

## **LOCAL FINANCIAL FACTORS INFLUENCING ACTIVITIES OF GREEK COOPERATIVE BANKS**

POR

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### **ABSTRACT**

This paper examines the influence of local conditions on banking activities focusing on the case of 14 cooperative banks in Greece for the period 1999-2007. These banks have been chosen because of their local character and consequently they are more influenced by local conditions in comparison to banks having a national and even international network. Local conditions could be endogenous and exogenous to the bank. The endogenous to the bank are the banking network developed locally or regionally, and the members of the banks who are the main part of the banks' clientele. A macroeconomic and exogenous to the bank condition is the amount of savings in the prefecture in which the cooperative bank operates. The banking activities which have been examined include the deposits and loans constituting the main part of banking activities of cooperative banks in Greece.

The growth of the banking network is the main factor of growth of the bank's activities; growth of cooperatives' members and the growth of the local savings have a positive but less important influence on cooperative banks' activities.

**Key words:** Bank strategy, Cooperative banks, Greece, Local economy

**EconLit codes:** 200, 210, 510

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## **FACTORES FINANCIEROS LOCALES INFLUYEN LAS ACTIVIDADES DE LOS BANCOS COOPERATIVOS GRIEGOS**

### **RESUMEN**

Este artículo examina la influencia de las condiciones locales de las actividades bancarias centrandose en el caso de los 14 bancos cooperativos en Grecia durante el período 1999-2007. Estos bancos han sido seleccionados por su carácter local y en consecuencia, están más influenciadas por las condiciones locales, en comparación con los bancos con red nacional e incluso internacional. Las condiciones locales pueden ser endógenas y exógenas al banco. Las endógenas al banco es la red bancaria que se desarrolla a nivel local o regional así como a los miembros de los bancos que son la parte principal de la clientela de estas. Una macroeconómica y exógena condición del banco es la cantidad de ahorros en la localidad donde opera. Las actividades bancarias que han sido examinadas incluyen los depósitos y los préstamos que constituyen la parte principal de las actividades bancarias de los bancos cooperativos en Grecia.

El crecimiento de la red bancaria es el principal factor de aumento de las actividades del banco; el crecimiento de los miembros de las cooperativas y el aumento de las economías locales tienen una influencia positiva, pero menos importante en las actividades de los bancos cooperativos.

**Palabras clave:** Bancos cooperativos, Estrategia del banco, Grecia, Economía local

### **1. INTRODUCTION**

The credit cooperative system has been introduced in the Greek banking system at the beginning of the 1990's. According to the Greek Law the credit cooperative system is distinguished between cooperative banks and credit cooperatives. Cooperative banks are banking institutions (JOURNAL OF GOVERNMENT OF HELLENIC REPUBLIC; 1992). Credit cooperatives are not banking institutions and cannot offer banking services (KARAFOLAS and KATARACHIA; 2009)

Since the creation of the Greek credit cooperative system little attention has been given to its functioning. KARAFOLAS (1997, 2005 and 2007) studied the creation, growth and structure of the credit cooperative system; KONTOYANATOS (2001) offered a presentation of the development of Greek cooperative banks; KARAFOLAS (2002) compared the activities of the Greek cooperative banks and the Greek commercial banks on the basis of balance sheet elements; the same author examined the public financing support to Greek cooperative credit, (KARAFOLAS; 2002). The efficiency cost of Greek cooperative banks has been examined by PASIOURAS et al. (2007).

The question whether local conditions, external or internal to the cooperative banks, influence the banks' growth has not been examined for the Greek case. In the international literature some studies examined the role of local variables on the efficiency and profitability of banks. In the case of cooperative banks, PASIOURAS et al. (2007) for the case of Greek cooperative banks and BOS and KOOL (2005) for the case of Netherlands banks examined the role of some local factors (internal and external) to the bank efficiency. CANNARI and SIGNORINI (1997) examined the influence of locality on bank's performance especially with regard to loans in the Italian case. They found that local cooperative banks can have better information on local clients. That permits a better credit policy and consequently less bad loans in comparison to other banks. Additionally, local clients, who are cooperative banks' stockholders, have a more responsible habitude because cooperative bank's profits are distributed to them and to local community. They notice, however, that the positive results appear only in the North and Centre of Italy but not in the South of the country. GUINNANE (2001) for the case of Germany concluded that cooperative banks were able to capitalize on superior information and tailor loans more closely to borrowers' needs; that permitted their development despite the existence of a well developed banking system in this country. The same author concluded for the Irish case, that credit cooperatives in Ireland did not have the German success because they were not able to attract as members the prosperous locals and could not establish a strong central auditing to supervise and impose sanctions on defaulters (GUINNANE; 1994).

