowed<sup>13</sup>. Consistency is measured through the Consistency Index (*CI*) proposed by T. L. Saaty<sup>14</sup>:

$$CI = \frac{(\lambda_{max} - n)}{n - 1}$$

With perfectly reciprocal and transitive comparison matrices, the dominant Perron-Frobenius eigenvalue  $\lambda_{max}$  of matrix *A* should be *n*, the number of alternatives (or criteria). In general, low values of *CI* are a signal of low inconsistency while high values of *CI* identify a problem.

In order to assess whether the value of (in)consistency is acceptable, Saaty defined the consistency ratio (*CR*) which compares the *CI* of the matrix in question with the consistency index of a random-like matrix<sup>15</sup> (*RI*); values are summarised in Table 2:

*Table 2 - Random Consistency Indices*

<i>n</i>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<i>RI</i>	0.00	0.58	0.90	1.12	1.24	1.32	1.41

The consistency ratio (*CR*) is defined as:  $CR = CI/RI$

Saaty argued that consistency ratio of 0.10 or less is acceptable in order to consider AHP results consistent and so continue the AHP analysis. If the *CR* exceeds 0.10, the evaluation procedure must be repeated to identify the cause of inconsistency and correct it.

<sup>13</sup> Mayes, G. R., "Logical Consistency and Contradiction", *Sacramento State Education*, <https://www.csus.edu/indiv/m/mayesgr/phl4/handouts/phl4contradiction.htm>

<sup>14</sup> Saaty, T. L. and Vargas, L.G. (1991) *Prediction, Projection and Forecasting*, Kluwer Academic, Boston

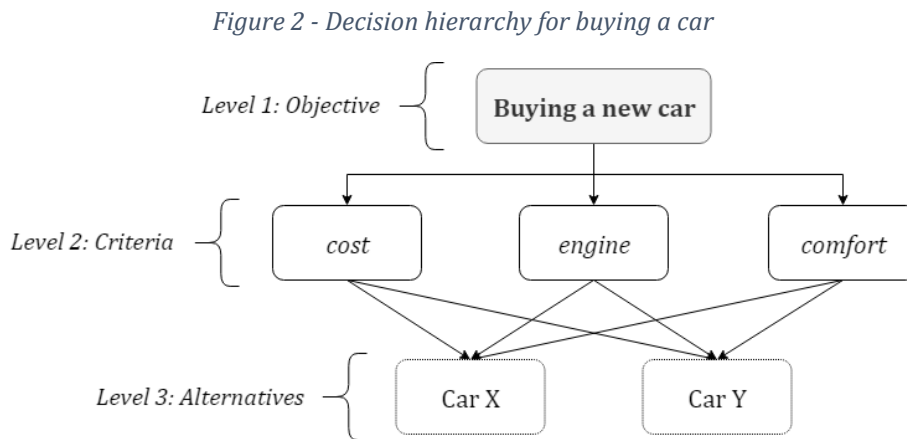
<sup>15</sup> A random matrix is a matrix where judgments have been entered randomly and is therefore expected to be highly inconsistent. Saaty randomly generated 500 matrices and computed their average inconsistency to define what he called *Random Consistency Indices*.

## 1.4 An example: buying a car

At this point, it could be useful to provide a concrete example to clarify the meaning of all the elements, such as alternatives, criteria, pairwise comparison, consistency, introduced in the previous section.

### 1.4.1 Structure of the problem

The first step in an AHP methodology is to build a hierarchy for the decision, a process called *decision modeling*. The problem is broken down into a hierarchy of objective, criteria and alternatives (Figure 2)



In this case the objective is buying a new car; different cars are evaluated on the basis of three different criteria: cost, engine performance and comfort. Here we have only two alternatives: Car X versus Car Y.

### 1.4.2 Deriving the weights for criteria

The second step in the AHP process is to derive the relative priorities (weights) for the criteria. Priorities are called “relative” because they are measured with respect to each other.

When buying a car, as in any other decision, not all criteria are equally important at a given moment: a family man may give more importance to comfort than performance, instead a rally driver may attribute more importance to performance than cost, a student may give more importance to cost than to other factors and so on.

To perform the pairwise comparison, it is necessary to create a comparison matrix of the criteria involved in the decision, where values are taken from the numeric scale shown in Table 1.

Let's assume that our decision maker has the following criteria's preferences:

- cost is *strongly more important* than engine performance;
- cost is *moderately more important* than comfort;
- engine performance is *moderately less important* than comfort.

Such preferences can be summarised in the following matrix:

Table 3 - Pairwise comparison matrix for criteria

	cost	engine	comfort
cost	1	5	3
engine	1/5	1	1/3
comfort	1/3	3	1

When constructing the matrix, we answer the question: "How much the element in the row is *more important* than the element in the column?". When the importance of a criterion is compared with itself the input value is 1. As the matrix is reciprocal, we immediately get the preference values for the transposed position (values in red in Table 3).

Using the computing program R, it is possible to calculate the Perron-Frobenius eigenvector<sup>16</sup>; once normalised<sup>17</sup> we obtain the relative weights for the criteria.

Table 4 - Normalised weights of criteria

critierion	weight
cost	0.637
engine	0.105
comfort	0.258

Once weights are obtained, it is necessary to check whether the preferences entered are consistent. The Perron-Frobenius eigenvalue is  $\lambda_{max} = 3.039$ . The Consistency Index is then:

$$CI = \frac{(\lambda_{max} - n)}{n - 1} = \frac{(3.039 - 3)}{3 - 1} \approx 0.019$$

Now it is possible to calculate the Consistency Ratio (from Table 2 we get that *RI* for  $n = 3$  is 0.58).

$$CR = \frac{CI}{RI} = \frac{0.019}{0.58} = 0.03$$

Since the value of *CR* is less than 0.10, we can assume that the comparison matrix is reasonably consistent, and it is so possible to continue the AHP analysis.

<sup>16</sup> The Perron-Frobenius eigenvector and eigenvalue can be easily computed using the command *eigen(A)*, where *A* is the matrix in question. Among the different results, the Perron-Frobenius eigenvector is the largest one, to which it is consequently associated the Perron-Frobenius eigenvalue.

<sup>17</sup> Normalising means dividing each entry of the Perron-Frobenius eigenvector by the sum of its entries (so that entries sum to 1).

### 1.4.3 Deriving local priorities for the alternatives

The third stage consists in deriving the relative priorities (preferences) of the alternatives with respect to each criterion (cost, engine, comfort). These priorities are called “local” because they are valid only with respect to a specific criterion (and to differentiate them from the overall priorities to be calculated later). Alternatives’ comparison matrices will be as many as the number of criteria.

Let’s assume that the decision maker’s preferences of the alternatives are the following:

- with respect to cost criterion: he *very strongly* prefers Car X to Car Y;
- with respect to engine performance criterion: he *moderately* prefers Car Y to Car X;
- with respect to comfort criterion: he *strongly* prefers Car X to Car Y.

Such preferences can be summarised in the following matrices:

*Table 5 - Comparison with respect to cost*

	Car X	Car Y
Car X	1	7
Car Y	1/7	1

*Table 6 - Comparison with respect to engine performance*

	Car X	Car Y
Car X	1	1/3
Car Y	3	1

*Table 7 - Comparison with respect to comfort*

	Car X	Car Y
Car X	1	5
Car Y	1/5	1

The normalised priorities are computed using R, as explained in the previous paragraph. They are summarised in the following Table:

*Table 8 - Local priorities of alternatives with respect to each criterion*

Alternatives	<i>cost</i>	<i>engine</i>	<i>comfort</i>
Car X	0.875	0.25	0.167
Car Y	0.125	0.75	0.833

When there are only two elements to compare (in this case Car X versus Car Y) there is no need to check for consistency, as *CR* will always be null. However, consistency must be always checked if the elements of the pairwise comparison are three or more.

#### 1.4.4 Derive overall priorities (Model Synthesis)

The fourth step consists in calculating the overall priorities, i.e. priorities which take into account both local priorities and different criteria's weights. This phase is also called Model Synthesis because all value generated by the model are summarized to determine the rank of alternatives.

At operational level it is merely necessary to combine local priorities of alternatives as a weighted sum of the single criteria weights. This can be done using the following equation:

$$P_i = \sum_{j=1}^n (w_j * l_{ij})$$

where:

- $P_i$  is the overall priority of the alternative  $i$ ;
- $w_j$  is the contribution of criterion  $j$  to the overall decision, i.e. its weight;
- $l_{ij}$  represents the relative value of alternative  $i$  with regard to criterion  $j$ ;
- $n$  is the number of criteria in the decision.

The overall priorities for the problem are then:

$$\text{Overall priority of Car X} = \mathbf{0.637} \times 0.875 + \mathbf{0.105} \times 0.25 + \mathbf{0.258} \times 0.167 = 0.627$$

$$\text{Overall priority of Car Y} = \mathbf{0.637} \times 0.125 + \mathbf{0.105} \times 0.75 + \mathbf{0.258} \times 0.833 = 0.373$$

It is possible to conclude that Car X is preferable (overall priority = 0.627) to Car Y (overall priority = 0.373).

#### 1.4.5 Sensitivity analysis

Overall priorities will be strongly influenced by the weights attributed to the respective criteria. Sensitivity analysis involves testing "what-if" scenarios in order to understand how results would have changed with different criteria weights; it constitutes the fifth step of AHP analysis. This step makes it possible to determine result's robustness and recognize which criteria are the drivers for the final decision<sup>18</sup>.

Simply by looking at the criteria's weights we understand that cost assume great importance (priority = 0.637) and given that Car X has a high local priority for cost (0.875), it is clear that the final result in undeniably in favour of Car X.

What would happen if all criteria had the same weight (0.333)? Let's compute the new overall priorities:

$$\text{Overall priority of Car X} = \mathbf{0.333} \times 0.875 + \mathbf{0.333} \times 0.25 + \mathbf{0.333} \times 0.167 = 0.431$$

$$\text{Overall priority of Car Y} = \mathbf{0.333} \times 0.125 + \mathbf{0.333} \times 0.75 + \mathbf{0.333} \times 0.833 = 0.569$$

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<sup>18</sup> Mu, E., Pereyra-Rojas, M. (2017) *Practical Decision Making (1st ed.)*, Springer International Publishing, pp. 20-21



The preference turns now in favour of Car Y. This happens because engine and comfort criteria assume now stronger importance and at the same time Car Y performs better than Car X (i.e. assumes higher local priorities) in both criteria.

In conclusion we can affirm that unless engine or comfort criterion assume significant weight (condition which involves a change in decision maker's priorities), the decision maker would always prefer Car X between the two alternatives, given the strong importance of cost criterion (0.637).

#### **1.4.6 Taking the final decision**

Once the previous steps are performed it is possible to take a decision. This constitutes the final step in AHP methodology. Looking at overall priorities and at the results of sensitivity analysis is necessary to determine whether differences are large enough to make a clear choice. In this case, for the reasons explained above, we can express our recommendation for Car X.

### **1.5 Comments**

It is particularly important to underline that the Analytic Hierarchy Process does not determine the decision to be made. It should be rather considered a framework to interpret preferences and alternatives based on different weights assumed by criteria. In other words, the system allows to establish which alternative is the most consistent with criteria and their level of importance, as they are settled by the decision maker<sup>19</sup>.

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<sup>19</sup> Mu, E., Pereyra-Rojas, M. (2017) *Practical Decision Making (1st ed.)*, Springer International Publishing, p. 22

# CHAPTER 2

## Target market selection

### 2.1 When is market selection necessary?

The selection of target markets is one of the fundamental issues a company in an internationalisation phase must face; *international market selection* (IMS) is the process with which a firm identifies the markets in which it wants to offer its products. The identification of promising foreign markets is a crucial issue for the success of the enterprise as errors committed in this stage can be costly and difficult to correct<sup>20</sup>. The topic of target market selection for itself cannot be found alone very frequently but is generally embedded in marketing and strategy literature<sup>21</sup>.

The growth matrix elaborated by H. I. Ansoff is a simple but illustrative scheme to describe different paths that a business can take toward future growth; among the four directions, two of them involve a process of market selection: market development strategy and diversification strategy.

Figure 3 - Ansoff's growth matrix

	Existing product	New product
Existing market	Market Penetration Strategy	Product Development Strategy
New market	Market Development Strategy	Diversification Strategy

According to Albaum et al. there are two main typologies of market selection process. The *reactive market selection* approach represents a situation where the company acts passively in choosing markets by filling unsolicited orders or awaiting initiatives on the part of foreign buyers (or representatives). The selection process thus remains very informal, unsystematic and purchase oriented; the company uniquely responds to a situation that has emerged. This strategy is not necessarily negative, exporters may find it useful in certain cases, for example when an unexpected order comes from a market never approached before by the company. The *proactive market selection* approach involves by contrast an active selection of foreign

<sup>20</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>21</sup> Kemmer, M., Ehnert, T. (2010) *Procedure and methods of target market selection and risk assessment on the example of SMA AG*, Munich, GRIN Verlag

markets and of further customer segments. Active market selection is a systematic and formalized process which requires the displacement of personnel with international experience and access to international market information, involving methodical market research and field-based audits. There is also another widely used approach which should be taken into consideration: it refers to all the occasions, such as executives' discussions with business acquaintance, which are based on executives' intuition and may reveal new market opportunities. The distinction between reactive and proactive approaches is not always clear and defined: many companies apply proactive strategy to what they consider primary markets and reactive strategy to marginal or secondary markets<sup>22</sup>.

