

## Financial Analysis and Economic Aspects of the Agricultural Unions of Crete

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### Abstract

*Cooperatives constitute a "creation" of the social necessity for equal opportunities in the production and disposal of products. Nevertheless, the development and redistributive role of cooperatives in Crete has become open to controversy throughout the recent years, due to the problems of development and management that the co-operative organizations are called upon to face. In order to examine the economic environment and the competitiveness of cooperative Unions in Crete, a study aiming at the discovery of solutions for the reforming and increasing of competition among of agricultural unions was conducted. Distillation of this study constitutes the present article.*

**Keywords:** *Agricultural Unions, Cooperatives, financial analysis, mergers, promethee, multicriteria.*

### Introduction

The rural cooperatives in Greece are mainly of two degrees: the first degree cooperatives, which function in the rural surroundings of provincial cities and the second degree, which concern the Unions of Agricultural Cooperatives that are founded and function in each rural region. Apart from these, there are the central co-operative organizations (others are characterized as secondary and third degree Co-ops). Moreover, the Greek federation of farmers (PASEGES) exists and functions as a maximum co-operative organization and some other forms of cooperatives operate in Greece which concern mainly the conjunction of cooperatives either in regions, or all over Greece.

The large majority of first degree cooperatives that exist in the rural region of Greece is included in the Unions of Cooperatives. The articles of association and operation of Unions are basically the same as those of first-degree cooperatives. Differences exist in the composition of members and in the general assembly. The general assembly of Unions is composed of the representatives of cooperatives who are elected in general assemblies of cooperatives with the special command of representation of cooperative in the Union. It should be noted that the organizational operation and the Union plants are found to be at a much better state than cooperatives plants.

It should also be reported that the Central Co-operative organizations exist and operate in Greece, separately from the Greek Federation of Farmers, in three forms: as a Central Union, as a form of Consortium and as a form of Joint-Stock Company. These

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organizations are composed of cooperatives or other higher degree co-operative organizations and their objective is the protection of rural production and the safety of the economic interests of their members according to the principles of collaboration. They constitute a kind of third degree co-operative organization. The Central Co-operative Union is “Elaourgiki”, the Union of Citriculturists of Crete, and the consortium which constitutes the KSOS (a syndicate of co-operative organizations of grapes).

The main operations of cooperatives are:

- Credit work (provision of cultivation loans in their members).
- Supply operations (rural supply of their members).
- Supply of rural equipment of exploitation.
- Concentration, treatment and management of products.

In addition, the agricultural cooperatives and the agricultural unions execute some other actions such as the Super Market operations and mediation jobs between the producer and the credit institutions etc.

This research was perpetrated in order to examine the organizational function and the economic status of the agricultural Unions of Crete. The basic aim of this study is not only to locate the existing problems of the agricultural unions of Crete but also to find solutions for their most effective operation and development. In the second section of the present article, the financing situation and the organisational structure of the agricultural unions are presented. In the third section the multicriteria Promethee method is outlined as well as the evaluation of the financial performance of the Unions via Promethee method takes place. The article ends with the suggestions for further research (Section 4).

### **Economical status and constructional function of the agricultural unions of Crete**

In order to examine the financial situation of the agricultural unions of cooperatives in Crete, their balance-sheets (for the period 2000-2002) and some other economic elements were examined, such as the produced quantities and the ability of standardization of rural products, assets, modernization of their installations, etc.

*Economic Status* : As for the economic status of the unions, it was noted a tendency to improve their finance compared to the period 1986-1996. By the examination of the indicators of efficiency it was found that the marginal gross and the marginal net profit have been increased by roughly 2%. Despite this, the indicators remain at low levels concerning the private companies of proportional activities.

From the examination of the indicator of industrial efficiency, which represents whether the enterprise uses the elements of its assets in order to create profit, it was found that positive prices appeared only in the Union of Sitia and in the Union of Apokoronou & Sfakion for the three years that were examined (2000-2002). The same results were concluded by the examination of the indicator of financial efficiency, which constitutes a reliable criterion for the choice of investment. With regard to this indicator the majority of the unions displayed negative prices while positive prices, for the three years that were examined were displayed by the Union of Sitia, the Union of Apokoronou&Sfakion and the Central Union of Chania.