Other studies examined commercial and saving banks; DIETSCH and LOZANO-VIVAS (2000) examined the influence of the economic environment on the efficiency of

French and Spanish commercial and savings banks and within these conditions they considered some local factors. Local conditions, (the creation of new local branches), has been examined for the banking competition in the case of Spanish retail banking market, (DE JUAN; 2008).

This paper investigates whether local financial environment determines the growth of banking activities. For that purpose we use a database of 14 totally independent local cooperative banks in Greece for the period of 1999 to 2007. These banks cover all Greek regions (Greece is divided administratively to 52 prefectures, which form 13 regions). The sample is very attractive because these banks are homogenous, they operate almost exclusively within their local area and their operations are quite similar since they have to obey to specific regulations which concern the functioning of the cooperative banks in Greece, mainly on their clientele and capital restrictions. The homogeneity of banks, the similarity of local conditions and the importance of local clientele on banks' operations distinguish this analysis among others which use inhomogeneous banks of different size and type, and have national or international network and clientele.

In our investigation we consider as banking activities the deposits and loans of the cooperative banks. These are mainly deposits and loans with cooperative bank's customers who are also members of the bank. As independent variables we use local variables endogenous and exogenous to the bank. As endogenous to the bank we consider for each bank the number of branches and the number of members; as exogenous to the bank we consider the amount of total savings in the prefecture where the cooperative bank has a banking network

The paper is organized as follows: Section 2 discusses the evolution of cooperative banks in Greece. In section 3 the methodology and data used in the study are presented. In section 4 we discuss the results and we conclude in section 5.

## **2. THE EVOLUTION OF GREEK COOPERATIVE BANKS**

The Greek legislation distinguishes two credit cooperative institutions, credit cooperatives and cooperative banks. Credit cooperatives are established and function under

the Law 1667/1986 on Civil Cooperatives (KARAFOLAS and KATARACHIA; 2009). They are not banking institutions, they do not offer banking services, including deposits and loans, and for their establishment no minimum capital is required. They are under the supervision of the Ministry of Economy and Finance. Their principal target is to become a cooperative bank. In 1998 all credit cooperatives participated in a publicly financed program for the support of credit cooperative (supporting actions on information technology, staff training, advertising, building renovation), to become a cooperative bank (KARAFOLAS; 2002). Despite this support only some of the credit cooperatives converted to cooperative banks. The main obstacle to become a cooperative bank is to collect the required minimum cooperative capital.

The term of cooperative bank was introduced in the Greek legislation only in 1992 by the Law 2076/1992 on the credit institutions (KARAFOLAS and KATARACHIA; 2009). A cooperative bank is a banking institution that can offer all kinds of banking services. The establishment and function of a cooperative bank requires a minimum capital that depends on the bank's network and the placement of the bank's headquarters. A cooperative bank may be a prefectural, regional or national one. Each of these levels demands a different cooperative capital. The highest capital is required for a bank established in Athens, (Greece's capital) Thessalonica, (the second biggest Greek town), or a bank which operates in two regions at least. The lowest capital is required for a bank operating only in one prefecture. Since the beginning of 1990's the amount of the required capital has changed several times. By the end of 2008, a cooperative bank with a network in one prefecture (excluding Athens and Thessalonica) must have a minimum cooperative capital of 6 million euros; a bank with a regional network must have a capital of 10 million euros while a capital of 18 million euros is required for a cooperative bank with a network in two regions at least or a bank having its headquarters in Athens or Thessalonica, (KARAFOLAS and KATARACHIA; 2009).

Cooperative banks are subject to the same supervision and regulation imposed by the Bank of Greece on any other commercial bank. Cooperative banks can offer their services only to their members, to the Greek State and to the other financial institutions. Therefore cooperative banks' clientele was formed almost exclusively by the banks' members. Since September 2006 the Greek State has provided the possibility to the cooperative banks to have customers who are non members of the bank, (KARAFOLAS and KATARACHIA; 2009). According to the Law 3483/2006, a cooperative bank can do business with non members till

the 50% of the bank's loans or deposits. Cooperative banks did not developed this possibility, till the end of 2007, since their main objective remains the support and strengthening of the cooperative capital and only existing members and new members can offer it.

By the end of 2009 the Greek credit cooperative system is formed by 16 cooperative banks and 12 credit cooperatives extended to 27 prefectures through the country.