Using these categories, the situation analysed in this study can be labelled as a *proactive market development strategy*, a condition in which the company actively looks for new missions (markets) where its present product line can fit. Success of a market development strategy primarily entails understanding the market characteristics and comparing the product with the rivals in the market<sup>23</sup>. According to Cavusgil et al. (2004), an accurate market selection is a critical decision for businesses in international markets within the scope of development strategy. When defining the markets, primary criteria are trade, economic, politics, cultural aspects; the second phase involves ranking the markets according to their score in these aspects<sup>24</sup>.

## 2.2 International market selection and SMEs

Target market selection processes often happen through a passive, unstructured course; however, it has been widely demonstrated that a systematic and data-supported choice of markets guarantees better export performance compared to non-standardised approaches<sup>25</sup>. A study by Musso and Francioni (2012) has revealed that the majority of Italian SMEs analysed adopt a non-systematic approach to international market selection and have difficulties in implementing an appropriate methodology<sup>26</sup>. This attitude seems to find confirmation in the literature: Van Hoorn (1979) pointed out that when compared to multinational enterprises, SMEs usually show a tendency toward adopting opportunistic rather than systematic strategic decisions<sup>27</sup>. Similarly, Karagozoglu and Lindell (1998), found that the lack of

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<sup>22</sup> Albaum, G., Duerr, E., Strandskov, J. (2005) *International Marketing and Export Management*, Prentice Hall FT, Pearson Education Ltd.

<sup>23</sup> Ansoff, I. H. (1957) "Strategies for diversification", *Harvard Business Review*, 35(5), p. 114

<sup>24</sup> Cavusgil, S. T., Kiyak T. and Yeniyurt, S. (2004) "Complementary Approaches to Preliminary Foreign Market Opportunity Assessment: Country Clustering and Country Ranking", *Industrial Marketing Management*, 33, p. 607-617

<sup>25</sup> Nakos, G. and Brouthers, L. (2005) "The Role of Systematic International Market Selection on Small Firms' Export Performance", *Journal of Small Business Management*, Volume 43, Issue 4, pp. 363-381

<sup>26</sup> Musso, F. and Francioni, B. (2012) "How Do Smaller Firms Select Foreign Markets?", *International Journal of Marketing Studies*, Vol. 4, No. 6, p. 46

<sup>27</sup> Van Hoorn, T.P. (1979) "Strategic planning in small and medium-sized companies", *Long Range Planning*, Vol. 12, No. 2, pp. 84-91

international managerial experience and know-how, indispensable for collecting relevant information about potential foreign markets, were common in their sample of smaller firms<sup>28</sup>.

Most of times, SMEs must cope with limited resources, narrow expertise and imperfect information about their international development; this situation often leads to the adoption of non-rational or unsystematic decisions. However, venturing into wrong markets may generate unnecessary costs for the company, in addition to the opportunity cost associated with failing to enter the right markets<sup>29</sup>. One possible solution is to develop within SMEs *test-and-learn* models, rather than wholly systematic approaches<sup>30</sup>. According to Vissak et al. (2012) SMEs should try to acquire information at the lowest possible cost and organise internationalisation processes that facilitate learning and adaptation of strategies over time, based on the evolution of the firm's experience<sup>31</sup>.

### 2.3 AHP and foreign market selection: a short literature review

A systematic selection method essentially involves the collection of all relevant factors of the target market's macro and micro environment which are significant from the company's perspective. Hence, the issue of IMS is a multicriteria decision making problem and can be solved with the help of multicriteria decision aiding (MCDA) methods<sup>32</sup>. The analyst, usually an expert with good knowledge about foreign markets and a long experience in interpreting market information, has to determine which factors offer good chances (or a higher risk) by allocating points to each factor. Points are eventually added together to allow comparison between the markets<sup>33</sup>.

The Analytic Hierarchy Process is ideally suited for the allocation of a firm's resources, including the processes of identifying new businesses and selecting potential new markets. By reducing the decision into a series of pairwise comparisons, the AHP helps the analyst to set priorities among factors (more frequently referred as *criteria*) as well as among the alternatives. In addition, it incorporates a useful system for checking the consistency of evaluations, thus reducing the bias in the decision-making process<sup>34</sup>.

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<sup>28</sup> Karagozoglu, N. and Lindell, M. (1998) "Internationalization of small and medium-sized technology-based firms: an exploratory study", *Journal of Small Business Management*, Vol. 36, No. 1, pp. 44-59

<sup>29</sup> Papadopoulos, N. and Martín Martín, O. (2011) "International Market Selection and Segmentation: Perspectives and Challenges", *International Marketing Review*, Vol. 28, pp. 132-149

<sup>30</sup> Musso F. and Francioni B. (2014) "International Strategy for SMEs: Criteria for Foreign Markets and Entry Modes Selection", *Journal of Small Business and Enterprise Development*, Vol. 21, No. 2, pp. 301-312

<sup>31</sup> Vissak, T., Francioni, B. and Musso, F. (2012) "MVM's nonlinear internationalization: a case study", *Journal of East-West Business*, Vol. 18, No. 4, pp. 275-300

<sup>32</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>33</sup> Kutschker, M., Schmid, S. (2005) *Internationales Management*, Oldenbourg

<sup>34</sup> Wind, Y. and Saaty, T. L. (1980) "Marketing Applications of the Analytical Hierarchy Process", *Management Science*, Vol. 26, No. 7, p. 648

According to Y. Wind (1987), an AHP-based approach for the development of a marketing driven business has numerous advantages: it allows a thorough and rigorous analysis of the situation and evaluation of the options, it helps decision makers to reach consensus and identify area of disagreement, it generates short planning reports, it encourages sensitivity analysis and experimentation, it represents a continuous process which allows for update and modifications as needed<sup>35</sup>.

Recent literature offers some examples of the application of AHP methodology in the selection of suitable foreign markets. Lesmes, Buitrago and Cendales (2009) used AHP to develop a structured market selection model for the Colombian trade bureau, which SMEs could use for selecting foreign countries to export<sup>36</sup>. Priya and Venkatesh (2012) adopted AHP for identifying and prioritizing the attractive locations in rural markets for a steel firm in India<sup>37</sup>. Yelda Şener (2014) applied AHP to evaluate the most appropriate new market for a Turkish ceramic company involved in a market development strategy<sup>38</sup>. Aghdaie and Alimardani (2015) employed AHP to determine the weights of criteria used in market selection by a chair manufacturing company<sup>39</sup>. A similar approach is used in the work by K. Chen and Wang (2010) who used AHP to rank criteria for information service industry in developing international market and to evaluate possible strategies available to a software company for entering the Asian market<sup>40</sup>.

## 2.4 The methodology of target market selection

Commercial and marketing departments usually are the company's entities tasked with developing the business and analysing the market trends. This paragraph summarises the procedure that should be adopted to methodically identify and select target markets with the aim of producing a data-supported and structured choice. For this purpose, the section will rely on the work by Oberegelsbacher G. A. and Leading Network<sup>41</sup> which represents an illustrative guide to export management for SMEs.

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<sup>35</sup> Wind, Y. (1987) "An Analytic Hierarchy Process Based Approach to the Design and Evaluation of a Marketing Driven Business and Corporate Strategy", *Mathl Modelling*, Vol. 9, No. 3-5, p. 287

<sup>36</sup> Lesmes, D., Buitrago, L. and Cendales, C. (2009) "Application of the Analytic Network Process (ANP) to Select New Foreign Markets to Export Software Services: Study of Colombian Firms", *Proceedings of the International Symposium on the Analytic Hierarchy Process 2009*

<sup>37</sup> Priya, P. and Venkatesh, A. (2012) "Integration of Analytic Hierarchy Process with Regression Analysis to Identify Attractive Locations for Market Expansion", *Journal of Multi-Criteria Decision Analysis*.

<sup>38</sup> Yelda Şener, H. (2014) "Determining New Markets Using Analytic Hierarchy Process: Case Study in Güral Porcelain", *International Journal of Marketing Studies*, Vol. 6, No. 5

<sup>39</sup> Aghdaie, M. H. and Alimardani, M. (2015), "Target market selection based on market segment evaluation: A multiple attribute decision making approach", *International Journal of Operational Research*, Vol. 24, No. 3

<sup>40</sup> K. Chen, M and Wang, S. C. (2010) "The critical factors of success for information service industry in developing international market: Using analytic hierarchy process (AHP) approach", *Expert Systems with Applications*, 37, pp. 694-704

<sup>41</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsos), Ch.2

### 2.4.1 Some premises to target market selection

Before starting the selection process, it is necessary to clarify a couple of aspects. First, every proposed target market should present, at least in theory, some potentialities of market share, positioning, profit and sales margins in line with the company's business strategy. In the pre-selection phase, the company excludes the countries which do not fit some basic considerations (e.g. countries with political instability, bad climate) on the basis of what the company sells<sup>42</sup>. Secondly, it is fundamental to define the reference product (or set of products) among the company's range, since results may vary according to the product or market segment selected. Furthermore, the final selection must take into account the company's current degree of internationalisation at the moment of the analysis<sup>43</sup>.

Another important element concerns the selection process of market entry mode; the stage of market selection and the examination of the distribution strategies are often looked upon as two aspects of one decision process. Based on comprehensive review of available literature and on his direct international business experience A. J. Koch proposed a holistic model of the market and entry mode selection process (MEMS), stressing the strong correlation between the two aspects. According to the model, factors affecting MEMS process fall within three broad categories based on their location respect to the company environment: internal factors (referred to the company), external factors (referred to the markets) and mixed internal/external factors. It is the combination of market selection and entry mode selection that determines the convenience of approaching a given market<sup>44</sup>. The literature, however, seems to suggest that screening (*which* market to enter) generally comes before market entry decision (*how* to enter the market)<sup>45</sup>.

Before moving to the analysis of the technique proposed to facilitate the market selection, it is worth remembering that even if a careful theoretical planning is necessary, the role of target market selection process is meant to be a mean of orientation for taking informed decisions and avoid blunders. The selection process takes place *ex ante* respect to the concrete commercial action; part of the knowledge required to enhance the reliability of the decision is difficult to collect prior to market entry. Only during the implementation phase enough elements will be available to carry out a more deepened evaluation of each single market and to adjust objectives according to the feedbacks received. It is thus necessary not to devote excessive

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<sup>42</sup> Kemmer, M., Ehnert, T. (2010) *Procedure and methods of target market selection and risk assessment on the example of SMA AG*, Munich, GRIN Verlag

<sup>43</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2

<sup>44</sup> Koch, A.J. (2001) "Factors influencing market and entry mode selection: developing the MEMS model",

*Marketing Intelligence & Planning*, Vol. 19, Issue 5, pp. 351 - 361

<sup>45</sup> Russow, L. C., Okoroafo, S.C. (1996) "On the Way Towards Developing a Global Screening Model", *International Marketing Review*, Vol. 13, No. 1, pp. 46-64

energies and resources to this stage, since first feedbacks from the market will significantly help in re-orienting the preferences<sup>46</sup>.

### ***Identifying the reference product***

International trade statistics based on goods' Customs Codes (HS6 and CN8) exist for the greatest part of economic sectors, both at national and international level. Some of them are freely accessible on the Internet (e.g. *EU Market Access database* for trade flows in goods between EU and non-EU countries or *Coeweb* for Italy); data reliability highly depends on the precision with which the Customs Code describes the reference product and vice versa<sup>47</sup>.

Di Martino core product is identified by the following CN8 Customs Code:

**8424.82.90**

*Agricultural or horticultural mechanical appliances, whether or not hand-operated, for projecting or dispersing liquids or powders (excl. sprayers and watering appliances)*

### ***Skimming the markets***

Possible target markets for a company are many; IMS is usually seen as a sequential process aimed at progressively eliminating the less attractive markets in order to arrive at the selection of the prospective target markets<sup>48</sup>. The first step of the process consists therefore in selecting a restricted number of markets that are considered to be most attractive to the company. This preliminary screening is mainly based on macro-level information (customs statistics, information from market researches and trade associations, etc.)<sup>49</sup>.

In our case study, the company already has a consolidated presence in various markets, operating in more than 80 countries. According to the market researches available to the company and to the interest expressed by the export area managers, six countries have been identified as possible target markets: Egypt, India, Malaysia, Morocco, Senegal, Vietnam. One additional country has been added to the study, Jordan, which represents a consolidated market for the company and acts as a term of reference to interpret the result in a significant way. An expansion of the analysis to other countries is not precluded in the future.