Through the examination of the indicator of velocity of asset circulation, it was realized that the indicator oscillates at low levels. Moreover, by the indicator of velocity of circulation of equity capital, it was realized that there is insufficient exploitation of their equity capital for the increase of sales. More generally it was realized that the unions do not exploit correctly the means by which they allocate assets in order to increase their sales.

From the examination of the indicator of velocity of circulation of fixed capital, which determines the ability of an enterprise to exploit fixed capital and achieve increased sales, the results showed that all the unions of the County of Heraklion displayed the highest prices. These results mean that there is a relatively good administrative faculty of exploitation of their fixed assets. From the other counties high prices were presented by the Union of Sitia and the Central union of Chania. With regard to the remainder of the unions there is a problem of improper exploitation of their fixed assets.

Generally, from the examination of the indicators of efficiency it was found that the unions are unable to effectively develop the assets that they allocate. In the analysis of efficiency some unions are distinguished, which means that they present tendencies of improvement. These include the Union of Apokoronou & Sfakion and the Union of Sitias which show obvious marks of improvement and growth.

Regarding the indicators of fluidity and particularly the indicator of general fluidity, some unions displayed a small improvement (roughly 0.3) throughout the previous years, but as the majority of unions, prices smaller than 2 appeared. The same thing happened with the indicator of direct fluidity (low prices). These results mean, that maybe in the future the unions will not be able to pay off their obligations to their creditors.

From the analysis of the indicators of activity the results showed that there is a delay of return and a problem with the liquidation of their credits (the mean time of the liquidation of credits is 4 months and the medium time of the maintenance of reserves oscillates around the 2 months period).

From the examination of the indicator of velocity of circulation of working capital, which gives an explicit picture of the relation of the volume of sales and the working capital, the result depicted very low prices. This means that the unions do not exploit their working capital intensively. Improved prices were displayed only by the Union of Sitia, the Union of Selinou and the Union of Apokoronou&Sfakion.

By the analysis of economic structure and lending burden it was found that:

- All the unions maintain a low percentage of equity capital in the total of their asset, which constitutes an explicit clue to their structural weakness and it (the equity capital) is not enough for the coverage of their total obligations.
- The long-lasting obligations cannot be covered.
- The majority of unions are in danger because they are not capable of paying off their obligations in the event that their sales decrease drastically even if they liquidate all the elements of their assets.

The unions appear to be indebted with a big number of obligations (loans, debts in suppliers etc), which many cases exceed the level of their circulating asset.

*Economic Sizes* By the examination of economic magnitudes it was realized that all the unions of Crete are unable to rival the private rural enterprises because of: the low level of their assets (concerning rural private companies), the small number of their sales and the increased number of their obligations. It should be marked that some of the unions have already begun to take certain hesitant steps of collaboration such as the case of the unions of Sitia and Ierapetras, which created a common institution of management and sale of olive oil. Moreover, the unions of the county of Heraklion investigated the possibility of a merger and in the County of Chania 4 unions have begun the process of a merger.

It should be noted that even if the majority of unions allocate the suitable means of treatment of rural products (though in a lot of cases they need modernization), most of the time they exploit not even half of the volume of rural products of their regions. More concretely, with regard to the olive oil which is the main product of the County of Chania, the unions process only  $\frac{1}{2}$  of the total production of this area. In the County of Rethymno, the unions process roughly  $\frac{1}{10}$  of the total production of the olive oil of Rethymno (it should of course be mentioned that in this area there are only two unions) and in the County of Heraklion the unions manage roughly the  $\frac{1}{4}$  of the total production of this region. Only the unions of the County of Lasithi accomplish to manage almost the entire of the produced quantity of olive oil in the area of Lasithi. Of course it should be marked that the produced quantities of the rural products per county and the quantities of the processed quantity of olive oil from the unions change every year.