The growth rates of the Greek cooperative banks are quite impressive considering the number of these institutions, their assets and their banking network. Total assets grew by 646% in the time period 1999 - 2007, banking branches by 303% and number of members rose by 150% in the same time period, (table 1).

**Table 1.** Consolidated elements of Greek cooperative banks, 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007	Growth 1999- 2007 (%)
Assets *	441	548	735	926	1.254	1.573	2.048	2.568	3.291	646
Loans *	288	383	530	721	956	1.270	1.598	1.935	2.543	783
Deposits*	253	325	491	682	976	1.272	1.677	2.134	2.615	934
Branches	39	48	59	72	96	112	128	145	157	303
Members	74.993	88.475	101.370	114.670	129.577	144.176	160.136	175.541	187.347	150

\* Million euros

*Source:* Author's calculations from "Association of Greek Cooperative Banks, financial data in 2004", and Annual Reports of Greek Cooperative Banks, diver years.

Despite this growth, cooperative banks are mainly local banks, with the exception of Pagritia Cooperative Bank (having branches in Athens and the island of Crete). This local character limits the share of cooperative banks in the Greek banking market; this share amounted only to 0,8% of the consolidated assets of banks in Greece in 2006, (KARAFOLAS and KATARACHIA; 2009) and only 4% of the total number of bank branches in Greece, by the end of 2007, (HELLENIC BANK ASSOCIATION; 2009). On the contrary, as a number,

16 cooperative banks out of a total of 58 banking institutions in Greece is quite notable, (HELLENIC BANK ASSOCIATION; 2009).

### **3. METHODOLOGY AND DATA**

The analysis refers to the influence of local factors on the growth of deposits and loans of the Greek cooperative banks. Deposits and loans are chosen because they constitute the main part of consolidated liabilities and assets of the Greek cooperative banks. In the examined period, 1999 to 2007, loans were, on average, 75% of the consolidated assets and deposits 74% of the consolidated liabilities, (calculations from table 1). Three variables were chosen as factors influencing these activities. Two of them are endogenous to the bank, the number of branches and the number of banks' members; one is exogenous to the bank, the total amount of savings in the prefecture (or the prefectures) where the cooperative bank has a branch. These savings are deposited to all banks in the prefecture, cooperatives or not. If the cooperative bank has branches in several prefectures, total savings within these prefectures has been considered.

Our hypothesis is that the growth of the number of branches had a positive influence on the growth of deposits and loans of the Greek cooperative banks. We also considered that the growth of the number of members had a positive influence on the growth of deposits and loans, since members of the cooperative banks are the main part of their clientele. It should be noted at this point that the number of employees has also been included in the analysis to see if it exerts any influence to banks' development, considering that employees could bring new customers and therefore growth of banking services. However, the results obtained were not satisfactory, as the coefficients estimated were not statistically significant.

The growth of total savings in the prefecture would also influence positively the growth of deposits and loans of the cooperative bank since they are local in character and the bank's customers-members are habitants of the prefecture under consideration. These savings is the main source of the cooperative banks' deposits. Therefore it is a variable of high quality to indicate the local influence on a bank's activity. Contrary to nation-wide banks collecting deposits from the whole of the country, and even from other countries, the cooperative banks attract deposits only from the prefecture in which they operate and especially from their

members residing in the prefecture. Additionally it must be noted that deposits from other banks (within interbank market) are almost inexistent in the case of the cooperative banks for the period examined. By this variable we have a more direct influence of local conditions on banks services than other variables such as per capita income (GNP/Number of Inhabitants or GDP/ number of inhabitants) indicated by DIETSCH and LOZANO-VIVAS (2000) and PASIOURAS et al. (2007) respectively. Additionally, deposits in the prefecture is a better indicator in comparison to the variable related to gross fixed capital formation used by PASIOURAS et al. (2007), since it referred to the region and not the prefecture (the cooperative banks examined operate in the prefectural level and not in the regional which is wider than the prefecture as it consists of many prefectures).

Since the paper is interested on local conditions on the cooperative banks' growth, those factors prevail by their importance and relevance to any other factor that may be of a national determination.

Cooperative banks since their establishment function on a professionalism basis contrary to credit cooperatives that function on a voluntarism basis (KARAFOLAS; 2005). That concerns the management, the staff, the board of directors, the information technology and the economic targets. Those factors have been determined by the professional organization of cooperative banks during the examined period. For all cooperative banks, staff training and development programs were present since their establishment and continued during the examined period, usually under the organization of the Union of Cooperative Banks of Greece, (KARAFOLAS; 2005). The existence of a modern information technology system is a precondition for the establishment of a cooperative bank. During the examined period, the information system of cooperative banks was characterized by a double system; a/ a payment system interior to the cooperative banks that concerns money transfer and clearing between cooperative banks; b/ the connection with the Greek Automated Clearing House for inter-banking transactions concerning transactions of a cooperative bank with other commercial and investment banks.