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<sup>46</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2

<sup>47</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2

<sup>48</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>49</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2

## 2.4.2 Relevant criteria

After the preliminary market selection, a stage of in-depth market screening generally follows. During this phase the attractiveness of the industry is evaluated: the firm gathers information specific to the industry and the product markets. An effective selection process can only be implemented if it is possible to identify potential markets by comparing and evaluating country characteristics<sup>50</sup>. Several screening criteria can be useful to the prospective entrant when assessing target markets' potential<sup>51</sup>. According to A. Weinstein, companies should carefully evaluate and weigh key discriminating criteria, to identify the best market segments<sup>52</sup>. Literature has widely debated on the variables that should affect the selection of target market, identifying an enormous set of broad or more specific factors. There is no general agreement among scholars on which criteria should be used and how they should be measured. The lists of suggested criteria available in the literature are directly related to the objectives of a firm's international expansion and subjected to author's perception<sup>53</sup>.

A review of international business theory and marketing literature indicates that market size and level of economic development are the most frequently suggested criteria for assessing the attractiveness of target markets, however some studies use other and more detailed indicators<sup>54</sup>. Cavusgil (1997) adopted a set of 7 dimensions including market size, market growth rate, market intensity, commercial infrastructure, market consumption capacity, economic freedom and market receptivity<sup>55</sup>. Simkin and Dibb (1998) identified 23 factors such as market size and growth rate, competitive forces, customer fit and profitability<sup>56</sup>. McDonald and Dunbar (1998) argued that growth rate, segment size and profit potential criteria should be incorporated by managers when selecting the five or six key factors for target market evaluation<sup>57</sup>. Another interesting research was conducted by Callaghan and Morley (2002); they observed a hierarchy of importance for criteria across industries and marketplace types. The criteria included were market size, its growth rate and technological development, existing and potential market share, business' capability in product features and delivery, adherence to business strategies, accessibility

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<sup>50</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>51</sup> Johansson, J. K. (2008) *Global Marketing, Foreign Entry, Local Marketing and Global Management - 5<sup>th</sup> edition*, McGraw-Hill, Chicago, p. 108

<sup>52</sup> Weinstein, A. (2004) *Handbook of Market Segmentation Strategic Targeting for Business and Technology Firms*, Haworth Press, NY.

<sup>53</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>54</sup> Górecka, D. and Szalucka, M. (2013) "Country market selection in international expansion using multicriteria decision aiding methods", *Multiple Criteria Decision Making*, Vol. 8, pp. 31-55

<sup>55</sup> Cavusgil, S.T. (1997) "Measuring the Potential of Emerging Markets: An Indexing Approach", *Business Horizons*, January-February, pp. 87-91

<sup>56</sup> Simkin, L. and Dibb, S. (1998) "Prioritizing target markets", *Marketing Intelligence and Planning*, Vol. 16, No. 7, pp. 407-417

<sup>57</sup> McDonald, M. and Dunbar, I. (1998) *Market Segmentation: How to do it, how to profit from it*, MacMillan Business



through distribution channels, competitive rivalry, level of risk involved<sup>58</sup>. In their study on large UK industrial firms, Whitelock and Jobber (2004) found evidence that the most important variables influencing the decision to entry a new non-domestic market are geocultural/political similarity, developed economy, governmental attitude (macro-environmental factors), market attractiveness and access to good market information (micro-environmental factors)<sup>59</sup>. Sakarya et al. (2007) emphasizes the importance of other critical factors which are necessary when assessing opportunities in emerging markets: they include long-term market potential, cultural dimension, competition in the industrial sector<sup>60</sup>. Natarajarathinam and Nepal (2012) proposed a market assessment framework comprising market size, market growth potential, country risk rating, economic freedom and commercial infrastructure<sup>61</sup>.

To perform our case study, the company, on the basis of its specific business sector, has agreed to select the most relevant variables using as a reference those proposed in the book by G. A. Oberegelsbacher and Leading Network. The authors suggest a large set of relevant variables that could be considered by SMEs during the process of target markets selection. Based on this set we identified seven indicators; the choice was influenced by data availability and professional experience of decision makers. The criteria ultimately chosen were the following:

- *Export from the European Union*: it refers to the absolute value of exports of the reference product from EU countries to the selected nation;
- *Export from Italy*: it measures the level of appreciation of made-in-Italy products in the sector and the ability of Italian competitors to penetrate the market;
- *Commercial presence of competitors*: qualitative information, it allows to assign higher score to those markets where there is a verified commercial presence of competitors. Presence of competitors is usually a sign of good market potential;
- *Presence of tariff barriers*: it measures tariff barriers (custom duties or taxes on sales of imported products) which make it difficult or impossible to export a defined category of goods;

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<sup>58</sup> Callaghan, B. and Morley, C. (2002) "The Hierarchy of Target Market Selection Criteria", ANZMAC 2002 Conference Proceedings

<sup>59</sup> Whitelock, J. and Jobber, D. (2004) "An Evaluation of External Factors in the Decision of UK Industrial Firms to Enter a New Non-domestic Market: An Exploratory Study", *European Journal of Marketing*, Vol. 38, No. 11/12, pp. 1437-1455

<sup>60</sup> Sakarya, S., Eckman, M. and Hyllegard, K. H. (2007) "Market Selection for International Expansion-Assessing Opportunities in Emerging Markets", *International Marketing Review*, Vol. 24, No. 2, pp. 208-230

<sup>61</sup> Natarajarathinam, M. and Nepal, B. (2012) "A Holistic Approach to Market Assessment for Manufacturing Company in an Emerging Economy", *Industrial Marketing Management*, Vol. 41(7), pp. 1142-1151

- *Transport cost*: it is an estimate of the cost to transport a determined quantity of good to the customer. The company analysed in this case study exclusively adopt Ex Works<sup>62</sup> term: transport costs are thus at the expense of the buyer;
- *Logistic Performance Index (LPI)*: developed by the World Bank, it ranks countries on the basis of six trade dimensions, including customs performance, infrastructure quality, and timeliness of shipments;
- *Country risk*: it is meant to assess the risk of a determined country to incur in problems concerning credit, political and social stability and in general all those situations that may undermines trade flows.

Once selected the criteria to be used, it is necessary to determine the weight to be attributed to each criterion. The calculation of weights is done by applying AHP method; preferences are agreed by the export managers based on their professional experience. The main disadvantage of this approach is that it leads to a largely subjective assessment, but this is something the analysis cannot prescind from.

### **2.4.3 Collecting the data**

The following stage involves collecting all the data necessary to compare chosen countries with regard to each of the criterion selected. The availability of secondary data (i.e. data already collected for some other purpose and readily available) has grown exponentially in recent years thanks to the Internet and the always increasing interconnection of global markets. Data availability continues to improve and various international organizations and trade agencies offer open access statistics on their websites<sup>63</sup>. In our case study one of the most relevant source is represented by the European Union Market Access Database (MADB), a useful tool developed by Eurostat which provides information and statistics to companies exporting from the EU about import conditions in third country markets. Trade flows statistics for specific products can be extracted through custom codes of the goods.

The different sources used will be specified in detail in the following chapter.

### **2.4.4 Final choice and evaluation**

At the end, the overall attractiveness of the markets is calculated compounding local priorities as a weighted sum of the relevant target market selection criteria. The obtained ranking should provide a picture of the strategic directions the company should take and in which market it could succeed. In order to be translated into an effective export planning and strategy, it is important to interpret the ranking

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<sup>62</sup> For a more detailed explanation of vendor's and buyer's commitments under Ex Works term, see *Incoterms 2010*.

<sup>63</sup> Johansson, J. K. (2008) *Global Marketing, Foreign Entry, Local Marketing and Global Management - 5<sup>th</sup> edition*, McGraw-Hill, Chicago, p. 112

according to the business reality. It is indispensable to evaluate whether the prospective markets are suitable in the light of company resources and objectives, or alternatively, assess the cost to be sustained to make such markets a viable choice. The analysis concerns, first of all, the traded good, but also the staff devoted to export, the linguistic competences, the resources for business trips, the financial budget dedicated to internationalisation, etc. It should be clear that such obstacles should be temporary as it is the company that should adapt its resources to the most profitable markets and not the contrary. Once all these matters have been assessed and a limited number of markets selected, it is necessary to undertake a verification phase of the supposed conditions. This phase involves:

- Identifying the first potential customers (through search engines, trade associations, trade fair websites, international and local databases structured by business typology or sector);
- Contacting the different actors of the distribution chain to ensure the existence of suitable customers and commercial competitors and to identify the number, type and rooting of local competitors (if the number of local competitors is high and labour cost low, the result will be a hardly penetrable market);
- Assessing the presence in the market of substitute or complementary products;
- Planning a *in loco* business trip, to attend a sectorial trade fair and better know the competitors, the typology and features of their products (local standards, accessories, packaging, presentation, safety standards and certifications, etc.) and the intermediaries involved in the distribution chain.

All these additional activities can be conducted only on a limited number of markets as it would be too long and expensive to conduct them for all the markets selected. The right number of markets for each company depends on a bunch of factors including the structure and the resources of foreign trade office (the higher the staff and the budget devoted to commercial activity, the higher the possible number of markets to focus on), the grouping of markets by similar characteristics, the number of distribution channels adopted for each market, the geographic distribution of potential customers, the size of markets (it is often useful to balance the mix between small and big markets), etc.<sup>64</sup>

#### **2.4.5 Limitations and comments**

In conclusion, it is one more time worth underlining that this type of analysis has a more theoretical than operational value; besides it is based on real and reliable data, it is conducted *a priori* and from remote, it relies on assumptions and it is susceptible to errors. The aim of this study is limited to an indicative screening

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<sup>64</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsos), Ch.2

analysis based on external factors, represented by a set of relevant criteria. The internal factors concerning firm resources, competitive strategies and international experience are beyond the scope of this analysis.

If it is important to base IMS on a systematic and structured analysis, it is also necessary not to spend too much time in the theoretical planification but prepare to enter the market as soon as possible. Operational feedbacks and evidence will point out the necessity to modify a value, a criterion or its weight, or even to completely exclude a market because of significant unpredicted obstacles<sup>65</sup>.

## 2.5 Analysis of market entry mode - distribution channels

In their study on foreign markets entry mode of Italian SMEs, Musso and Francioni (2012) demonstrated that entry mode decisions are mainly influenced by firm specific factors, rather than foreign country factors. In particular, they found that they are largely influenced by company's organizational culture<sup>66</sup>. In addition, it has been verified that most of Italian SMEs adopt indirect market entry modalities. One of the advantages of this strategy is that it permits to overcome part of the difficulties related to cultural differences between the interested parts. Cultural differences are often considered a kind of "external problem", for which the international trade partners, such as importers and trading companies, are primarily burdened<sup>67</sup>.

In order to move to the operative stage and introduce the product into a foreign market, it is necessary to choose the sales method; this means identifying the most appropriate distribution channel to be used among the different possibilities offered by the market. Each distribution channel is characterised by different strengths and drawbacks and involves different financial investments and operating costs. Some classic examples of distribution channels include direct sellers, sales agents, *in-loco* branches, large retailers, e-commerce.

Another important factor to be assessed is the "length" of the distribution channel i.e. the number of passages the good must face before reaching the end user. In the case of B2B companies the distribution channel is usually short, involving a direct transfer from the producer to the consumer; in the case of B2C businesses instead, the channel's length may vary considerably. The supervision on sales is thus simpler when the distribution channel is short as it is easier to obtain direct information on the degree of coherence and appreciation of the value proposal in the selected market<sup>68</sup>.

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<sup>65</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2

<sup>66</sup> Musso, F. and Francioni, B. (2012) "Foreign Markets Entry Mode Decision for Italian Small and Medium-Sized Enterprises", *International Journal of Business and Management*, Vol. 7, No. 2

<sup>67</sup> Musso, F. and Francioni, B. (2012) "How Do Smaller Firms Select Foreign Markets?", *International Journal of Marketing Studies*, Vol. 4, No. 6, p. 49

<sup>68</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.3, p. 90

In the vast majority of the cases, Di Martino relied on importers-distributors to enter the new markets approached in the past. In addition to commercial development, importers-distributors are appointed for the custom clearance and responsible for the redistribution of products in their geographic area of competence (including both activities of sales and physical distribution)<sup>69</sup>. According to the company, importers-distributors represent the most feasible typology of distribution channel also for the countries selected in this case study.

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<sup>69</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa) Ch.3, p. 91

# CHAPTER 3

## Analysis of relevant criteria and local priorities

In this chapter selected criteria will be explained in detail including the different sources adopted for data collection. Every section deals with a different criterion and ends with a table summarising data collected for the seven countries considered in this study. One more time it is worth underlining the importance of following a systematic and data-driven approach in the evaluation of foreign markets.

The second part of the chapter deals with the problem of attributing preferences to different criteria and exposes the mathematical calculations performed to obtain their relative weights.

The third and conclusive part of the chapter is about deriving local priorities: different markets are evaluated with regard to each criterion; this represents an essential step towards the synthesis of the AHP model.

