ECOBAS Working Papers
2018 - 04

Title:

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Co-op Open Membership: Economic and Financial Effects (*)

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ABSTRACT:

This paper aims to analyze the objectives pursued by cooperative societies with a greater number of members. To this end, we conduct a cross-sectional study of a sample of Galician cooperatives for the years 2009-10 and 2012-13. Our results suggest that larger numbers of partners have no effect on the return on assets, but they do have an impact on capital structure. On average, opening doors to new members allows each of the members to decrease financial risk. Notwithstanding, a lower individual financial risk is accompanied by greater self-financing in agricultural cooperatives and lower equity per partner. Worker cooperatives that have a greater number of members maintain their level of self-financing by increasing their equity shares. Our hypothesis is that these two behaviors are related to the different ways of implementing the principle of free adhesion depending on the size of the cooperative. Larger cooperatives tend to welcome new members by softening entry requirements, and smaller cooperatives seem to impose stricter requirements before accepting new members.

KEYWORDS: Cooperative Principles, Business Size, Capital Structure, Return on Assets, Financial Risk, Galicia.

* We thank Registro Oficial de Cooperativas de Galicia for providing the economic and financial information of Galician co-operatives.

1. INTRODUCTION

In cooperative societies, partners join together to carry out a common economic activity, sharing the ownership of the company. These partners contribute capital simultaneously, while contributing to the development of business activity. These characteristics are common to a wide variety of companies grouped under the umbrella of the same corporate form that conceals different participation models. In some companies, participation is limited to a joint commercial activity, such as in the agricultural cooperatives that basically commercialize products delivered by the partners. In other cases, the participation of the partner is extended to carry out productive activities or services in common, as is the case of the worker cooperatives.

Although under a legally wide variety of cooperatives of different types, agricultural cooperative societies respond mainly to a type of company we could qualify as having limited participation, while worker cooperatives seem to generally respond to a type of broad participation. This form of participation of the member in the business activity is related to the size of the cooperative. In general, the agricultural cooperatives are large in membership, sales revenue volume and asset size. However, their activity per member and individual contribution to capital funding is low. On the other hand, worker cooperatives are usually micro-enterprises with greater individual partner participation both in the terms of activity and funding.

In application of cooperative principles, cooperative societies aspire to extend the cooperative movement much as possible to society as a whole. One way is to allow the free adhesion of its members, as stated in one of the fundamental principles of the cooperative movement. This principle is clearly applied in agricultural cooperatives, but it is not observed so clearly in the case of the worker cooperatives. We may deduce that the positive effects of the entry of new partners are appreciated more rapidly in the agricultural cooperatives, while worker cooperatives seem more demanding when opening the door to new partners.

In this paper we consider if these differences in the application of the principle of free adhesion also affect the capital structure and whether these effects vary depending on the type of cooperatives. To address this issue, the paper is organized as follows: In the next section we reflect on the consequences of the application of the open door principle from the approaches of cooperative movement theorists and the most recent contributions of the authors who continue to analyze cooperatives as an alternative to the conventional capitalist enterprise. In the third section, we carry out a cross-sectional study on a sample of cooperatives operating in Galicia, in the northwest of Spain. In the fourth section, we analyze the impact of a greater number of members on the capital structure and business activity. We also look at the impact of higher sales

revenue on the business activity and the capital structure. Finally, we conclude with the presentation of the main results.

2. THEORETICAL DEBATE

In the theoretical debate about cooperatives, it is very common to find claims that cooperatives tend to be few in number and small in size. This problem was already encountered in the arguments of the founders of the cooperative movement (Gide, 1974; Lambert, 1975; Laserre, 1972; Kaplan de Drimer and Drimer, 1981). By their very nature, cooperatives arise from the association of producers, workers or consumers who do not individually have enough capital to undertake business activity on their own. The application of cooperative principles, such as equal voting rights (one member, one vote) and limited compensation on capital makes it difficult to access external financing, and they condition the expansion of the scale of the company.

Although classical authors in co-op literature never doubted the possibilities of creating a society fully organized as a cooperative, Ward (1958) and Domar (1966) uncovered dilemmas. The criterion of maximizing the net income per worker rather than the profitability triggers contradictory behavior in cooperative members. With price increases, the members of a cooperative may choose to reduce production instead of offering employment to new workers. However, even in the absence of empirical evidence of this phenomenon, this model served as a basis for Vanek (1977) to enunciate the tendency to underinvestment that carries the risk of the self-extinction of cooperatives. One of the three forces of Vanek argues that when partners confront the financial needs of increasing in size, they opt for external financing conditioned by the temporary limitation of their activity in the company and they transfer this cost and its reimbursement to future partners. Nonetheless, Vanek (1970) continued to defend that a society managed by cooperatives is as efficient as a society managed by conventional capitalist companies.

The debate in relation to the superiority of the conventional capitalist enterprise over the cooperative society continues with the contributions of Furubotn (1976) which points to the already recurrent problem of the temporal horizon. Since the members of a cooperative do not recover all their equity shares accumulated in the form of retained earnings, the cooperative should compensate by offering a higher rate of return than a capitalist company. The Theory of the Agency has particularly emphasized this superiority. Above all, Jensen and Meckling (1979) insist on the survival difficulties for companies in which residual rights are defined unclearly and diffusely distributed among the partners. In this sense, we expect that a greater the number of partners, will be accompanied by an increased variety of interests; decision-making will become more difficult (Hansmann, 1988; Morales, 1996; Bel, 1997; Moore, 1998; Mozas, 2002).

The reality of the cooperative movement does not seem to align with the previous theoretical reasoning. Empirical evidence reveals the capacities of the cooperative to face these difficulties. Recent works show how the average size of a cooperative is often greater than that of traditional companies (Perotin, 2015). Other studies conclude that both types of companies show similar productivity and profitability indicators (Bonin, Jones and Putterman, 1993; Craig and Pencavel, 1993; Burdin and Dean, 2009). However the problem of underinvestment contradicts the fact that co-ops usually retain part of the income of members to reinvest in the company (Cabaleiro-Casal and Iglesias-Malvido, 2016) as a tool to overcome the falls of the economic cycle (Navarra 2016).