*Organization and operation of the Unions..* With regard to the organization of the unions and their ability to participate actively in the game of competition an important weaknesses was discovered. Many of the unions not only do not have a marketing department but also do not use specialized personnel in the various stages of production (administrative sector and productive sector) and almost all their plant need modernization.

From the previous analysis it was concluded that the structural weaknesses and the small size of unions do not allow them to compete dynamically with private rural companies. Problems, such as lack of transparency of their operations, overcharging and bad exploitation of their means are characteristic traits which the majority of co-operative organizations have. This shows that the unions have not yet managed to process their entire regional production.

Although the unions, like the other co-operative organizations are under the protection of producers, they appear to have lost confidence in their producers. It is often observed that the producers are supplied with agricultural equipment by private enterprises, even if the unions sell at lower prices.

The continuous increase of competition regarding the selling and treatment of rural products at a National and World level and the guidelines from the European Union for certification and standardization of olive oil, limit the "freedom of movement " of the underdeveloped co-operative organizations.

It is true that, in the previous years the unions of rural cooperatives in Greece were created as a tool of governmental-party policy either with the increase of prices of agricultural products or with the cover of certain obligations of unions. This resulted to the continuous benefit of loans, and the consequence is that a lot of unions are indebted today.

It should also be marked that until now the collaborations between the unions were very few, as were the unions that managed to follow practices of standardization and guarantee of rural products. On Crete and in a lot of other co-operative organizations in Greece it was observed that the Unions export olive oil in bulk and they import this quantity packed and often this olive oil is adulterated. Moreover, the following paradox has been observed in Crete: The European Union provides subsidies for the production of olive oil and while the production of horticultural products does not have the aid that the olive oil has, nevertheless this production presents continuous growth and improvement.

A lot of co-operative organizations have realized the gravity of the situation and they have begun to make collaborations or integrations. Undoubtedly the mergers of the unions constitute in the present phase, the most effective solution of improving and increasing union competitiveness. The benefits of a merger are the creation of economies of scale the increase of competitiveness, the reduction of business risk etc.

The question that naturally arises is how the unions could be merged. The case where the unions could be incorporated depending on the products that they produce and process was examined. Problems which arose were: problems of transport of rural products because of the great distances between unions, problems of collaboration of the various departments, need for reformation of the unions for the implementation of other operations and activities, difficulties in the agreement of new union objectives because of the different peculiarities that each county presents etc.

Thus a more ideal scenario was realized that constitutes a merger per county. Since the unions of each county are located of closer distances, they produce similar products and the collaboration of unified unions is easier. Also problems such as agreement of union objectives are decreased. Because there are only two unions in Rethimno they could be incorporated with the unions of Chania.

After an investigation of how cash flows will be altered the estimation for how the cash flows will be shaped upon the merger of unions, the results were:

With regard to the turnover, the opinion that prevailed is that in the beginning the sales of the unified union will be increased or perhaps will remain constant, since the market that the unions are addressed, will be the same. However, the powerful status that the new union will obtain by using marketing strategies and standardization of products as well as more powerful negotiation force should not be ignored. This fact can lead to a higher increase of sales within the coming years.

Regarding the personnel wages will be decreased, provided that the personnel will be decreased. The payments of other persons such as the expenses of administrative operation and the maintenance expenses will be decreased provided that the administrative services or the operation of certain installations are unified.

Generally, the various expenses (for example the transport expenses) and the financing expenses (expenses of long-term obligations) will be decreased. In addition, there is some reservation regarding the first year of operation of the unified union if a need appears for the buying of new equipment, new instruments or specialized personnel. But even in this case it was previously reported that the Greek Government and the European Union finance such expenses to a degree that can in the first year reach up to 60% and it should not be ignored that the unified cooperatives will face more favorable taxation. The result will be that the profits may increase in the first year at a small rate but within the subsequent years a spectacular increase will appear as a consequence of the

increase of the size and the modernization of the new union, the creation of economies of scale and the reduction of operation cost.

These mergers should be put in practice after a right planning of the parts of unions. In the first phase they could collaborate with the creation of a common institution (joint ventures) which can undertake the marketing and the sales of rural products, or the improvement of cultivations and the briefing of producers.