### 3.1 Data-driven decision making

There are multiple theoretical and empirical researches which underline the importance of the methodology with which strategic decisions are taken within a company. In general, they highlight the necessity of involving all the actors within the organisation who have significant knowledge to evaluate possible outcomes of alternative decisions. However, SMEs often lack the necessary knowledge at internal level, partly because of the limited number of experienced people, partly because the areas of interest remain particularly wide. Such situations make it necessary to compensate with information derived from statistics and numerical data. The quality of data and the conformity with the decisional problem contribute to determine the reliability of the decision<sup>70</sup>.

For companies seeking to expand abroad, the international marketing literature primarily suggests two different quantitative models of market evaluation and selection. Both methods are based on the analysis of secondary statistical data about foreign countries: market grouping methods cluster countries based on their similarities; market estimation methods instead aim to differentiate markets on the basis of their potential. According to Papadopoulos and Denis (1988), quantitative

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<sup>70</sup> Antonioni, M. (2019, July 2) *How to Succeed in Foreign Markets: Tools and Methods for SMEs*. Retrieved from <http://www.exportplanning.com/en>

methods have three main advantages: first, they reduce subjectivity, second, they allow to consider also geographically distant countries, third, they make it possible to potentially screen a large number of markets<sup>71</sup>.

Brouthers and Nakos demonstrated that SMEs which adopt a systematic methodology in selecting foreign target markets generally have higher export performance than companies which rely on intuition or personal feelings. *Systematic* means “using objective criteria to select export markets”. Such information can be found in formal international market researches, published statistical sources, national and international business press for product-related activities, or obtained through visits in foreign markets. Government and trade promotion agencies offer low cost or even free programs which provide smaller companies with the know-how to select export markets. Such tools can help SMEs to overcome the common objection of lack of sufficient resources<sup>72</sup>. In addition, expert-judgment methods can be adopted to decide with a reasonable level of confidence upon a list of relevant market selection indicators and their weights<sup>73</sup>.

### 3.2 Selecting relevant criteria

As introduced in the previous chapter, various papers have been consulted in order to identify the most relevant criteria for assessing target markets. Two of the company’s export managers volunteered to skim proposed literature and identify the most suitable criteria, based on their experience and according to the relevance for the sector.

Among the different literature and guides, they observed that the criteria proposed in the book by G. A. Oberegelsbacher were the most clear, accurate and factual, according to company’s needs. In particular, they showed appreciation for the specificity of the criteria within the context of a target market selection process especially suited for SMEs. Based on the wide set of variables proposed in the book, seven definitive criteria were eventually defined. The selection took into consideration also the availability of secondary data.

At first, a broader set of criteria had been identified, but some of them were later abandoned due to lack of information; there is no point indeed in selecting variables for which data is totally or partially not available<sup>74</sup>. Figure 4 shows the decision hierarchy of the case study including criteria adopted for target markets selection.

Chosen criteria are explained in detail in the following paragraphs.

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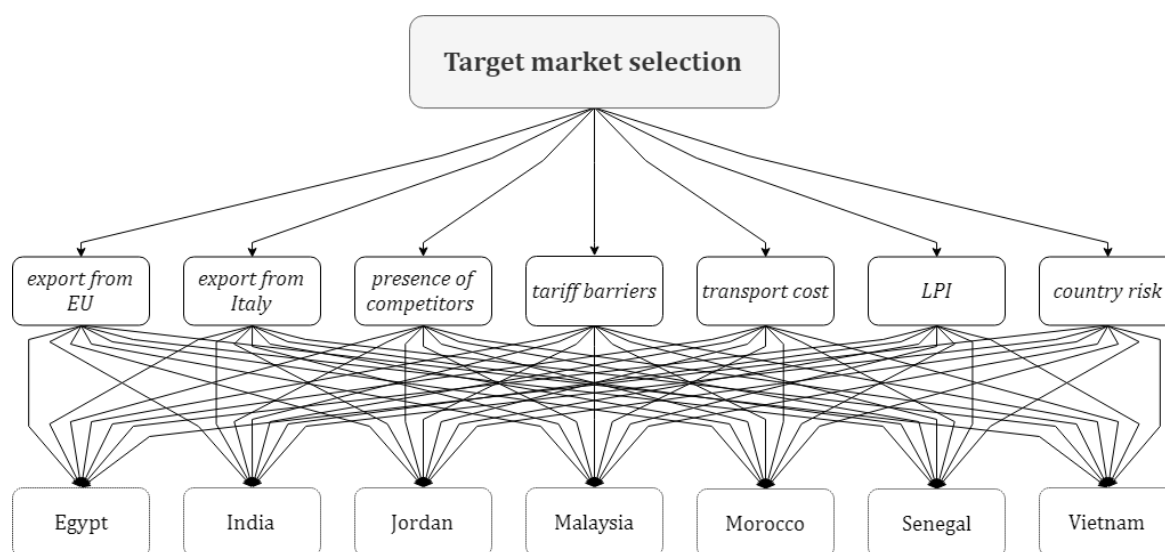
<sup>71</sup> Papadopoulos, N. and Denis, J. E. (1988) “Inventory, taxonomy and assessment of methods for international market selection”, *International Marketing Review*, Vol. 5, Iss.3, pp. 38-51

<sup>72</sup> Nakos, G. and Brouthers, L. (2005) “The Role of Systematic International Market Selection on Small Firms' Export Performance”, *Journal of Small Business Management*, Volume 43, Issue 4, pp. 363-381

<sup>73</sup> Douglas, S.P., Le Maire, P. and Wind, Y. (1972) “Selection of Global Target Markets: A Decision-Theoretic Approach”, *Proceedings of the XXIII ESOMAR Congress*

<sup>74</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsos), Ch.2, p. 60

Figure 4 - Decision hierarchy of the case study



Source: own elaboration

### 3.2.1 Export from the European Union

The variable measures the absolute value of exports (expressed in €) of the reference product from all the 28 EU member states to the selected nation. Data comes from the EU Market Access database (MADB) which provides statistics on trade flows in goods between EU and non-EU countries. We decided to use the average value of export over the last two years as term of comparison.

The optimal choice would probably have been measuring the total value of exports *from the world* to the selected nation; unfortunately, this statistic is not accessible for the specific product code considered in the study. In accordance with the company, it was therefore decided to adopt the criterion *export from the EU*. This criterion still represents an interesting variable as it provides information on how much of the reference product each foreign country can absorb from EU countries, where the nature of competitors, according to the decision makers, is assumed to be closer to the company one's. Data collected are shown in Table 9.

Table 9 - Export from EU of 8424.82.90 (Euro)

Country	Export from EU (2017)	Export from EU (2018)	Average
Egypt	204,648	199,482	202,065
India	839,543	525,786	682,665
Jordan	19,288	70,322	44,805
Malaysia	281,069	137,873	209,471
Morocco	7,990,302	6,136,430	7,063,366
Senegal	34,691	113,880	74,286
Vietnam	132,249	96,648	114,449

Source: EU Market Access Database



### 3.2.2 Export from Italy

The component measures the absolute value (expressed in €) of exported reference good from Italy to the identified foreign market; values comes from EU Market Access database. As before, we used the average value of export over the last two years as term of comparison. The variable should provide a good approximation of the ability of Italian companies working in the sector to penetrate the specific market. In addition, it should estimate the degree of appreciation of made-in-Italy products. Values are reported in Table 10.

Table 10 - Export from Italy of 8424.82.90 (Euro)

Country	Export from Italy (2017)	Export from Italy (2018)	Average
Egypt	24,653	45,137	34,895
India	181,658	30,406	106,032
Jordan	8,539	63,242	35,891
Malaysia	59,698	77,850	68,774
Morocco	269,369	89,184	179,277
Senegal	8,000	14,107	11,054
Vietnam	-	-	-

Source: EU Market Access Database

Apparently, the exports of reference product from Italy to Vietnam are null. Even if we think that this is unlikely, we keep the data valid in order to continue the analysis.

According to Natarajarathinam and Nepal (2012) market size can be defined in terms of total sales revenues that can be collected by all the competitors for the product family under study<sup>75</sup>. We believe that the two criteria exposed above should provide a partial but anyway significant intuition on the potential market size for the reference product in the foreign markets.

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<sup>75</sup> Natarajarathinam, M. and Nepal, B. (2012) "A Holistic Approach to Market Assessment for Manufacturing Company in an Emerging Economy, *Industrial Marketing Management*, Vol. 41(7), pp. 1142-1151

### 3.2.3 Commercial presence of competitors

Imitating competitors who already opened to new market is a quick way to identify attractive opportunities: presence of competitors in a determined foreign market should indeed be a sign of good market potential. Search engines are a powerful tool which provides many information about the business presence of competitors in a given market<sup>76</sup>.

The first step in the identification of commercial competitors involved the selection by the company of 10 major rivals; the screening led to the identification of 3 competitors from Italy, 3 from Germany, 2 from Spain and 2 from Poland. After that, a web search was conducted using Google's advanced image search; foreign retailers of competitors' products were identified through competitors' logos, allowing to confirm the presence of direct rivals in the selected foreign markets. The methodology is quite simplistic, but it provides an idea of competitors presence in selected target markets; data are shown in Table 11.

*Table 11 - Competitors identified in foreign markets*

<b>Country</b>	<b>Major competitors identified (out of 10)</b>
Egypt	2
India	9
Jordan	4
Malaysia	8
Morocco	6
Senegal	4
Vietnam	6

*Source: own elaboration*

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<sup>76</sup> Oberegelsbacher, G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), p. 56

### 3.2.4 Presence of tariff barriers

EU Market Access Database includes a section which enables to identify duties and taxes levied by foreign countries on imported goods, based on products' customs code. In our specific case, we refer to *ad valorem tariffs* (figured as a percentage of the product's value). They are shown in Table 12.

Table 12 - Tariffs levied on 8424.82.90

Country	Tariff on EU goods	Taxes and additional duties
Egypt	0%	-
India	7.5%	<ul style="list-style-type: none"> <li>○ Goods and services tax (GST) is levied at a rate of 18% of the duty paid value. Specific goods of this subheading may be subject to a rate of 12% of the duty paid value.</li> <li>○ Social Welfare Surcharge (SWS) is levied at a rate of 10% on the amount of customs duty.</li> </ul>
Jordan	0%	<ul style="list-style-type: none"> <li>○ Service fee (SEF) is levied at a rate of 0.2% of the customs value of the goods but not less than 50 JOD and not more than 500 JOD. Additionally, a rate of 1% of the customs value of the goods but not less than 25 JOD and not more than 2000 JOD is applied.</li> </ul>
Malaysia	0%	-
Morocco	0%	-
Senegal	5%	<ul style="list-style-type: none"> <li>○ Statistical levy (STL) is charged at a rate of 1% of the dutiable value.</li> <li>○ Solidarity levy (SOL) is charged at a rate of 1% of the dutiable value.</li> <li>○ Value added tax (VAT) is levied at a rate of 18% of the duty paid value.</li> <li>○ ETLs (ECOWAS Trade Liberalisation Scheme) levy is charged at a rate of 0.5% of the dutiable value.</li> <li>○ Port fee (PTF) is levied at a rate of 0.4% of the dutiable value for imports by sea.</li> <li>○ OHADA Contribution (OHC) is levied at a rate of 0.05% of the dutiable value.</li> </ul>
Vietnam	0%	-

Source: EU Market Access Database

It is worth notice that tariffs reported in the table are exclusively referred to goods coming from the European Union. Same goods imported from a different country may be subjected to different tariffs: Egypt for example applies 0% tariff on imported 8424.82 European goods, but 5% on the same good imported from other countries, under the Most Favoured Nation clause<sup>77</sup>.

<sup>77</sup> Under directives of the World Trade Organisation, a member country is not allowed to discriminate between trade partners and if a special status is granted to one trade partner (such as a lower customs duty rate for one of their products), the country is required to extend it to all members of the WTO.

### 3.2.5 Transport cost

Transportation costs are the expenses involved in moving products to a different place, which are often passed on to consumers. The company analysed in this case study adopts Ex Work term (Incoterms 2010): it is thus the buyer which bears all the costs and risks involved in transportation. The intuition remains however the same, as a higher transport cost represents a disincentive to purchase from the buyer's point of view, resulting in a lower score for that specific market. Transport of goods is generally carried out by ship. According to export managers' experience, shipping cost mainly depends on:

- the transport carrier;
- the type of container used (20' box and 40' box are the most used solutions by the company);
- the origin and the destination harbour of the goods;
- the period of the year (cost varies over time).

The incidence of the transport cost on the container's value is usually lower for bigger containers compared to smaller ones, making more convenient to organise, when it is possible, 40' box containers. To perform the analysis some approximations are required: transport cost considered for this case study correspond to the mean between the shipping cost of a 20' box container and a 40' box container (approximate values). The esteem is provided by a long-standing partner which organises great part of the company's shipments. The departure location is the factory warehouse (as required by Ex Works term) and the destination is the busiest harbour of the destination country. Transport costs are showed in Table 13 and include a fixed cost required for container's weighing.