The greater degree of globalization of the current economies has not eliminated the divergence of opinions on the viability of the cooperative model. In this respect, Bretos and Marcuello (2017) conduct a critical review of the literature that concludes with the possible strengths of cooperatives, based on their principles, to face the complexity of a globalized economy. Some authors have pointed out the difficulties of cooperatives in acquiring other companies that are not cooperative (Atkinson, 1973). Moreover, it seems hard to promote the local community and compete internationally whilst following democratic rules and common values with a growing number of partners (Hansmann, 1988). In spite of abundant literature on the competitive disadvantages of the cooperative model, other authors like Birchall (2014) relate numerous experiences of large size cooperatives operating at a multinational level.

The existence of small and large cooperatives is also due to the asymmetry between labor and capital, which is not exclusive to cooperative enterprises. It is easier to raise large amounts of capital than of work. The second tends to be more specific and dependent on the activity (Williamson, 1985), while capital is characterized as having greater mobility and diversification. This is the case of the agricultural, consumer and service cooperatives. They tend to have a large number of members because they fundamentally contribute capital, as compared to worker cooperatives, which fundamentally feed off the work of each partner. Yet this still does not prevent, in the opinion of some authors, cooperatives from becoming an alternative of success, compatible even with the transferability of property rights over work (Dow and Putterman, 2000, Dow, 2003). The previous debate is also highly conditioned by the eternal comparison between cooperative societies and conventional capitalist societies. We believe that this debate must be set aside in order to focus on comparing cooperatives with each other and take into account the restrictions established by cooperative principles. This is the perspective we adapt to attempt to address the main issue raised in this paper.

3. POPULATION AND SAMPLE

According to the Central Directory of Firms provided by the Spanish National Institute of Statistics (INE), 918 co-ops operated in the year 2017 in Galicia. This represents 0.46 percent of the whole group of individual or legal entities[1]. However, no stable source systematically provides public accounting information about co-ops. Using data from the year 2010, Babío and Jordan (2013) estimate that Galician co-ops could represent 0.90 percent of employment in Galicia.

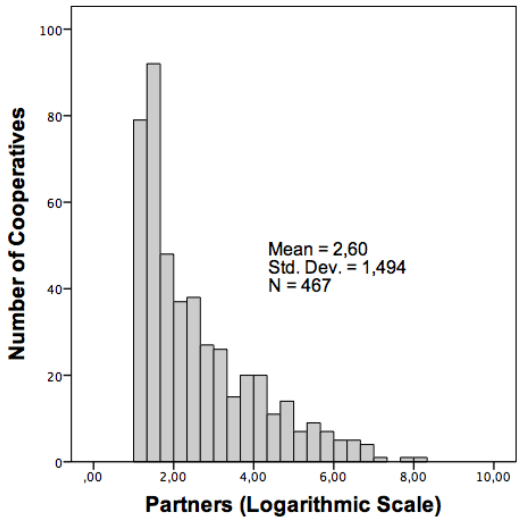
Galician cooperatives must deposit their accounting in the Official Registry of Galician Cooperatives. The information contained in this registry is more thorough than the data provided by the Merchant Registry. The former source provides all the companies, while the latter source excludes small companies. Another advantage is that the Official Registry also presents social information, including the number of partners.

However, the information deposited in the Official Register of Cooperatives has not been systematically or periodically published. Much of this information remains to be digitalized and the criteria have changed over time. The accounts of 2006-07, 2009-10 and 2012-13 have been digitalized. Yet the fiscal year 2015-16 is still pending. During this period a change in accounting legislation has broken the continuity in the information. On a positive note, we have observed an improvement in the quality of the data throughout the period. For all these reasons, we have mainly worked with data from the years 2009-10 and 2012-13.

The social information for the two exercises shows that the number of partners in 52.50% of the cooperatives is fewer than 10. This reveals a high concentration of small companies, see Graph 1. We should additionally note that the number of partners in 19.10% of the cooperatives is above 50.

[1] This figure represents 0.63% of the number of cooperatives in Spain, a total of 20,656.

Graph 1: Histogram of companies by number of partners for 2012-13.



Source: Own elaboration with information from the Galician Cooperative Registry of the years 2012-13.
Note: Given the high concentration of small companies, we use the logarithm of partners to make the representation clearer.

In these two fiscal years, an average of 575 companies (slightly over half) deposited their accounts in the Official Register of Cooperatives. Worker cooperatives totaled 180; agricultural cooperatives totaled 162 and the rest included service cooperatives, consumers, housing and cooperatives of second degree. Agricultural and worker cooperatives represent 60.5% of total cooperatives. Both have a very similar weight in the total sample.

Table 1: Basic data of the sample of Galician co-ops.
Averages for 2009-10 and 2012-13

		Total	Agricultural Cooperatives	Worker Cooperatives
Number of Companies		342	162	180
Partners	Average	47.4	93.3	6.2
	Median	7	23	4
Assets	Average	688,491.92€	1,107,242.52€	311,616.38€
	Median	209,116.99€	288,537.26€	160,214.41€
Sales revenue	Average	1,018,480.37€	1,733,109.40€	373,671.43€
	Median	217,820.25€	245,051.32€	204,562.81€
Asset per partner	Average	52,402.22€	44,149.28€	119,659.72€
	Median	20,576.60€	10,762.00€	58,416.58€
Sales per partner	Average	57,208.89€	42,091.92€	70,814.15€
	Median	22,283.02€	8,354.39€	36,602.90€
Equity per partner	Average	10,098.86€	8,715.76€	11,328.29€
	Median	2,892.06€	843.17€	5,208.77€
Retained earnings per partner	Average	11,950.25€	7,872.21€	15,768.99€
	Median	3,456,88€	1,886.32€	6,345.96€

Source: Own elaboration. Information from the Registry of Cooperatives in Galicia.
Note: The population data corresponds to the companies that have deposited their accounts in the Registry.