Due to the unions' economic magnitudes it was realized that if the unions are incorporated depending on the region they belong to, their total of assets will continue to be smaller than that of agricultural private companies. A solution to this problem could be a further collaboration to unions. This could give exceptional dynamic and powerful negotiation force to the unions of Crete.

The need for restructuring the unions according to new business plans which will rely on adequate financing must also be noted. Even if the Unions join and the partnerships continue facing problems, they will not be able to merge in the right way.

It is concluded that the merges should not be regarded as a last solution to the problem. The Unions will greatly benefit from the merges. The needs of every Union, recording and evaluation of their assets as well as their goals and objectives must be examined. Proper allocation of work and operation of each union, evaluation of the personnel and an administrative council must also be made.

### **Evaluation of financial performance of the Agricultural Unions by using the Promethee II method**

The evaluation of the financial performance of the Unions was made via the multicriteria Promethee method. This method was first proposed by Brans and Vincke (1985). The basic principles which have to do with the Promethee method in relation to other method of the same category are the following three 1)Extension of the criteria meaning 2)Evaluated superiority relationship and 3)Exploitation of the superiority relationship. Concerning the first principle new dependent variables like the criterion too strict, strict but indifferent, linear preference choice, the criterion with choice areas e.t.c are proposed.

Concerning the Promethee method, the relation of superiority is less susceptible in minor changes and consequently, the interpretation is easier. The exploitation of the relation superiority is materialized especially when the alternative solutions must be classified from the best to the worst. Two Promethee methods are proposed. The Promethee I makes only a partial classification of the alternative solutions. The Promethee II makes a full classification of the alternative solutions.

The Promethee II method is the most appropriate for the decision-maker since it provides him with tools enabling him to progress in finding a solution to a decision problem where several, often conflicting multiple criteria must be taken into consideration. It is known to be one of the most efficient and simplest multicriteria methods. It is based on the outranking relations concept, which was found and developed by Roy (1968). Roy defined the outranking relation as a binary relation  $S$  between alternatives  $a$  and  $b$  in a given set of alternatives  $A$ , such that in  $aSb$ ,  $a$  outranks  $b$ . However, there is no essential reason to refute the statement that  $a$  is at least as good as  $b$ .

$$\Pi(\alpha, \beta) = \frac{\sum_{i=1}^k \pi_i P_i(\alpha, \beta)}{\sum_{i=1}^k \pi_i}$$

k: the number of evaluation criteria

$\pi_i$ : the weight of evaluation criterion i

$P_i(\alpha, \beta)$ : the degree of preference of one activity  $\alpha$  against activity  $\beta$  on the basis of criterion i.

The weights of the evaluation criteria are determined by the person, so that the importance will be sufficiently presented. The person gives in each one the proper number according to the evaluation of the performance of the examined alternative activities. The  $i$  degrees of preference  $P_i(\alpha, \beta)$  for each criterion could be determined on the basis of six predefined functions (general criteria) which determine alternative ways of evaluation of the differences which are located at the performances of each pair of activities  $\alpha$  and  $\beta$  in every evaluation criterion  $i$ . The total index evaluation is ranged between 0 and 1, The higher it is the stronger the preference activity  $\alpha$  against  $\beta$  can be considered.