*Table 13 - Average shipping cost*

<b>Destination country</b>	<b>Destination harbour</b>	<b>Average shipping cost</b>
Egypt	Alexandria (via Venice)	€ 1,145
India	Nhava Sheva (via Venice)	€ 1,390
Jordan	Aqaba (via Venice)	€ 1,295
Malaysia	Port Klang (via Venice)	€ 1,030
Morocco	Casablanca (via Genoa)	€ 1,495
Senegal	Dakar (via Genoa)	€ 2,115
Vietnam	Ho Chi Minh (via Venice)	€ 970

*Source: own elaboration on transport carrier's data*

It is quite interesting the fact that, despite the geographical distance, shipping costs to Vietnam and Malaysia are quite low compared to the others. According to the export managers this condition could be related to the great inflow of goods from South East Asia to Europe which translates in a great availability of low-cost carriers for the opposite route.

### 3.2.6 Logistic Performance Index

The international Logistic Performance Index (LPI) is a summary indicator of logistics sector performance developed by the World Bank. Countries are ranked based on six core performance components combined into a single aggregate measure<sup>78</sup>. The data used in the ranking comes from a survey of logistics professionals who are asked questions about the foreign countries in which they operate. The six trade dimensions considered are<sup>79</sup>:

- Customs: efficiency of the clearance process (speed, ease, predictability of formalities) by border control agencies, including customs;
- Infrastructure: quality of trade and transport related infrastructure (harbours, railroads, roads, information technology);
- International shipments: ease of arranging international shipments at competitive price;
- Logistic competence: expertise and quality of logistic services (transport operators, customs brokers);
- Tracking and tracing: ability to track and trace deliveries;
- Timeliness: timeliness of shipments in reaching destination within the scheduled or expected delivery time.

Logistic Performance Index is rated on a five-points scale, ranging from very low (1) to very high (5). World best performing country is Germany with a score of 4.20; lowest performing country is Afghanistan with 1.95 (2018 LPI). Table 14 shows data for countries considered in our case study.

*Table 14 - Logistic Performance Index (2018)*

<b>Country</b>	<b>LPI</b>
Egypt	2.82
India	3.18
Jordan	2.69
Malaysia	3.22
Morocco	2.54
Senegal	2.25
Vietnam	3.27

*Source: World Bank*

<sup>78</sup> Arvis, J. F., Ojala, L., Wiederer, C., Shepherd, B., Raj, A., Dairabayeva, K.; Kiiski, T. (2018) 'Connecting to Compete 2018: Trade Logistics in the Global Economy', World Bank, Washington DC.

<sup>79</sup> *International LPI*, The World Bank. Retrieved from <https://lpi.worldbank.org/international>

### 3.2.7 Country risk

Country risk analysis allows companies to estimate the non-payment risk on a country's businesses (defaulting risk) and to assess the overall quality of the business environment in the selected target market. It is calculated on the basis of macroeconomic, financial and political statistics<sup>80</sup>.

For this analysis, data are obtained from the country risk assessment tool developed by Coface, a French leader in credit insurance operating at global level. Coface offers companies solutions to protect them against the risk of financial default of their clients, both in their domestic and foreign markets.

Coface rates countries based on an eight-levels ranking on a quarterly basis; the rating reflects the average risk of short-term non-payment for companies in the chosen country. Country risk is reported in Table 15.

Table 15 - Country risk assessment (2nd quarter 2019)

	<b>Business defaulting risk</b>	<b>Country</b>	<b>Country risk assessment</b>
A1	Very low	Egypt	B
A2	Low	India	B
A3	Satisfactory	Jordan	C
A4	Reasonable	Malaysia	A3
B	Fairly high	Morocco	A4
C	High	Senegal	B
D	Very high	Vietnam	B
E	Extreme		

Source: [www.coface.com](http://www.coface.com)

### 3.3 Determining criteria weights

A critical issue that emerges during market evaluation process is the question of weighting different criteria. There is no agreement on how to attribute weights to criteria to reflect their relative importance. Some studies recommend an approach that weighs all criteria equally, other studies affirm that some criteria may assume more importance than others<sup>81</sup>. Cavusgil (1997) proposes to determine criteria weights through the application of a Delphi process involving international business experts<sup>82</sup>.

In this analysis criteria weights were calculated by applying the Analytic Hierarchy Process. The export area managers were collectively asked to paired-wisely

<sup>80</sup> Retrieved from <https://www.coface.com>

<sup>81</sup> Russow, L.C., Okoroafo, S.C. (1996) "On the Way Towards Developing a Global Screening Model", *International Marketing Review*, Vol. 13, No. 1, pp. 46-64

<sup>82</sup> Cavusgil, S.T. (1997) "Measuring the Potential of Emerging Markets: An Indexing Approach" *Business Horizons*, January-February, pp. 87-91

compare the criteria using Saaty’s nine-points scale. Preferences expressed are based on their professional experience in the sector; the obtained matrix is the result of the discussion and mediation among the decision makers. Subjectivity represents the main drawbacks affecting the evaluation process, but, as in any other AHP application, it is a necessary compromise without which it is impossible to derive decisions.

After having formulated their preferences, a first matrix was elaborated and consistency computed to ensure logical reliability of the process. The matrix showed to slightly exceed the acceptable level of inconsistency ( $CR \approx 0.13$ ). The evaluation procedure was then repeated and some minor adjustments were done. The new obtained matrix and relative  $CR$  are shown below (Table 16).

Table 16 - Pairwise comparison matrix of criteria

	<i>EXP from EU</i>	<i>EXP from ITA</i>	<i>Presence of competitors</i>	<i>Presence of tariffs</i>	<i>Transport cost</i>	<i>LPI</i>	<i>Country risk</i>
<i>EXP from EU</i>	1	1/4	1/4	1/4	1/1.5	2	1/1.5
<i>EXP from ITA</i>	4	1	1/2	1/1.3	2	4	1.5
<i>Presence of competitors</i>	4	2	1	1.9	4	5	1.4
<i>Presence of tariffs</i>	4	1.3	1/1.9	1	4	5	1.2
<i>Transport cost</i>	1.5	1/2	1/4	1/4	1	3	1/1.3
<i>LPI</i>	1/2	1/4	1/5	1/5	1/3	1	1/3
<i>Country risk</i>	1.5	1/1.5	1/1.4	1/1.2	1.3	3	1

$$CI = \frac{(\lambda_{max} - n)}{n - 1} = \frac{(7.196 - 7)}{7 - 1} \approx 0.03$$

$$CR = \frac{CI}{RI} = \frac{0.03}{1.32} = 0.025$$

Criteria weights were calculated by normalising the Perron-Frobenius eigenvector<sup>83</sup>. According to the decision makers, the most important criterion is the *presence of competitors*; the *value of exports from Italy* is significantly relevant too (third in order of importance). These results reveal a strong attention, confirmed by export managers, to the behaviour of direct Italian competitors in the foreign markets.

<sup>83</sup> By way of example, *Appendix A* shows in detail all the computations performed with R software to obtain criteria weights.

The *presence of tariffs* is considered another main driver (second in the ranking) of target market selection; *country risk* occupies the fourth position in order of importance. All criteria weights are in Table 17.

Table 17 - Criteria weights

Criteria	Weight
Presence of competitors	0.28
Presence of tariffs	0.22
Export from Italy	0.18
Country risk	0.13
Transport cost	0.09
Export from EU	0.06
Logistic Performance Index	0.04

Source: own elaboration

### 3.4 Computation of local priorities

The computation of local priorities' values under AHP involves, first of all, the translation of collected data into pairwise comparison matrices (in this case, matrices are seven, one for each criterion). The conversion of data into matrices was not immediate, but involved a discussion with export managers, in order to assign the appropriate preference values.

As before, consistency was calculated to ensure the absence of logical errors. Values of local priorities are obtained by normalising the Perron-Frobenius eigenvector of each comparison matrix<sup>84</sup>. Such values are shown in Table 18.

Table 18 - Local priorities of countries with regard to each criterion

	Egypt	India	Jordan	Malaysia	Morocco	Senegal	Vietnam
EXP from EU	0.095	0.197	0.032	0.095	0.488	0.039	0.054
EXP from ITA	0.103	0.259	0.103	0.173	0.319	0.043	0
Presence of competitors	0.051	0.227	0.105	0.205	0.155	0.105	0.155
Presence of tariffs	0.171	0.057	0.171	0.171	0.171	0.086	0.171
Transport cost	0.157	0.135	0.14	0.185	0.12	0.071	0.191
LPI	0.08	0.227	0.079	0.227	0.073	0.067	0.247
Country risk	0.109	0.109	0.069	0.318	0.178	0.109	0.109

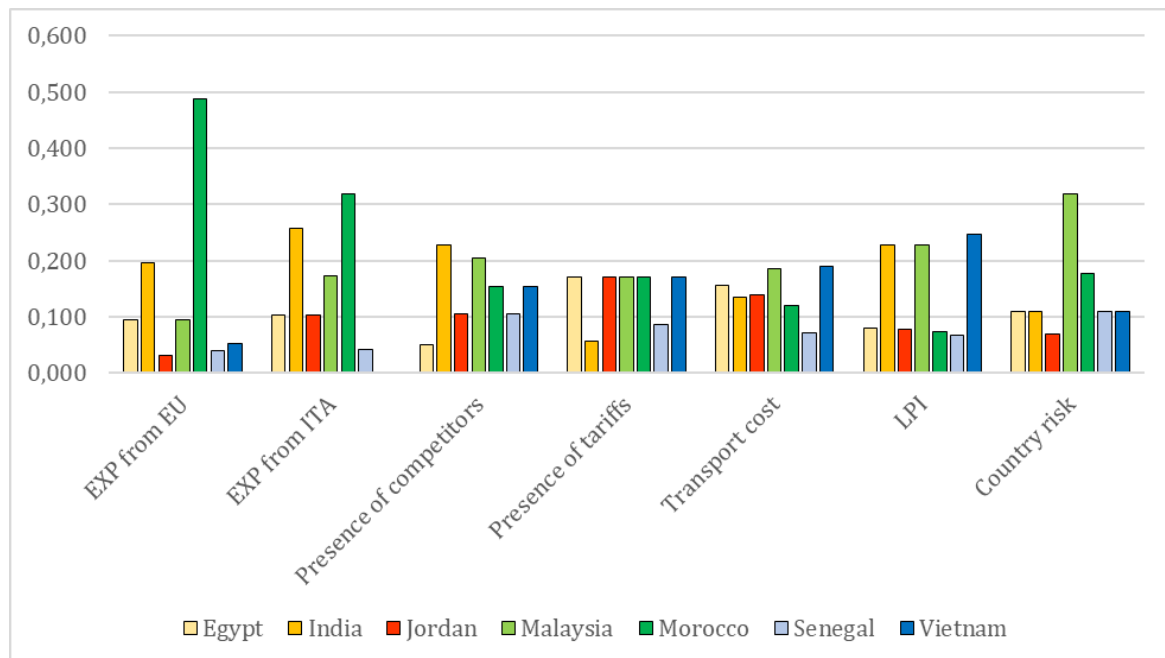
<sup>84</sup> To make the discussion leaner, all the seven comparison matrices are not showed in this chapter but reported in *Appendix B* at the end of the paper.



To better visualize local priorities, it might be useful to report their values on a bar chart. This allows to compare on a common scale the performance of every market/country with regard to each different criterion; the higher the bar, the higher the performance in the specific criterion. For example, the high bar of Malaysia in country risk criterion indicates a good performance in this criterion (which means a particularly low risk compared to other countries).

Looking at Figure 5, it is immediately evident, for example, that exports of reference product from EU countries to Morocco are particularly relevant. In addition, quantities of reference good exported in last two years from Italy to Morocco and India are not so different. Among the seven countries, India is the one with the highest estimated presence of commercial competitors. Malaysia, as already mentioned, is the country which involves the lowest business risk.

Figure 5 – Performance of different countries according to selected criteria



Source: own elaboration

# CHAPTER 4

## Model synthesis and sensitivity analysis

The last step of the AHP analysis involves summarizing all the values generated by the process and determining the rank of the alternatives, i.e. the overall priorities of markets. Sensitivity analysis is performed to test the solidity of the result and make an informed decision. In conclusion, we present a short outline of the agricultural sector in the selected optimal target markets.

### 4.1 Model Synthesis

To derive overall priorities, local priorities are combined as a weighted sum of each criteria; values generated by the model are in this way summarized and the rank of markets is determined. Computations are listed in Table 19, following the convention of showing criteria weights (at the top of each row) and weighted priorities (cells). Overall priorities are obtained summing for each column (i.e. market) every single weighted priority.