As mentioned, agricultural cooperatives are significantly larger in terms of partners, assets and sales revenue. In our sample, an average of 93 members constitute the agricultural cooperatives, with an average asset of 1,107,242.52€ and an average sales of 1,733,109.40€. By contrary, 6 is the average number of partners in worker cooperatives, with an average asset of 311,616.38€ and an average sales revenue of 373,671.43€.

When analyzing activity data by number of partners, we observe that the terms are inverted because the partners in the worker cooperatives individually contribute more to the cooperative. The average assets per partner in worker cooperatives is over twice the average for agricultural companies, and their sales per partner are also higher. Moreover, a greater participation in the activity of the company has its correspondence in the capital funding of the cooperative. The average financial contribution of the worker-partner in terms of equity and retained earnings (11,328.29€ and 15,768.99€, respectively) greatly exceeds the average financial contribution of the partner in agricultural cooperatives (8,715.76€ and 7,872.21€).

The great differences in the averages are partly due to the presence of few large agricultural cooperatives. If we look at the values of the medians, we observe that the differences are far smaller, but the profile of the worker cooperatives is generally maintained. This suggests that access to the status of partner requires greater participation, both in the activity and the financing of the company. The question is whether changes in the return on assets and the capital structure accompany these differences.

Yet we had to do without a large number of companies in this study because most companies either had incomplete information or showed extreme values. Our work focuses on agricultural cooperatives and worker co-ops, so we have reduced the sample to a total of 230 companies in 2009, 252 companies in 2010, 190 companies for the year 2012 and 185 companies for the year 2013. Lacking annual data for consecutive years made it impossible to construct a temporary evolution, so we have analyzed the years separately. It is uncertain whether the criteria for processing data collection and treatment were the same for both accounting years. Hence, we have chosen to replicate the cross-sectional analysis in the four years in an attempt to highlight the characteristics that were both common and coherent with economic theory.

4. SIZE, ACTIVITY AND FINANCIAL STRUCTURE

The entry of members in a cooperative can have direct consequences on the activity of the company, in its investment and in the results of the activity carried out with that investment. The increase in the number of partners (P) may aim to raise the level of

total assets (A), either by investing in current assets, non-current assets, or a combination of both. This additional investment is also expected to affect the sales revenue (S) and should eventually translate into an improvement in the earnings before taxes[2] (EBT). Ultimately, the extent to which the entry of new partners will affect the return on assets of the cooperative (ROA) will depend on its impact on the EBT and total assets.

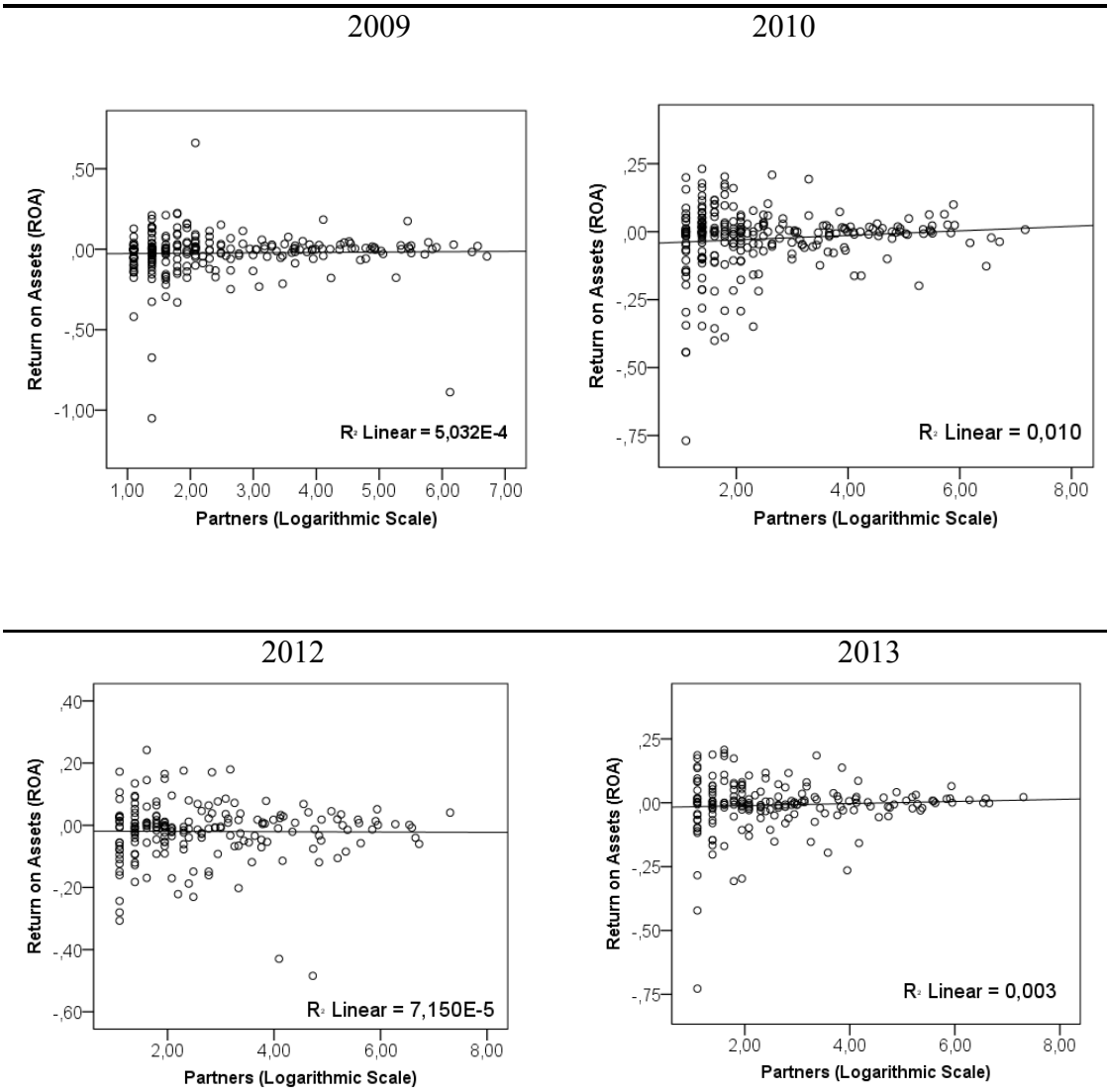
[1] $$ROA = \frac{EBT}{A}$$

The data for all the analyzed years shows that ROA tends to be constant and very close to zero. We have also observed that a greater number of partners of the company is unrelated to a greater value of return on assets (Graph 2).