The results of the comparisons for each pair  $(\alpha, \beta)$  are written down on a graph (superiority graph). The tops of the graph correspond to the examining activities, while each arrow which connects two tops  $\alpha$  and  $\beta$  presents the superiority of activity  $\alpha$  against  $\beta$  (if the arrow is directed  $\alpha \rightarrow \beta$ ) or vice versa (if it is directed  $\alpha \leftarrow \beta$ ). Each arc is associated with a row representing the preference index  $p(\alpha, \beta)$ . The sum of all flows leaving a node  $\alpha$  is called the leaving flow of the node, denoted by  $\phi^+(\alpha)$ . The leaving flow provides a measure of the outranking character of alternative  $\alpha$  over all the other alternatives. In a similar way, the sum of all flows entering a node  $\alpha$  is called the entering flow of the node, denoted by  $\phi^-(\alpha)$ . The entering flow measures the outranked character of alternative  $\alpha$  compared to all the other alternatives. The deference between the leaving and the entering flow  $\phi(\alpha) = \phi^+(\alpha) - \phi^-(\alpha)$  provides the net flow for the node (alternative)  $\alpha$  which constitutes the overall evaluation measure of the performance of the alternative  $\alpha$ . On the basis of their net flows the alternatives are ranked from the best (alternatives with high positive net flows) to the worst ones (alternatives with low net flows). By using the methodology that is described above, the Promethee II contributes significantly towards making an integrated and rational evaluation and assessment of the performance and viability of the Unions examined in this study, by specifying the impact of all those factors (financial ratios) on them.

Eleven criteria (financial ratios) were chosen for the evaluation of the financial status of the agricultural Unions which reflect the performance, the liquidity, the activity as well as the loan burdening of the Unions (Table 1).

The classification of the 12 out of the 16 unions of Crete was made for the year 2002. There were no financial data for the Unions of Chania, Maleme, Kolympari and kismamou for the year 2002 because they were merging. The agricultural unions, which were classified to the last place, do not mean that they suffer from financial problems. It must be noted that the aim of this specific multicriteria method is not to divide the Unions into powerful and non—but it aims at classifying them based on a comparative

**Table 1.** Criteria (financial ratios)

1	Gross profit/Sales
2	Net profit before taxes/Sales
3	Net profit before taxes/Total of assets
4	Net profit before taxes /Equity capital
5	Sales/ Equity capital
6	Sales/Fixed assets
7	Sales/Short term obligations
8	Current assets/ Short term obligations
9	Equity capital/Total obligations
10	Total obligations/Total assets
11	Sales /Current assets-Short term obligations

**Table 2.** Classification of the Agricultural Unions of Crete

AGRICULTURAL UNIONS	PROMETHEE SCORING	CLASSIFICATION
CENTRAL UNION OF CHANIA	2,184225755	1
AGRICULTURAL UNION OF MILOPOTAMOU	1,015657235	2
AGRICULTURAL UNION OF IERAPETRA	0,669824498	3
AGRICULTURAL UNION OF PEZA	0,590062489	4
AGRICULTURAL UNION OF SELINOI	0,289162903	5
AGRICULTURAL UNION OF SITIA	-0,005364321	6
AGRICULTURAL UNION OF RETHIMNOU	-0,149273855	7
AGRICULTURAL UNION OF MONOFATSIU	-0,165939725	8
AGRICULTURAL UNION OF APOKORONOU	-0,307879698	9
AGRICULTURAL UNION OF IRAKLIU	-1,107476017	10
AGRICULTURAL UNION OF MESSARA	-1,179598531	11
AGRICULTURAL UNION OF NEAPOLIS	-1,833400732	12

analysis based on the results which were presented at the financial ratios mentioned above.

### Conclusions

Despite the ineffective exploitation of the assets the efficiency of the Agricultural unions was improved in relation to the previous 3 years. High loan burdening, low liquidity, ineffective operations are some of their problems. The minor sizes of the Unions as well as the shortage in updating are obstacles to the increase in competitiveness and improving their fame.

From all the above-mentioned facts it emerges that the mergers of unions constitute survival solutions for them. It is certain that a merger cannot become reality from one day to another. The necessities of each union as well as 1) the recording and the evaluation of financial assets 2) the agreement from the members with regard to the objectives

of a new union 3) the right distribution of work and operations of the union 4) the evaluation of the personnel and 5) the creation of a memorandum of association and administrative body which will be able to serve the needs of the new union, need to be examined.

The common denominator of all the efforts should be the good will and the spirit of collaboration. Personal interests, adherence to issues of regionalism, arrogance and economic interests of more powerful unions should enter at the end. The co-operative organizations have played and will continue to play an important role in the Greek economy and in the Greek rural society. It is time for the co-operative organizations to acquire the place that they deserve and the role that they can play in the Greek and in the World market.

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