Table 19 - Weighted normalised decision matrix

	Criteria weights	EGY	IND	JOR	MYS	MAR	SEN	VNM
EXP from EU	0.06	0.006	0.013	0.002	0.006	0.031	0.003	0.003
EXP from ITA	0.18	0.018	0.046	0.018	0.031	0.056	0.008	0.000
Pr. of competitors	0.28	0.014	0.064	0.029	0.058	0.044	0.030	0.044
Pr. of tariffs	0.22	0.037	0.012	0.037	0.037	0.037	0.019	0.037
Transport cost	0.09	0.014	0.012	0.012	0.016	0.010	0.006	0.016
LPI	0.04	0.003	0.009	0.003	0.009	0.003	0.003	0.010
Country risk	0.13	0.015	0.015	0.009	0.043	0.024	0.015	0.015
Overall Priority		<b>0.107</b>	<b>0.170</b>	<b>0.111</b>	<b>0.199</b>	<b>0.206</b>	<b>0.082</b>	<b>0.125</b>
RANK		6 <sup>th</sup>	3 <sup>rd</sup>	5 <sup>th</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	7 <sup>th</sup>	4 <sup>th</sup>

The bar chart in Figure 6 provides a visual representation of overall priorities; the AHP results show that Morocco and Malaysia are in order the best target markets among the seven countries evaluated in the study. The difference between the two countries is not so marked. The third and fourth position are occupied by India and Vietnam respectively. The four markets are all ranked above Jordan which is the reference market for the company.

Figure 6 - Preference ranking of target market alternatives



Source: own elaboration

## 4.2 Sensitivity Analysis

Sensitivity analysis is an important part of the process and it is required to determine the robustness of the AHP output and to recognize the criteria which are the drivers of the result. To perform the analysis, it is necessary to set up alternative scenarios; this means testing different criteria weights and see how overall priorities change. Generally, no final decision should be taken without performing sensitivity analysis<sup>85</sup>.

In the following pages a couple of alternative scenarios are proposed.

<sup>85</sup> Mu, E., Pereyra-Rojas, M. (2017) *Practical Decision Making (1st ed.)*, Springer International Publishing, pp. 20-21

*Case A: all criteria assume the same weight*

In this scenario each weight assumes value 1/7. Apparently, the ranking is only marginally affected. The optimal choice does not change: the preference remains in favour of Morocco, Malaysia is ranked at second place. India stands in third place and Vietnam in fourth position.

In this scenario, Morocco gains some points at the expenses of Malaysia. The main reason for this is related to the increased weight of *export from EU* criterion, where Morocco performs significantly better than Malesia. At the same time however, Malesia earns some points under the *LPI* and *transport cost* criteria where it performs better than Morocco.

*Table 20 - Case A: weighted normalised decision matrix*

	Criteria weights	EGY	IND	JOR	MYS	MAR	SEN	VNM
<b>EXP from EU</b>	0.14	0.014	0.028	0.005	0.014	0.070	0.006	0.008
<b>EXP from ITA</b>	0.14	0.015	0.037	0.015	0.025	0.046	0.006	0.000
<b>Pr. of competitors</b>	0.14	0.007	0.032	0.015	0.029	0.022	0.015	0.022
<b>Pr. of tariffs</b>	0.14	0.024	0.008	0.024	0.024	0.024	0.012	0.024
<b>Transport cost</b>	0.14	0.022	0.019	0.020	0.026	0.017	0.010	0.027
<b>LPI</b>	0.14	0.011	0.032	0.011	0.032	0.010	0.010	0.035
<b>Country risk</b>	0.14	0.016	0.016	0.010	0.045	0.025	0.016	0.016
<i>Overall Priority</i>		<b>0.109</b>	<b>0.173</b>	<b>0.100</b>	<b>0.196</b>	<b>0.215</b>	<b>0.074</b>	<b>0.132</b>
<i>RANK</i>		5 <sup>th</sup>	3 <sup>rd</sup>	6 <sup>th</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	7 <sup>th</sup>	4 <sup>th</sup>

*Case B: the criterion “presence of competitors” is removed*

In this scenario the most important weight is removed; there are mainly two reasons for testing this scenario. First, among all the criteria, *presence of competitors* is possibly the less rigorous: web search can indeed provide only an indicative idea on the presence of commercial competitors abroad. Second, it could be interesting to see whether the most important weight also represents the unique driver of the final output. For this purpose, a new AHP analysis was run considering only the other six criteria; after having verified the consistency of the results, overall priorities are determined.

*Table 21 - Case B: weighted normalised decision matrix*

	Criteria weights	EGY	IND	JOR	MYS	MAR	SEN	VNM
<b>EXP from EU</b>	0.09	0.009	0.018	0.003	0.009	0.044	0.004	0.005
<b>EXP from ITA</b>	0.25	0.026	0.065	0.026	0.043	0.080	0.011	0.000
<b>Pr. of tariffs</b>	0.32	0.055	0.018	0.055	0.055	0.055	0.028	0.055
<b>Transport cost</b>	0.12	0.019	0.016	0.017	0.022	0.014	0.009	0.023
<b>LPI</b>	0.05	0.004	0.011	0.004	0.011	0.004	0.003	0.012
<b>Country risk</b>	0.17	0.018	0.018	0.012	0.054	0.030	0.018	0.018
<i>Overall Priority</i>		<b>0.130</b>	<b>0.147</b>	<b>0.116</b>	<b>0.194</b>	<b>0.227</b>	<b>0.072</b>	<b>0.113</b>
<i>RANK</i>		<i>4<sup>th</sup></i>	<i>3<sup>rd</sup></i>	<i>5<sup>th</sup></i>	<i>2<sup>nd</sup></i>	<i>1<sup>st</sup></i>	<i>7<sup>th</sup></i>	<i>6<sup>th</sup></i>

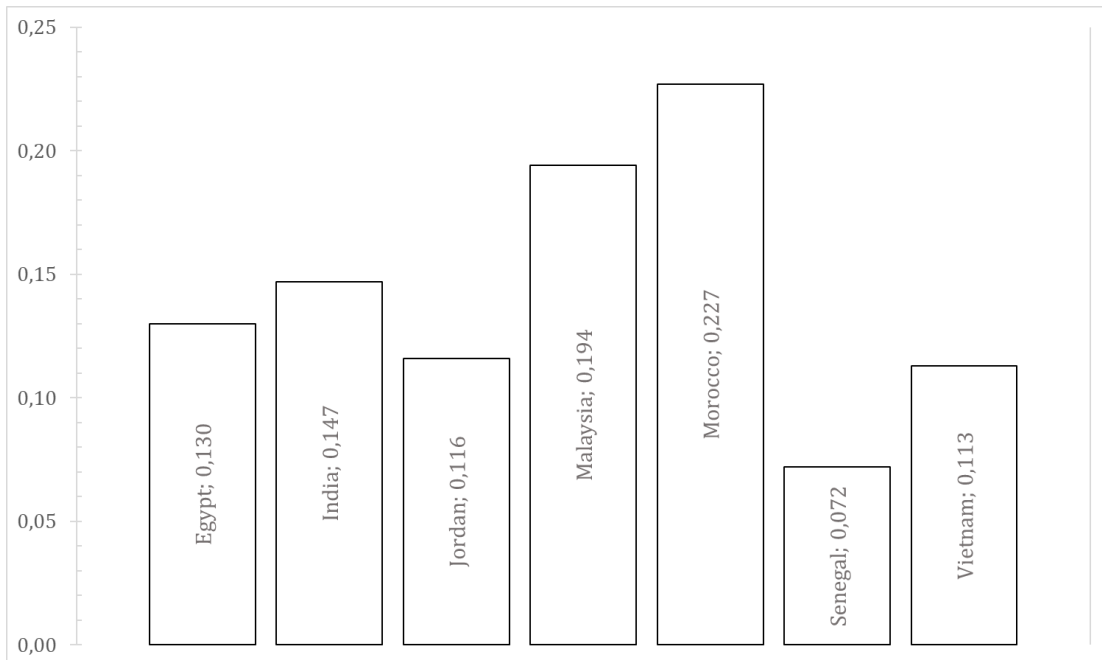
As in the previous case, the preference is even more in favour of Morocco; Malesia is still ranked at second place, while India occupies the third place. Egypt shifts to fourth position. Consequently, it is possible to affirm that the absence of the criterion *presence of competitors* does not significantly affect the choice of optimal alternatives.

Figure 7 - Case A: all criteria assume the same weight



Source: own elaboration

Figure 8 - Case B: the criterion "presence of competitors" is removed



Source: own elaboration

### 4.3 Making the final decision

After having performed the Model Synthesis and the Sensitivity Analysis, it is now possible to make a decision. At the end of the AHP analysis a quite clear picture emerges: Morocco and Malaysia represent the preferred target markets, according to the criteria selected. Even if Morocco seems to prevail on Malaysia, it is difficult to state to which of the two countries it should be attributed the highest preference, since different criteria weights may slightly alter the result. Despite this partial ambiguity, the AHP analysis seems to suggest that both markets can be considered good choices for the company to expand its trade network. India, Egypt and Vietnam are maybe not the best options, but they still represent markets to be taken into consideration and monitored (the preference accorded to them is generally higher than the preference accorded to Jordan, the reference market of the study). Preference for Senegal remains instead quite low across all the cases analysed, making this market the least appropriate option.

It is worth stressing that the system does not pretend to affirm that Morocco and Malaysia are the unique new target markets the company should focus on: the result should be considered a guidance tool and interpreted in a flexible way. After the phase of analysis, i.e. when implementing their commercial activities, SMEs should generally focus on a limited number of markets. This allows to better understand the market characteristics, the main actors involved, the distribution structure, etc. At the same time however, SMEs cannot ignore opportunities which could arise in other markets; all the opportunities should in any case be evaluated also on the basis of company's features and resources available<sup>86</sup>. A verification phase should necessarily follow to test the validity of the numerical analysis and verify market conditions on the field (the matter was already debated in Chapter 2).

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<sup>86</sup> Oberegelsbacher G. A. and Leading Network (2016), *Export Management*, Wolters Kluwer Italia (Ipsa), Ch.2, pp. 62-65

#### 4.4 Outline of target markets

This section proposes a brief analysis of Moroccan and Malaysian economies, focusing on the agri-horticultural sectors. The aim is to provide a clearer picture of the preferred target markets suggested by the AHP analysis and to include possibly useful information for market penetration. This section may be particularly interesting if we consider that in the emerging countries company's products are still consistently used in small farms for horticultural activities (rather than gardening).

##### *Morocco*

Moroccan economy registered in 2018 a satisfying growth (annual GDP growth +3%), thanks to the abundant production of cereals and increased tourism. The country's economy is characterised by openness to international trade and by a strong reliance on external demand. Morocco consolidated in last years its role as gateway to Sub-Saharan Africa, where it is present through FDIs in 13 different countries. The economic fabric is characterised by a prevalence of SMEs which often have difficulties in competing on the market<sup>87</sup>. Growth is expected to drop in 2019 given the low projected increase of agricultural output after two exceptional years. Despite that, the increasing openness of the country to the global market proved to be beneficial for the economy and forecasts remain positive for the medium-term (+3.6%)<sup>88</sup>.

Agriculture represents for Morocco the backbone of the economy, with about 40 percent of active labor force working in farming, accounting for 13 to 20 percent of national GDP. The country enjoys several distinct climatic zones, the Atlas and Rif mountains, the Sahara Desert, the Mediterranean and Atlantic coasts; the key constraints for Moroccan agriculture are water scarcity and soil degradation<sup>89</sup>. There exists a strong contraposition between large and intensive farms which dominate the fertile areas, and smallholdings, whose product are primarily destined to local markets or farmers' own subsistence: more than 70 percent of farmers work indeed less than five hectares of land. The geographical diversity of Morocco results in a great variety of crops: olives, citrus, tomatoes and almonds which are some of the country main exports, as well as wheat which is heavily consumed at domestic level. Other relevant crops include date palm, early season vegetables, fruit trees but also saffron and perfume rose. Over the past few decades, Morocco has suffered a drought almost every three years; most farmlands are located in areas that receive less than 400mm

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<sup>87</sup> *Quadro Macroeconomico Marocco* (2019, January 21). Retrieved from <http://www.infomercatiesteri.it>

<sup>88</sup> *Morocco Overview*. Retrieved from <https://www.worldbank.org>

<sup>89</sup> Agency for Agricultural Development of Morocco (April 2019) *Investor's Guide in the Agricultural Sector in Morocco*



of rainfall each year. Continued droughts caused increasing soil degradation, with desertification threatening 80 percent of land and erosion affecting nearly half of it<sup>90</sup>.

To support Moroccan agriculture and tackle these issues, the government has launched an ambitious plan over the past decade: the *Maroc Vert* (Green Morocco) plan began in 2008 and provides generous subsidies for the development of a modern and commercial agriculture. *Maroc Vert* wants to address both large intensive farms and small subsistence farms: it aims to increase productivity and improve food security. The plan involves the development of the irrigation infrastructure and encourages the creation of a large-scale production system, in which investors contract with different small farmers to produce specific crops, providing them with subsidised seeds and equipment. The system of aggregated cultivation encourages small farmers to adopt more productive techniques and to convert to crops that are more resistant to climatic fluctuations (i.e. olives and almond trees). Despite the majority of these programs are beneficial, critics believe that the plan gives priority to large cultivation of crops with greater export potential. There is the concern that the authorities are driving towards a model of intensive agriculture dependent on global markets. The programme has had ambiguous results: it has significantly increased the production of some crops, such as olives, but at the same time it has not succeeded in meeting export's expectations (Moroccan agricultural products faces the competition from Turkey, Egypt and South Africa). Recent years have seen an increasing popularity of organic farming in Morocco<sup>91</sup>.