[2] We use the term *earnings before taxes* as synonymous for *pre-tax profit*.

Graph 2: Dispersion among the number of partners and return on assets.

(Total sample)



Source: Own elaboration with data from Registry of Galician Cooperatives.

Analytically, the greater volume of assets associated with a larger number of partners seems to be similar to the increase in the pre-tax profit that this asset generates:

[2] $$\frac{\Delta ROA}{\Delta P} = 0 \Rightarrow \frac{\Delta (EBT/A)}{\Delta P} = 0$$

This null variation should not be interpreted as a negative aspect of the size increase. We observe that the partners manage to increase the total amount of earnings by making use of a greater volume of assets (or at least the participation in the activity

increases). To better understand what may be happening, let us break down the ROA into its components, profit margin[3] (EBT/S) and asset turnover (S/A):

[3] $$ROA = \frac{EBT}{A} = \frac{EBT}{S} * \frac{S}{A}$$

Given this situation, two hypotheses can be considered. As a first hypothesis a larger number of partners may not vary the profit margin or the asset turnover. As a second hypothesis, the changes made to a larger number of partners may have an opposite effect on margin and asset turnover.

[4] $$\frac{\Delta ROA}{\Delta P} = 0 \Rightarrow \frac{\Delta EBT/\Delta P}{\Delta A/\Delta P} = \frac{\Delta\,(EBT/S)}{\Delta P} * \frac{S}{A} + \frac{EBT}{S} * \frac{\Delta\,(S/A)}{\Delta P} = 0$$

As may be seen in table 2, no variations in profit margin or asset turnover accompany a greater number of partners over the four years. However, it is related to increases in total assets and increases in sales (the latter in a somewhat smaller proportion). Thus, despite an increase in the EBT, with the existing data we can only affirm that admitting more members to a cooperative has no effect on ROA.

Table 2: Correlations among number of partners and business activity and financial indicators (Total Sample)

	2009	2010	2012	2013
Return on Assets (ROA)	0.077	0.027	0.019	0.013
Total Assets (A)	.218**	.248**	.235**	.230**
Sales Revenue (S)	.197**	.211**	.196**	.199**
Asset Turnover (S/A)	0.044	0.016	0.017	0.007
Profit Margin (EBT/S)	0.020	-0.023	-0.034	-0.038
Equity over Capital Funding (E/C)	0.061	0.026	-0.008	-0.014
Retained Earnings over Capital Funding (R/C)	.156**	.117**	.115*	0.056
Liabilities over Capital Funding (L/C)	-.099*	-.098*	-0.009	0.026
Equity per Partner (E/P)	-.255**	-.251**	-.329**	-.269**
Retained Earnings per Partner (R/P)	-.307**	-.256**	-.137**	-.187**
Liabilities per Partner (L/P)	-.339**	-.296**	-.301**	-.287**

** Significant correlation at level 0.01 (bilateral).
* Significant correlation at level 0.05 (bilateral).
Source: Own elaboration with information from the Registry of Galician Cooperatives.

[3] We use *profit margin* as synonymous for *pre-tax profit margin*.

The acquisition of membership status is associated with the contribution of equity to the company. As of that moment, partner has the capacity to decide on the capital structure of the cooperative, which affects the financial participation of the member. The effects on the capital structure of the cooperative can be translated into changes in self-financing (R/C) or external financing, both from its own equity (E/C) and loans from other sources (L/C). The effects on the partner's financial participation can translate into changes in the financial commitment (E/P and R/P) and financial risk (L/P) of each partner[4].

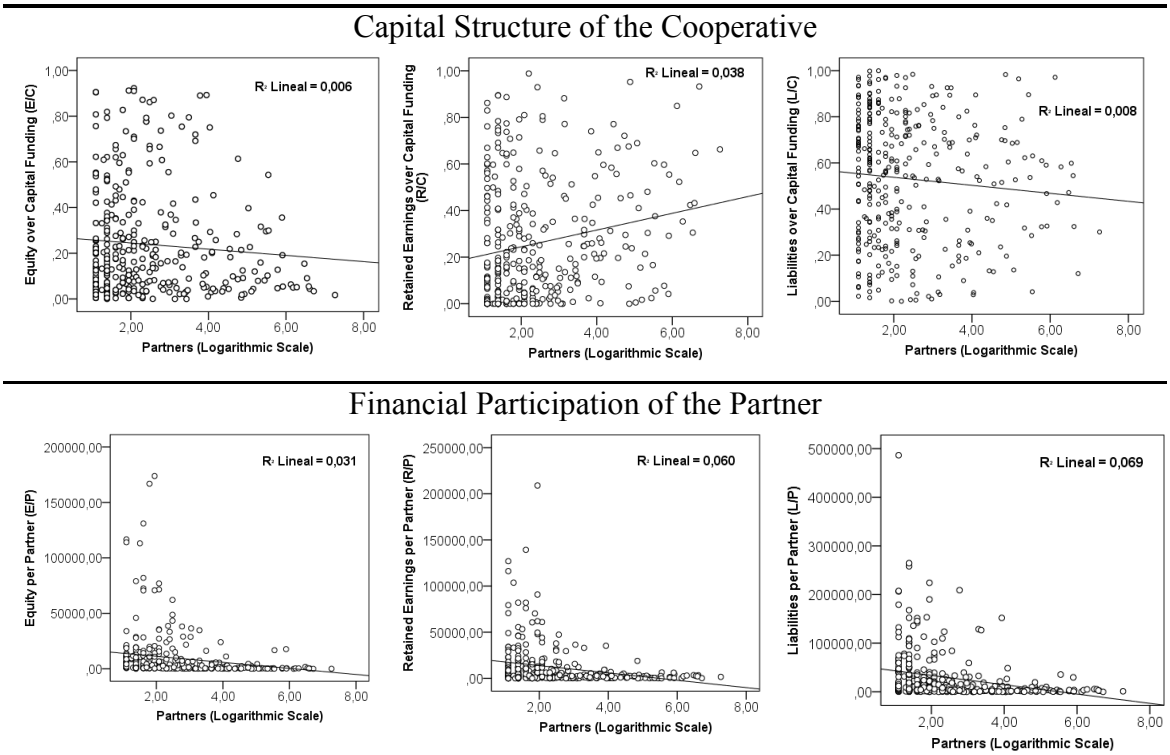
With the data of our sample (Table 2 and Graph 3) we observe that the level of retained earnings over capital funding generally increases in a cooperative with a higher number of partners.[5] That is to say, we are trying to improve the company's self-financing. In addition, for the 2009-2010 financial year we observe that the number of partners and the debt rate are negatively correlated. In some cooperatives a greater relative weight of the retained earnings may come at the expense of equity and, in others, they may come at the expense of the liabilities. The correlations are negative for all variables per partner, the most negative of which are the liabilities per partner[6]. Therefore, with a greater number of partners, the first option is to reduce the financial risk of the partners.