All cooperative banks had faced a strong competition from the commercial banks. This competition appears on products diversification, marketing, but especially on the market position since cooperative banks have a limited part in the examined period. This competition



is reflected to the fact that members of cooperative banks have also a second account to a commercial bank (KATARACHIA; 2009). It is reflected on the advertising since publicity is concentrated to commercial and investment banks (AIMILIANOU; 2008). Interest rates do not play any more the role they had when the creation of the credit cooperative system was decided at the end of the 1980's. That period was characterized by high inflation and consequently high interest rates that provoked serious problems to the financing of small companies and professionals, (KARAFOLAS; 1997). Opposite to this environment cooperative banks have a serious argument that added value resulting from bank's activities returns to the customer-member of the bank.

Cooperative banks development has been considered under the specific frame of competition and professionalism. In the beginning of the examined period the banking network was limited; the extension of the network and the increase of the number of members could support the banks' growth more than other factors.

The model we use utilizes a panel data set for 14 cooperative banks over the period 1999 – 2007. Two cooperative banks are excluded: the Pagritia Cooperative Bank (Pagritia) and the Cooperative Bank of Serres. The last one has not been considered because it begun its function only in 2003. Pagritia has not been considered because of its unusual size within the Greek cooperative credit market.

The extraordinary growth of Pagritia in comparison to the other cooperative banks may be explained by the following reasons.

Pagritia followed an expansion policy for its banking network in the island of Crete and Athens since its conversion to cooperative bank. This policy was accompanied by the creation of peripheral councils, which had a double role, to motivate the local population where the bank created a network and the role of advisor to the bank. No other cooperative bank had this expansion policy with the establishment of peripheral councils. Pagritia since its establishment was considered as the bank of the whole island of Crete and not only of the prefecture of Herakleion, the headquarters' prefecture. Pagritia has profited by the strong feelings that people of Crete have for their homeland. Cooperative Bank of Chania has profited by this attitude as well, and that is appearing by its position as the second bigger

cooperative bank. Additionally the island of Crete characterized a strong cooperative movement that did not suffered by the problems agricultural cooperatives had in the other Greek regions, (see on this point, KARAFOLAS and KATARACHIA; 2009, KAMENIDIS; 1991, KLIMIS; 1991).

Pagritia has more than half of the consolidated assets of cooperative banks in 2007 while during the time period 2000-2007 the bank had an average 44% of the consolidated assets (table 2). Regarding cooperatives' members, Pagritia had 40% of total number of members in 2007 while in the time period 2000-2007 this part was 38%. Thus, the participation of Pagritia into our analysis could result to non reliable conclusions considering the hypothesis adopted for this model, particularly the necessity for homogeneity of the banks.

**Table 2.** Share of Pagritia Cooperative Bank to the consolidated elements of Greek Cooperative Banks, 2000-2007 (in %)

	2000	2001	2002	2003	2004	2005	2006	2007	Average
Assets	32	37	43	43	45	47	50	51	43,5
Branches	35	37	42	36	38	38	35	33	36,8
Members	32	34	36	38	39	40	41	40	37,5

*Source:* Idem Table 1

Indeed, the advantages of our sample are that we have independent banks, homogenous in their development and structure, (the participation of Pargitia could not offer it); it covers all Greek regions; banks of the sample operate mainly in their local area. Thus we avoid competition with other cooperative banks (see on those advantages, BOS and KOOL; 2006).

Sources of the data are the Bank of Greece for savings per prefecture and cooperative banks' data on branches, members, deposits and loans.

Our model in general terms is (GREENE; 2003):

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \dots + \beta_k X_{k,it} + \varepsilon_{it} \quad (1)$$

Where  $Y$  is the dependent variable (loans and deposits)

$X$  is a matrix of  $k$  explanatory variables

$i$  denotes the bank ( $i=1,2,\dots,14$ )

$t$  denotes the time period ( $t=1,2,\dots,9$ )

$\varepsilon$  is the error term, also called the idiosyncratic error, (WOOLDRIDGE; 2002), which has a variance-covariance matrix  $\Phi$

In matrix  $\Phi$  we have matrices  $\Phi_{ii}$  in the main diagonal corresponding to variance-covariance matrices of the error term for each bank, as if (1) consisted of 14 distinct time series regression equations for which we would estimate their coefficients separately. The off-diagonal matrices  $\Phi_{ij}$  combine the cross sectional elements with the time series. In each  $\Phi_{ij}$  the elements in the main diagonal are covariances of the cross sectional observations for a certain time period, while the off-diagonal elements are covariances of the cross sectional observations for different time periods.