### *Malaysia*

Malaysia represents one of the most attractive markets in the South-East Asia and is increasingly perceived as an ideal hub for a quick and effective connection with ASEAN area. This was made possible thanks to a modern network of services and infrastructures and an advanced legislation in terms of investment promotion. The country is also characterised by a stable political system, a high degree of openness towards international markets (it is one of the most open economies in the world) and the presence of advanced logistic companies. Another important factor for investors is the broad diffusion of English and Chinese languages. Malaysian economy registered in 2018 an increase of 4.7% (annual GDP growth); the country ranks 15<sup>th</sup> in the last (2019) World Bank's *Doing Business* report<sup>92</sup>.

Agriculture represents an important sector in Malaysia, its products are destined both to domestic and foreign markets. The sector contributes in a substantial way to occupation, especially in rural areas: in 2017 around 10.9 percent

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<sup>90</sup> Perry, M. (2015, April 10) *Moroccan Agriculture: Facing the Challenges of a Divided System*. Retrieved from <https://sustainablefoodtrust.org>

<sup>91</sup> Lindsey, U. (2016, March 23) *Morocco Plans for Less Reliance on Volatile Farming*. Retrieved from <https://www.ft.com>

<sup>92</sup> *Quadro Macroeconomico Malesia*. Retrieved from <http://www.infomercatiesteri.it>

of active labor force was working in agriculture, accounting for 8.2 percent of national GDP<sup>93</sup>. Malaysia is a tropical country and enjoys a diversity of geographical and climatic regions. The main food crop is represented by rice, which is mainly grown in small farms. Rubber and palm oil are the primary cash crops. Rubber production in particular, remains important and closely tied to domestic manufacturing. Other popular cash crops include cocoa, pepper, coffee, tea<sup>94</sup>.

An important share of agricultural production in Malaysia is in horticultural crops, including fruits, vegetables and ornamentals. The climatic diversity allows different crops to be introduced and grown successfully. Concerning fruit crops, pineapple, banana, watermelons, papaya, guava are the major fruits exported. Fruit production is highly seasonal, thus creating an alternance of over-supply period during peak period and no supply during off-season period. Vegetable production is a very intensive cropping system and normally occupies less than 1 hectare. Cultivation includes temperate vegetables such as cabbage, sweet pea, sweet pepper and tomatoes, as well as lowland vegetables. Cut flowers and ornamentals production is also significant for Malaysian horticulture. Malaysian flowers have been proven to be of high quality, similarly to those produced by other leading countries in the sector like Thailand, The Netherlands, China and Kenya. The ornamental horticulture industry in Malaysia focuses on the production on temperate flowers, orchids, ornamental flowers and dried flowers<sup>95</sup>.

A central economic strategy to support Malaysian development, including the modernization of agricultural sector, is represented by the *Eleventh Malaysian Plan* (2016-2020). Among the various purposes, the plan aims to ensure food security, improve productivity and increase skills of farmers, enhance support and delivery services and ensure compliance to market requirements<sup>96</sup>. The 2018 mid-term review revealed that the agriculture sector recorded a slower growth (0.8% per year) compared to the target set by the plan (3.5%); the cause is mainly related to the volatility of commodities' prices and to climatic factors such as floods and El-Nino phenomenon. According to the review, investments in large-scale high value-added food crops remained relatively low due to the high-risk nature of investing in agriculture<sup>97</sup>.

Recently the Malaysian Agriculture and Agro-based Industry Ministry has unveiled a new five-point plan for years 2019-2020 which focuses on modernisation,

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<sup>93</sup> Department of Statistics Malaysia (2018, December 31), *Selected Agricultural Indicators, Malaysia 2018*, Retrieved from <https://www.dosm.gov.my>

<sup>94</sup> Zakaria B. A., Leinbach, T. R., Jin Bee, O., Lockard, C. A. (2019, July 25) *Malaysia: Agriculture, Forestry and Fishing*. Retrieved from <https://www.britannica.com>

<sup>95</sup> Siti, H.A et al. (2007) "Malaysian Horticulture Perspectives: Education, Research and Extension", *Proceedings of the International Symposium of Horticultural Industry in Pakistan*

<sup>96</sup> Dardak A. R. (2016) "New Strategies for greater Growth and Development of the Agriculture Sector in Malaysia", *FFTC Agricultural Policy Platform*.

<sup>97</sup> Malaysian Ministry for Economic Affairs (2018, October 18) *Mid-Term Review Eleventh Malaysia Plan 2016-2020*

productivity, food security, development of rural economy and stimulation of domestic investments and international trade<sup>98</sup>.

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<sup>98</sup> *Agriculture and Agro-based Industry Ministry unveils five-point plan* (2019, February 14). Retrieved from <https://www.nst.com.my>

# CHAPTER 5

## Model limitations

This last chapter presents the benefits of an AHP analysis but also a short literature of the critiques that have been made to the process developed by T. L. Saaty. After that, we briefly expose the major limitations affecting the proposed case study. In conclusion a short consideration on the meaning of market selection and market segmentation is proposed.

### 5.1 Benefits and critiques of the AHP

The Analytic Hierarchy Process offers numerous advantages and benefits to its users. According to Forman and Gass (2001), three main factors influence the success of AHP. First, it allows to simplify complexity: AHP represents a simple strategy to deal with complex decision and allows the participation of different actors, without the need of specific training. This is possible thanks to AHP's aptitude to hierarchically structure complexity into homogeneous clusters of factors. Second, AHP has the ability of synthesizing complexity, i.e. combining different expert's analysis. The system makes it possible to combine several decision makers' analyses into a unified decision, based on the mathematical calculation of factors' weights. Third, AHP is widely applicable: thanks to its comprehensive nature and the capacity to decompose complicated decisions into pairwise comparisons, it has a broad range of application<sup>99</sup>.

The AHP has been included in numerous operations research and management science textbooks, it is taught in universities, it is broadly used in various organizations which have thoroughly explored its theoretical bases<sup>100</sup>. Despite the numerous benefits and the overall consensus on its technical validity and practical utility, some criticisms have been expressed towards AHP method. The major issues that have been pointed out in several articles since AHP became popular concern the use of a linear one-to-nine scale and the problem of rank reversal.

The first issue deals with the choice of a linear and rigid scale. In Saaty's model the verbal statements are converted into integers from one to nine; theoretically there

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<sup>99</sup> Forman, E. H. and Gass, S. I. (2001) "The Analytic Hierarchy Process: An Exposition" *Operations Research*, Vol. 49, No. 4, pp. 469-486

<sup>100</sup> Forman, E. H. and Gass, S. I. (2001) "The Analytic Hierarchy Process: An Exposition" *Operations Research*, Vol. 49, No. 4, pp. 469-486

is no reason in restricting the evaluation to these numbers<sup>101</sup>. Consequently, numerous other numerical scales have been proposed: Harker and Vargas (1987) tested with a simple example the validity of a quadratic and a root square scale and drew conclusions in favour of Saaty's one-to-nine scale<sup>102</sup>. Lootsma (1989) expressed its preference towards the geometric scale, arguing that it is preferable to the one-to-nine linear scale<sup>103</sup>. Holder (1991) argued that Saaty's linear scale is not complete and proposed the use of an exponential scale<sup>104</sup>. In the article "Response to Holder's Comments on the Analytic Hierarchy Process" Saaty pointed out that the important aspect is to provide decision makers with a model which allows to easily convey their preferences, and not necessarily to adopt a scale that meets a rigorous mathematical definition<sup>105</sup>.

Secondly, AHP has been criticized for rank reversal problems. Rank reversal occurs at any time alternatives are added to or deleted from the original set, resulting in a new order in the final ranking. An example of rank reversal is the following: there are only two alternatives, A and B, and the decision maker prefers A to B. In a second moment a third alternative C is added; among the three alternatives the decision maker prefers now alternative B. Logically, the addition of the third alternative, which does not take on the role of best option, should not have changed the order of preference of the two initial options. There has been a long debate on the issue of rank reversal and apparently no definitive solution has been found. There are two school of thought about the subject: one considers that new alternatives that introduce no additional attributes should never provoke rank reversal; the other argues that there are situations in which rank reversal can logically be accepted. The original formulation of AHP allows for rank reversal; Saaty pointed out that a robust theory should evaluate case by case, allowing rank reversal when appropriate and rejecting rank reversal when not appropriate<sup>106</sup>.

In addition, AHP has received criticism also for the lack of theoretical basis in the attribution of preferences: different decision makers faced with same decision problem, can derive different hierarchies and thus obtain different solutions. This is due to the large subjectivity accorded to the process. Others point out that AHP lacks a solid underlying statistical theory<sup>107</sup>. Despite these and other critiques, AHP remains

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<sup>101</sup> Ishizaka, A. and Labib, A. (2009) "Analytic Hierarchy Process and Expert Choice: Benefits and Limitations", *OR Insight*, 22(4), p. 201-220

<sup>102</sup> Harker, P. and Vargas, L. G. (1990). "Reply to Remarks on the Analytic Hierarchy Process" *Management Science*, 36(3), pp. 269-273

<sup>103</sup> Lootsma, F. (1989) "Conflict Resolution via Pairwise Comparison of Concessions." *European Journal of Operational Research*, 40(1), pp. 109-116.

<sup>104</sup> Holder, R. D. (1990) "Some comments on the analytic hierarchy process", *Journal of the Operational Research Society*, pp. 1073-1076

<sup>105</sup> Saaty, T. L. (1991) "Response to Holder's Comments on the Analytic Hierarchy Process", *The Journal of the Operational Research Society*, 42(10), pp. 909-914

<sup>106</sup> Saaty, T. L. (1994) *Fundamentals of Decision Making and Priority Theory with the Analytic Hierarchy Process*, RWS Publications, Pittsburgh, Pennsylvania

<sup>107</sup> De Steiguer, J. E., Duberstein, J. and Lopes, V. (2003) "The Analytic Hierarchy Process as a Means for Integrated Watershed Management", *Proceedings of the First Interagency Conference of Research in the Watersheds*

a very effective method and continues to be popular among researchers and decision makers for its wide applicability and its ability to cope with complex or confused decisions in a simple way<sup>108</sup>.

## 5.2 Case study limitations

### *Selection of relevant criteria*

The first limitation that can be noted in the case study concerns the number and typology of relevant criteria adopted in the target markets selection process. The study was conducted taking into consideration seven criteria which were chosen by export managers according to personal experience and data availability. However, the literature lacks a unique and common indication on the exact number and typology of criteria to be used in the process of target markets selection; it is then highly probable that some important criteria miss from the chosen set. Furthermore, other criteria were not included due to lack of free-access data; part this specific information is owned by specialised companies providing paid support to market internationalisation. The analysis, for example does not include a *market trend* indicator; such variable would provide an interesting overview of last years' market performance in the selected markets. Despite the interest manifested by export managers towards this variable, in the phase of data collection one major issue emerged: CN8 code for the reference product changed between years 2016 and 2017, making any comparison over a longer time impossible. Another interesting criterion not included due to lack of data is the *Italian market share* which measures the relevance of Italian supply of reference product on the foreign markets. For the same reason, *export from foreign markets* was not considered as a criterion. The variable measures the competitiveness of local producers on the market, which could represent a barrier to entry for companies which do not offer differentiated products<sup>109</sup>. Import, export and number of citizens represent necessary information to calculate the *per capita commercial interchange*: the data gives a rough idea of the individual consume of the good in a market. Small markets with significant *per capita commercial interchange* are usually easier to handle and have more attractive sales potential<sup>110</sup>. Another relevant factor not considered in the study is represented by all the non-tariff barriers (import quotas, subsidies, technical barriers, rules of origins, etc.) applied by foreign countries.

Criteria as *cultural and geographical distance* with foreign market were deliberately not included as very little interest was manifested by the export managers

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<sup>108</sup> Ansah, R. H., Sorooshian, S. and Shahryar B. M. (2015) "Analytic Hierarchy Process Decision Making Algorithm", *Global Journal of Pure and Applied Mathematics*, Vol. 11, No. 4, pp. 2403-2410

<sup>109</sup> These variables (sectorial indicators) are used for example in the reports generated by Export Planning, an online service specialised in supporting decision-making for internationalisation.

<sup>110</sup> Lentsch, M. (2016) *I Manovali del Marketing Internazionale: Tecniche di Temporary Export Management per le PMI*, FrancoAngeli, Ch. 5, p. 50

towards the aspects. This condition is also confirmed by Musso and Francioni (2012): in their sample of Italian SMEs most of companies showed limited interest towards these factors. The authors suggest two possible reasons for the declining importance of geographical and cultural aspects: the first is related to the increasing openness of international economies and reduction of communication and transport cost; the second concerns the indirect entry modality and the diffuse tendency of Italian SMEs to delegate to foreign importers and trading companies all the difficulties concerning geographical and cultural distance<sup>111</sup>.