[4] Financial risk is understood as the proportional part of the company's liabilities that corresponds to each partner. The cooperative partners not only share the equity and the retained earnings, but they also collectively assume each of the partner's financial risk (L/P).

[5] Except for the year 2013.

[6] Except for the year 2012, the variable most negative is L/P.

Graph 3: Dispersion among number of partners and financial indicators. Averages 2009-2013. (Total sample).



Source: Own elaboration with the information from the Registry of Galician Cooperatives.

We can deduce that the final financial objective of a cooperative with a greater number of partners acts through retained earnings. Albeit, the increase in retained earnings also allows the cooperative's self-financing to improve and permits the financial participation of the member to decrease, both in terms of commitment and financial risk. Therefore, these retained earnings are used as a tool to improve or increase self-financing and reduce the partner's financial participation (double objective).

In sum, for the total sample, the cooperatives that increase in size through the entry of new partners obtain no positive changes in ROA, either in the profit margin or asset turnover, yet the financial variables do change. Cooperatives improve in terms of self-financing with the entry of new members and the financial participation of the member is reduced.

4.1. **Analysis of cooperatives with a positive profit margin**

The previous sample includes companies that have a positive profit margin as well as those that obtained a negative margin. Companies with positive profit margin largely

obtain a positive return, while the latter ultimately obtain a negative result unless they compensate it with positive results from previous years or with extraordinary results. Given that companies with negative results are more restricted, we have chosen to analyze the case of companies with positive returns that are freer to act when deciding on the entry of new partners[7].

In this sample of companies with a positive profit margin, the entry of new partners is generally unassociated with positive changes in ROA (table 3). However, returns do fall significantly as the number of partners increases in 2013 given the sharp drop in the profit margin[8] resulting from an invariable asset turnover (even though asset size and sales revenue increase at almost the same rate).

Table 3: Correlations among number of partners and business activity and financial indicators. (Positive Profit Margin Sample).

	2009	2010	2012	2013
Return on Assets (ROA)	-0.008	-0.098	-0.019	-.179**
Total Assets (A)	.192**	.286**	.276**	.316**
Sales Revenue (S)	.207**	.265**	.250**	.297**
Asset Turnover (S/A)	0.070	0.015	0.022	0.036
Profit Margin (EBT/S)	-0.093	-.142*	-.128*	-.247**
Equity over Capital Funding (E/C)	.115*	0.045	-0.022	-0.064
Retained Earnings over Capital Funding (R/C)	.172**	.174**	.133*	.201**
Liabilities over Capital Funding (L/C)	-.119*	-0.088	-0.038	0.001
Equity per Partner (E/P)	-.267**	-.239**	-.328**	-.302**
Retained Earnings per Partner (R/P)	-.279**	-.203**	-.130*	-0.084
Liabilities per Partner (L/P)	-.422**	-.330**	-.297**	-.289**

** Significant correlation at level 0.01 (bilateral).
* Significant correlation at level 0.05 (bilateral).
Source: Own elaboration. Information from the Registry of Galician Cooperatives.

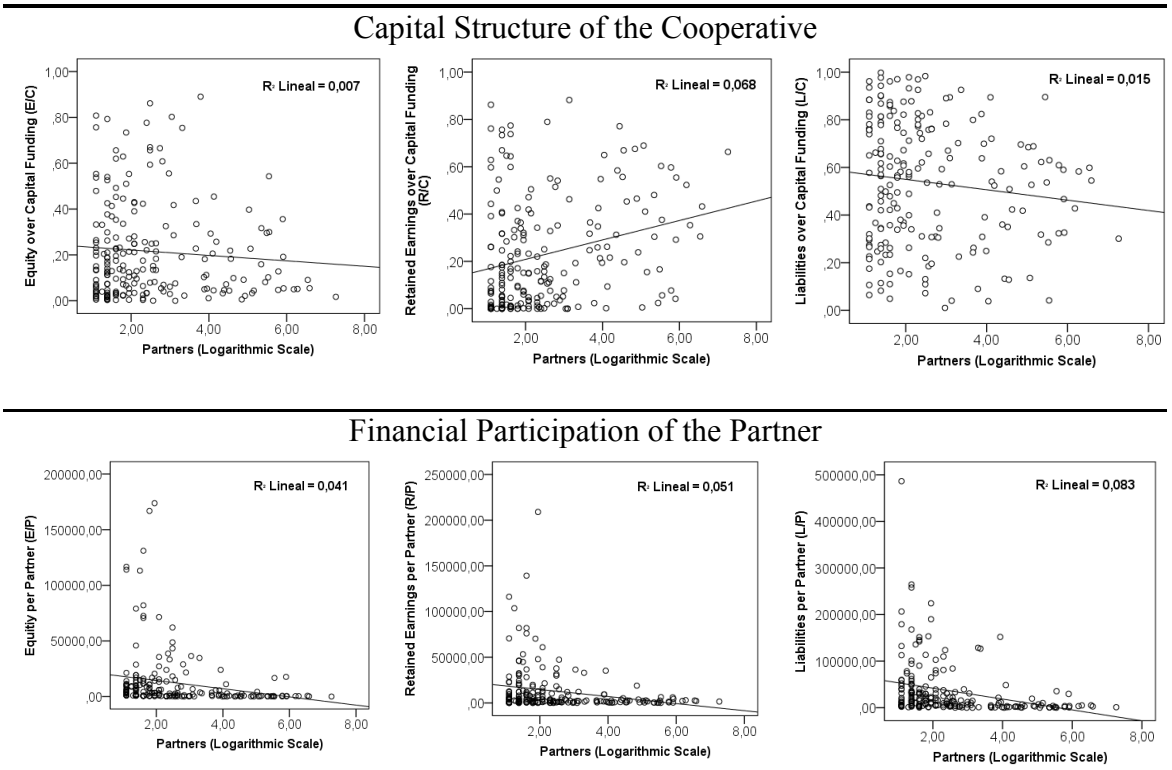
We may also see (Table 3 and Figure 4) that cooperatives with a greater number of partners have a greater level of self-financing. We observe no significative relation between the number of partners and the proportion of liabilities and equity over capital funding except for the year 2009 in which the significant correlation was very low. The financial participation of the partner is reduced, both in terms of financial commitment