The estimator of vector  $b$ , is a fixed effects estimator (or within estimator since it uses the time variation in  $Y$  and  $X$  within each cross sectional observation) and it is derived by generalized least squares estimation as

$$b = (X' \Phi^{-1} X)^{-1} X' \Phi^{-1} Y \quad (2)$$

Under the fixed effects assumption we have a different constant term for each cross sectional observation which does not have variation and is independent of the error term in(1). Moreover, it is assumed that the error term in (1) is homoskedastic and no autocorrelation is present, (WOOLDRIDGE; 2002).

#### **4. RESULTS**

We use two equations with dependent variables deposits and loans respectively. In table 3 we have the results obtained for the deposits equation. We have 125 observations for the 14 cooperative banks for the time period 1999-2007. The results show a positive influence of the explanatory variables. We observe that the opening of a new banking branch results in the rise of deposits by 1,82 units. Every new member permits the growth of deposits by 0,013

units while increase by 1 unit of savings in all banks within the prefecture results in the increase of deposits in the cooperative bank by 0,006 units.

**Table 3.** Deposits' findings

Fixed effects estimator		
Dependent variable = deposits	No of observations = 125	No of groups = 14
Variable	coefficient*	
Branches	1,820609*** (0,8023486)	R <sup>2</sup> = 0,93  F(3,108) = 444,57
Members	0,0127742** (0,0010648)	
Deposits within Prefecture	0,0059161** (0,0022692)	
Constant term	-47,83319** (3,420011)	
*Standard Errors in parenthesis **statistically significant at 1% *** statistically significant at 5%		

Our results reveal an analogous picture for the loans equation, (table 4). A new banking branch results the growth of loans by 1,24 units. Ever new member permits the growth of loans by 0,013 units; the increase of savings by 1 unit in the prefecture increases loans by 0,005 units.

**Table 4.** Loans' findings

Fixed effects estimator		
Dependent variable = crédits	No of observations = 125	No of groups = 14
Variable	coefficient*	
Branches	1,241788*** (0,7019473)	R <sup>2</sup> = 0,94  F(3,108) = 543,04
Members	0,0130574** (0,0009316)	
Deposits within Prefecture	0,0054719** (0,0019853)	
Constant term	-46,12916** (2,992051)	
* Standard Errors in parenthesis ** Statistically significant at 1% *** Statistically significant at 5%		

## 5. CONCLUSIONS

This paper focused on the local conditions that could influence banking activities offering empirical evidence for the case of cooperative banks in Greece. The paper's results are significant for two reasons; first, to our knowledge, no empirical studies investigated this specific area, i.e. how local factors, endogenous and exogenous to the bank, affect banking activities; second, it offers an empirical study of Greek cooperative banks for which not enough empirical or theoretical attention has been given till now.

Banking activity is expressed by deposits and loans which are the main part of Greek cooperative banks' activities. The explanatory variables express banks' strategy, (banking network and members' growth), and local conditions, (local savings). This last is closer to the

banks' activity than any other local factor because it is the main source of banks' liabilities, since cooperative banks operate mainly with local customers who are the banks' members.

The results show a positive influence of the factors examined, however to a different degree. The largest effect is provided by the extension of the banking network. Network's growth seems to be the most important factor for activities' growth. This was indeed a very important reason for the impressive development of the Pagritia Cooperative Bank; this bank from its establishment (1993-94), has based its policy in the extension of its network. The other cooperative banks did not follow this network extension policy immediately after their establishment, because it is very costly. However, they have started acting so in the decade of 2000. The banking presence to different localities within the prefecture may provoke the interest of the local population by having the bank near to their home. A local full branch can offer all services permitted by the banking law with the same quality of service as offered by the central branch of the cooperative bank. The growth of members and local savings has a less significant effect on the growth of banking activities.

This conclusion may be important for the banks' policy. This empirical study may be used as an example for other case studies. An interesting investigation could pertain the case of cooperative banks in other countries that have a local character and furthermore a comparative study between them. Additionally, the study's results, especially on branches' effects, may be considered as a good practice of policy for the new cooperative credit systems as in the case of Balkan countries.

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