#### *Limitations due to approximations and imprecise data*

The second limitation affecting the case study concerns the nature of data. While part of the data comes from international and highly reliable statistics, another part is obtained through personal research and is consequently susceptible to approximations or errors. The web search methodology used to assess the *commercial presence of competitors*, for example, is influenced by the updating of the websites: some competitors may have not been identified on the web but could be materially present in the foreign market. The *transport costs* are average values, which could significantly vary according to the shipping carrier, the type of container, the period of the year. Similarly, the evaluation of *country risk* may vary according to different credit insurers and it is not fixed but is constantly updated based on foreign country's market and political conditions. Generally, it must always be kept in mind the temporary nature of all the indicators: they consequently need to be updated from time to time according to supervened circumstances.

### **5.3 Market selection or market segmentation?**

According to Papadopoulos and Martín Martín (2011) IMS is a complex topic for a multiple number of reasons including the intrinsic nature of the process, the *a priori* information and knowledge required, the need for systematic analysis, the characteristics of the decision makers, the lack of a unified theory of market choice<sup>112</sup>. The authors underline the subtle difference between market *selection*, term used when the decision focuses on national country markets, and market *segmentation*, when the firm attempts to identify markets cross-nationally, based on customers characteristics but regardless of their geographical location. The decision task is identical in both cases, the difference relies on the criteria adopted for assessing the markets, along with the strategic implication of that choice. While international market segmentation makes great theoretical sense (there is no particular reason to bound markets to

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<sup>111</sup> Musso, F. and Francioni, B. (2012) "How Do Smaller Firms Select Foreign Markets?", *International Journal of Marketing Studies*, Vol. 4, No. 6, p. 49

<sup>112</sup> Papadopoulos, N. and Martín Martín, O. (2011) "International Market Selection and Segmentation: Perspectives and Challenges", *International Marketing Review*, Vol. 28, pp. 132-149

national border), the low availability and the high cost of cross-national consumer data have constrained market segmentation researches, leading to use the country as a basic unit of analysis. Despite this limitation, it is important that analyst and researchers maintain an open insight in order to wholly interpret the markets<sup>113</sup>.

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<sup>113</sup> Papadopoulos, N. and Martín Martín, O. (2011) "International Market Selection and Segmentation: Perspectives and Challenges", *International Marketing Review*, Vol. 28, pp. 132-149



## Conclusions

The core objective of this work was showing the potentialities of the application of the Analytic Hierarchy Process to the complex issue of international market selection. The case study proposed represents a practical example of how AHP can help decision makers to assess market alternatives in a systematic way. Despite some inevitable limitations, the target market selection analysis using AHP proved to be robust, as it is confirmed by sensitivity analysis. Moroccan and Malaysian markets turn out to be the most viable alternatives among the markets being studied. The study however does not pretend to determine *a priori* the optimal market alternatives for the company, it should be rather considered one of the possible systematic frameworks useful for decision makers to interpret multiple data and take informed decisions. As Papadopoulos (1988) underlined, small business' executives are usually short on human and financial resources, unequipped to carry out complex market statistical analyses and often reluctant to outsource costly market research. As a result, SMEs often select foreign markets based on intuition or generical information<sup>114</sup>. In contrast, this study showed that AHP makes it possible to carry out an indicative market selection analysis taking advantage of experts' experience and free-access statistics. Furthermore, the research allowed the company to identify and clarify the priorities adopted when looking at new market opportunities. Relevant target market selection criteria were selected based on in-depth literature study and interviews with export managers; it must be emphasized that results obtained strongly depends on decision makers' judgments, leaving room for alternative or even contrasting rankings.

The Analytic Hierarchy Process confirmed to be a practical instrument to support complex strategic decisions, as international markets selection. Future research could consider new or different criteria, including more detailed data, and expand the study to new markets. Moreover, the flexibility of the model presented in this study makes it possible to adapt it to other businesses, which can adjust it according to their specific market sectors and internal objectives.

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<sup>114</sup> Papadopoulos, N. and Denis, J. E. (1988) "Inventory, taxonomy and assessment of methods for international market selection", *International Marketing Review*, Vol. 5, Iss.3, pp. 38-51

# Appendix A

Appendix A lists, as example, the detail of all the computations performed with R software to obtain criteria weights. The same procedure was adopted for the calculation of local priorities.

```
> A <- matrix(c(1,1/4,1/4,1/4,1/1.5,2,1/1.5,4,1,1/2,1/1.3,2,4,1.5,4,2,1,1.9,4,5,
1.4,4,1.3,1/1.9,1,4,5,1.2,1.5,1/2,1/4,1/4,1,3,1/1.3,1/2,1/4,1/5,1/5,1/3,1,1/3,1.
5, 1/1.5,1/1.4,1/1.2,1.3,3,1),7,7,byrow=T)
>
> colnames(A) <- c("EXP_EU","EXP_ITA","COMPET","TARIFFS","TR_COST","LPI","RISK")
> rownames(A) <- c("EXP_EU","EXP_ITA","COMPET","TARIFFS","TR_COST","LPI","RISK")
>
> A
      EXP_EU  EXP_ITA  COMPET  TARIFFS  TR_COST  LPI  RISK
EXP_EU    1.0 0.2500000 0.2500000 0.2500000 0.6666667  2 0.6666667
EXP_ITA    4.0 1.0000000 0.5000000 0.7692308 2.0000000  4 1.5000000
COMPET     4.0 2.0000000 1.0000000 1.9000000 4.0000000  5 1.4000000
TARIFFS    4.0 1.3000000 0.5263158 1.0000000 4.0000000  5 1.2000000
TR_COST    1.5 0.5000000 0.2500000 0.2500000 1.0000000  3 0.7692308
LPI         0.5 0.2500000 0.2000000 0.2000000 0.3333333  1 0.3333333
RISK       1.5 0.6666667 0.7142857 0.8333333 1.3000000  3 1.0000000
>
> Re(eigen(A)$values)
[1] 7.196323106 -0.008681146 -0.008681146 0.014350610 0.014350610
[6] -0.137192880 -0.070469154
> Re(eigen(A)$vectors[,1])
[1] 0.1469496 0.4070653 0.6505012 0.4973415 0.1976960 0.0925083 0.3075091
>
> CI=(7.196323106-7)/6
> CI
[1] 0.03272052
> CR=CI/1.32
> CR
[1] 0.02478827
>
> s=sum(Re(eigen(A)$vectors[,1]))
> OP <- Re(eigen(A)$vectors[,1])/s
> OP
[1] 0.06390304 0.17701793 0.28287939 0.21627577 0.08597080 0.04022851 0.13372456
```

## ***Appendix B***

*Appendix B* collects the seven comparison matrices, one for each criterion, that were created to compute local priorities. Every matrix is accompanied by its consistency ratio (*CR*).

### *Export from the EU*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1/3	4	1	1/6	3	2
<b>India</b>	3	1	5	3	1/5	5	4
<b>Jordan</b>	1/4	1/5	1	1/4	1/8	1/1.5	1/2
<b>Malaysia</b>	1	1/3	4	1	1/6	3	2
<b>Morocco</b>	6	5	8	6	1	8	7
<b>Senegal</b>	1/3	1/5	1.5	1/3	1/8	1	1/1.5
<b>Vietnam</b>	1/2	1/4	2	1/2	1/7	1.5	1
<b>Local pr.</b>	<i>0.095</i>	<i>0.197</i>	<i>0.032</i>	<i>0.095</i>	<i>0.488</i>	<i>0.039</i>	<i>0.054</i>

$$CR = \frac{CI}{RI} = \frac{0.0469}{1.32} = 0.036$$

Note: the great value of exports from EU to Morocco makes it difficult the comparison with the other analysed countries. The great preference obtained by Morocco in this criterion is balanced by the low weight assumed by the criterion itself.

*Export from Italy*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1/3	1	1/1.8	1/3	3	-
<b>India</b>	3	1	3	1.5	1/1.5	5	-
<b>Jordan</b>	1	1/3	1	1/1.8	1/3	3	-
<b>Malaysia</b>	1.8	1/1.5	1.8	1	1/2	4	-
<b>Morocco</b>	3	1.5	3	2	1	6	-
<b>Senegal</b>	1/3	1/5	1/3	1/4	1/6	1	-
<b>Vietnam</b>	-	-	-	-	-	-	-
<b>Local pr.</b>	<i>0.103</i>	<i>0.259</i>	<i>0.103</i>	<i>0.173</i>	<i>0.319</i>	<i>0.043</i>	<i>0</i>

$$CR = \frac{CI}{RI} = \frac{0.01}{1.24} = 0.008$$

*Presence of competitors*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1/5	1/2	1/4	1/3	1/2	1/3
<b>India</b>	5	1	2	1.1	1.5	2	1.5
<b>Jordan</b>	2	1/2	1	1/2	1/1.5	1	1/1.5
<b>Malaysia</b>	4	1/1.1	2	1	1.3	2	1.3
<b>Morocco</b>	3	1/1.5	1.5	1/1.3	1	1.5	1
<b>Senegal</b>	2	1/2	1	1/2	1/1.5	1	1/1.5
<b>Vietnam</b>	3	1/1.5	1.5	1/1.3	1	1.5	1
<b>Local pr.</b>	<i>0.051</i>	<i>0.227</i>	<i>0.105</i>	<i>0.205</i>	<i>0.155</i>	<i>0.105</i>	<i>0.155</i>

$$CR = \frac{CI}{RI} = \frac{0.0007}{1.32} = 0.0006$$

*Presence of tariffs*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	3	1	1	1	2	1
<b>India</b>	1/3	1	1/3	1/3	1/3	1/1.5	1/3
<b>Jordan</b>	1	3	1	1	1	2	1
<b>Malaysia</b>	1	3	1	1	1	2	1
<b>Morocco</b>	1	3	1	1	1	2	1
<b>Senegal</b>	1/2	1.5	1/2	1/2	1/2	1	1/2
<b>Vietnam</b>	1	3	1	1	1	2	1
<b>Local pr.</b>	<i>0.171</i>	<i>0.057</i>	<i>0.171</i>	<i>0.171</i>	<i>0.171</i>	<i>0.086</i>	<i>0.171</i>

$$CR = \frac{CI}{RI} = \frac{0}{1.32} = 0$$

*Transport cost*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1.2	1.1	1/1.1	1.3	2	1/1.2
<b>India</b>	1/1.2	1	1	1/1.3	1	2	1/1.4
<b>Jordan</b>	1/1.1	1	1	1/1.3	1.1	2	1/1.3
<b>Malaysia</b>	1.1	1.3	1.3	1	1.5	3	1
<b>Morocco</b>	1/1.3	1	1/1.1	1/1.5	1	1.4	1/1.6
<b>Senegal</b>	1/2	1/2	1/2	1/3	1/1.4	1	1/3
<b>Vietnam</b>	1.2	1.4	1.3	1	1.6	3	1
<b>Local pr.</b>	<i>0.157</i>	<i>0.135</i>	<i>0.140</i>	<i>0.185</i>	<i>0.120</i>	<i>0.071</i>	<i>0.191</i>

$$CR = \frac{CI}{RI} = \frac{0.0026}{1.32} = 0.002$$

*Logistic Performance Index*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1/3	1.1	1/3	1.1	1.2	1/3
<b>India</b>	3	1	3	1	3	3	1
<b>Jordan</b>	1/1.1	1/3	1	1/3	1.1	1.3	1/3
<b>Malaysia</b>	3	1	3	1	3	3	1
<b>Morocco</b>	1/1.1	1/3	1/1.1	1/3	1	1.2	1/4
<b>Senegal</b>	1/1.2	1/3	1/1.3	1/3	1/1.2	1	1/4
<b>Vietnam</b>	3	1	3	1	4	4	1
<b>Local pr.</b>	<i>0.080</i>	<i>0.227</i>	<i>0.079</i>	<i>0.227</i>	<i>0.073</i>	<i>0.067</i>	<i>0.247</i>

$$CR = \frac{CI}{RI} = \frac{0.0028}{1.32} = 0.002$$

*Country risk*

	<b>Egypt</b>	<b>India</b>	<b>Jordan</b>	<b>Malaysia</b>	<b>Morocco</b>	<b>Senegal</b>	<b>Vietnam</b>
<b>Egypt</b>	1	1	1.5	1/3	1/1.5	1	1
<b>India</b>	1	1	1.5	1/3	1/1.5	1	1
<b>Jordan</b>	1/1.5	1/1.5	1	1/5	1/3	1/1.5	1/1.5
<b>Malaysia</b>	3	3	5	1	1.5	3	3
<b>Morocco</b>	1.5	1.5	3	1/1.5	1	1.5	1.5
<b>Senegal</b>	1	1	1.5	1/3	1/1.5	1	1
<b>Vietnam</b>	1	1	1.5	1/3	1/1.5	1	1
<b>Local pr.</b>	<i>0.109</i>	<i>0.109</i>	<i>0.069</i>	<i>0.318</i>	<i>0.178</i>	<i>0.109</i>	<i>0.109</i>

$$CR = \frac{CI}{RI} = \frac{0.0024}{1.32} = 0.0019$$

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