[7] In the companies with a negative profit margin, the most significant changes occur in the capital structure. The reduction in the contribution of the partner's equity proves they are using equity to face losses and reduce liabilities.

[8] The profit margin also drops in 2010 and 2012, but this fall is slight and has no impact on return on assets.

and financial risk, upon the entry of new partners. Although we observe no correlation in the variable retained earnings per member in 2013, we can deduce that the companies were restructuring their economic and financial activity.

Graph 4: Dispersion among number of partners and financial indicators. Averages 2009-2013. (Positive Profit Margin Sample).



Source: Own elaboration with information from the Registry of Galician Cooperatives.

In short, cooperatives with a positive profit margin, as in the total sample, that increase in size through the entry of new partners obtain no positive changes in return on assets. However, changes in the capital structure do occur. These cooperatives improve in terms of self-financing and the financial participation of the partner decreases.

4.2. **Agricultural Cooperatives and Worker Cooperatives**

As previously mentioned, it is possible to split the difference in size into two types of companies: large-scale companies with agricultural cooperatives and small-scale companies with worker cooperatives. In this section, we study the effects of a greater number of partners on the activity and the capital structure. To this end, we divide the sample into types because we observe (Table 4) a significant correlation between the

number of partners and the type, both for the total of the sample as well as for the positive profit margin sample.

Table 4: Correlations among number of partners and type. (Total Sample and Positive Profit Margin Sample).

	Total sample				Positive margin			
	2009	2010	2012	2013	2009	2010	2012	2013
Type	.508**	.509**	.589**	.597**	.501**	.539**	.619**	.617**

** Significant correlation at level 0.01 (bilateral).
Source: Own elaboration. Information from the Registry of Galician Cooperatives.

In table 5 we observe that agricultural cooperatives and worker cooperatives behave differently in companies with a positive profit margin.

Table 5: Correlations among number of partners and business activity and financial indicators. (Positive Profit Margin Sample distinguished by type).

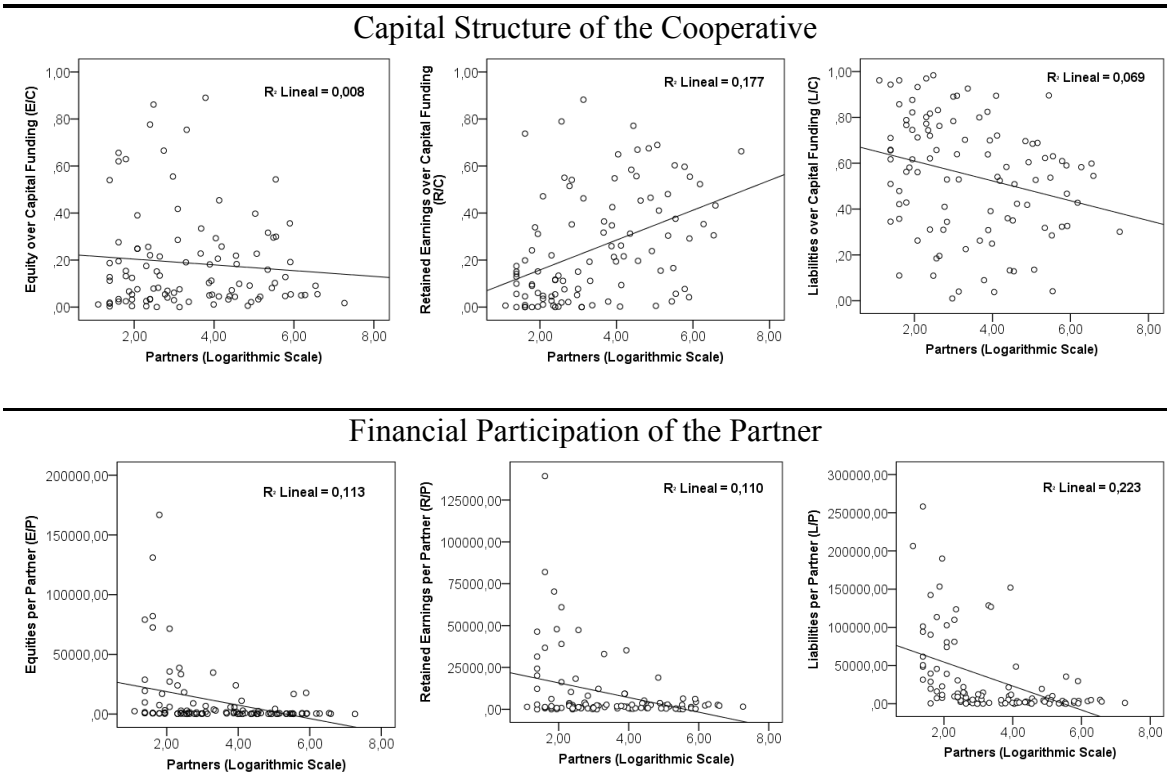
	Agricultural Co-ops				Worker Co-ops			
	2009	2010	2012	2013	2009	2010	2012	2013
ROA	0.104	-0.043	0.068	-0.127	0.073	-0.063	-0.013	-.239*
A	.176*	.237**	.327**	.341**	0.105	0.144	0.096	.210*
S	.355**	.316**	.414**	.427**	-0.056	0.097	0.118	.271**
S/A	.327**	.228**	.255**	.236**	-0.154	-0.070	-0.002	0.02
EBT/S	-.250**	-.279**	-0.161	-.345**	.258**	-0.014	0.053	-0.049
E/C	0.064	-0.052	0.012	0.022	.321**	.285**	.287**	-0.029
R/C	.297**	.237**	.321**	.256**	0.006	0.004	0.003	0.152
L/C	-.231**	-0.112	-.193*	-0.159	-0.106	-0.102	-0.097	0.158
E/P	-.343**	-.374**	-.239**	-0.152	0.095	0.113	0.052	-0.093
R/P	-.210*	-.186*	0.125	-0.016	-0.109	-0.077	-0.097	0.091
L/P	-.434**	-.364**	-.262**	-.310**	-.258**	-.202*	-.227*	0.018

** Significant correlation at level 0.01 (bilateral).
* Significant correlation at level 0.05 (bilateral).
Source: Own elaboration. Information from the Registry of Galician Cooperatives.

In agricultural cooperatives, higher membership causes no changes in ROA. The sales revenue increases in greater proportion than the total asset, and the asset turnover also increases. We note that, in general, a compensation effect between asset turnover

and profit margin takes place[9]. Financially (Table and Graph 5) we can identify the following common characteristics produced by increased membership: an increased level of self-financing, as a whole, and reduced liabilities over capital funding in the years 2009 and 2012. We graphically observe that the financial participation of the partner correlates negatively with the number of partners. A larger the cooperative represents a lower the financial risk for the partners. We also note that in the fiscal year 2009-2010 the financial commitment of the member decreases as membership increases.

Graph 5: Dispersion among number of partners and financial indicators. Averages 2009-2013. (Positive Profit Margin Sample. Agricultural Cooperatives).



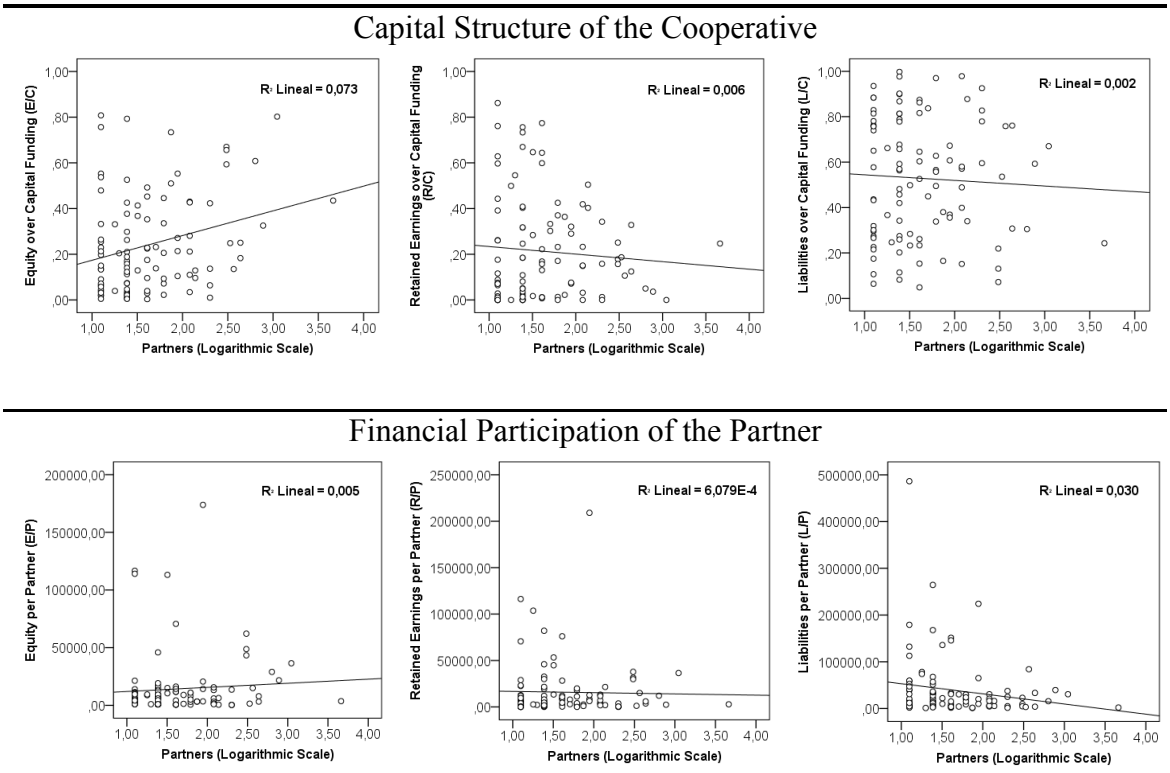
Source: Own elaboration with information from the Registry of Galician Cooperatives.

In the worker cooperatives, greater membership has no positive effect on ROA. The indicators shared the following characteristics: a greater number of partners is

[9] Except in the year 2012, which presents no correlation in the profit margin variable upon the entry of new partners.

unrelated to significant changes in asset turnover and profit margin[10]. Financially, the cooperative as a whole increases the level of equity over capital funding and reduces the financial risk of its members (Table 5 and Figure 6).

Graph 6: Dispersion among number of partners and financial indicators. Averages 2009-2013. (Positive Profit Margin Sample. Worker Cooperatives).



Source: Own elaboration with information from the Registry of Galician Cooperatives.

We can therefore affirm that agricultural cooperatives generally follow case of the sample of cooperatives with positive profit margin and the total of the sample. However, the worker cooperatives do not follow this type of strategy. So, we ask ourselves why this type of company does not follow the same pattern. In cooperatives with a greater number of partners, no positive changes are observed in ROA and few changes are observed in the capital structure and financial participation of the member. Perhaps the increase in size is associated with variables of business activity, and it results from sales revenue. We therefore analyze the total correlations of this variable for the two types of cooperatives with a positive profit margin (Table 6).

[10] Specifically in 2009, we observe an increase in profit margin in cooperatives with a greater number of partners, but this has no impact on the return of the cooperative.

Table 6: Correlations among sales revenue and business activity and financial indicators. (Positive Profit Margin Sample distinguished by type).

	Agricultural Co-ops				Worker Co-ops			
	2009	2010	2012	2013	2009	2010	2012	2013
ROA	-0.095	-0.102	-0.150	-.173*	-0.086	-0.120	-0.113	-0.14
A	.593**	.656**	.674**	.682**	.431**	.548**	.493**	.490**
S/A	.476**	.470**	.414**	.458**	.275**	0.124	.210*	0.172
EBT/S	-.333**	-.335**	-.338**	-.343**	-.277**	-.180*	-.276**	-0.17
E/C	-0.059	-0.130	-.197*	-.200*	-0.101	-0.114	-0.091	-0.047
R/C	.163*	0.103	0.063	0.020	0.053	0.143	.267**	0.11
L/C	0.011	0.107	0.134	0.132	0.089	-0.004	-0.064	0.059
E/P	0.107	0.109	0.071	-0.006	.262**	.229**	.256**	.193*
R/P	.233**	.313**	.267**	.179*	.318**	.420**	.500**	.297**
L/P	0.113	.211*	.244**	.205*	.448**	.461**	.319**	.343**
P	.355**	.316**	.414**	.427**	-0.056	0.097	0.118	.271**

**Significant correlation at level 0.01 (bilateral).
* Significant correlation at level 0.05 (bilateral).
Source: Own elaboration. Information from the Registry of Galician Cooperatives.

Through this analysis we conclude that worker cooperatives with a higher level of sales revenue present no changes in return on assets. We may observe that the years 2009 and 2012 present a compensating effect between the profit margin and asset turnover. Although in 2010 presents a negative correlation in the profit margin, this fall is smaller and has no impact on ROA. In 2012, larger sales revenue is associated with a larger proportion of retained earnings over capital funding. However, this is not the case for the rest of the years (therefore, a temporary evolution cannot be established). The financial participation of the partner in cooperatives with a higher level of sales revenue increases both in terms of financial commitment as well as financial risk (the largest increase being in financial risk).

Resolving the previous question, we see no changes in the capital structure of the worker cooperatives with greater numbers of partners. However, changes do take place in business activity and this, in turn, leads to changes in the financial commitment of the member, with positive variations in all of its components: equity per partner, retained earnings per partner and liabilities per partner.

Table 6 shows that agricultural cooperatives with a higher level of sales revenue reveal no positive effects on ROA despite having an increased level of total assets and the effect of compensation between the asset turnover and the profit margin. In general, higher sales revenue is linked to higher retained earnings and financial risk per member. We also observe a significant positive correlation of this higher level of sales revenue with the number of partners.

5. CONCLUSIONS

In theory, an increase in size will affect the asset and capital funding in all companies. In general, companies try to increase their size to obtain a higher return on their assets or reduce the cost of their financing sources.

However, in the case of cooperatives presenting a positive profit margin (and also for the total of the sample) we observed that cooperatives with a greater number of partners allow for an increase in total assets and sales revenue. Despite this, no significant positive change is found in return on assets. Basically, this is because the change in the number of partners produces no variations in the asset turnover, and negative effects on the profit margin (if present) are reduced. A greater relative weight of the retained earnings and a decrease in the financial participation of the partner (both commitment and risk) explain the changes in the capital structure. This relative increase in retained earnings allows for increased self-financing capacity through the cooperative's own activity.

This objective seems clear in the case of agricultural cooperatives. With a greater number of partners, the ROA does not increase because the positive effects of asset turnover are offset by a fall in profit margin. On the capital funding side, cooperatives with a greater number of partners reveal a significant increase in the weight of the retained earnings as well as the self-financing capacity of the cooperative itself. Moreover, the financial participation of the partner generally decreases.

Worker cooperatives show another type of strategy. Worker cooperatives that have a greater number of members maintain their level of self-financing by increasing their equity contribution. The average profile of these cooperatives has very few partners (fewer than 10) and accepting new members is not often used to increase size. Let us note that sales revenue produces the main changes in the economic-financial structure of the cooperative. In general, a higher level of sales revenue allows for a greater asset turnover. At any rate, this happens without variations in ROA, due to the compensation between the asset turnover and the profit margin. Relevant changes take place on the capital funding side; the higher level of sales revenue translates into an increase in the financial participation of the partner in all of its components.

This finding leads us to question the theoretical statement affirming that one of the causes of the economic inefficiency of cooperatives is underinvestment by partners who try to reduce their individual financial commitment and, thus, the self-financing of the company.

Our results suggest that accepting new partners has no positive impact on return on assets, but it does have an effect on capital structure. On average, opening doors to new members allows each member to decrease financial risk. However, a lower

individual financial risk is accompanied by greater self-financing in agricultural cooperatives and lower equity per partner. Yet worker cooperatives maintain their level of self-financing by increasing their equity contribution with the entry of new members. Our hypothesis is that these two behavior patterns are related to the different ways of implementing the principle of free adhesion depending on the size of the cooperative. Larger cooperatives tend to welcome new members by softening entry requirements and smaller cooperatives seem to impose stricter requirements on new members. We therefore conclude that a better-founded theoretical model must be developed to explain why the same principles of cooperation lead to different strategies.

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