CO-OPERATIVE BANKS' PROFITABILITY AFTER 2008: EVIDENCE FROM EU-27

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Abstract: Co-operative banks are a special category of business which appeared in Germany, around the year 1869, in order to satisfy the financial needs of farmers. The differences regarding the business principles between this type of bank and commercial banks, made from co-operative banks the most profitable business which seems to overcome the financial crisis without problems. Through this paper we want to identify the manner through which the loans have affected the co-operative banks' profitability, for the co-operative national associations from EU-27, which are members of European Association of Co-operative Banks (EACB). In order to achieve this, we will use the panel data for the period 2008 – 2012 in order to catch the financial crisis effects into our data. Further we will estimate an ordinary least squares model between the banks' profitability and the loans to asset ratio and deposits to assets ratio, in order to highlight the main variable which is responsible for the evolution of co-operative banks' profitability.Based on our results, we will be able to see the way in which each factor is influencing the profitability and if the bank or the supervision authority of each country is able through different political tools to influence the profitability, in order to facilitate a stable financial environment.

Keywords: co-operative banks, profitability, panel data.

JEL classification: G21; G23; L2.

1. Introduction

In 2008, the financial world was characterized by a series of structural shifts during the financial crisis. Important banks and financial institutions (eg. Lehman Brothers, Merrill Lynch, Wachovia and others) had gone bankrupt or recorded huge losses, releasing a high risk on the financial market, known as systemic risk. Consequently, a lot of instability appeared on financial and banking sectors (Diaconu and Oanea, 2014).

In this paper we will make an analysis of the co-operative banks' profitability model after the financial crisis of 2007 – 2008, also known as the global financial crisis, which is considered by many economists, the worst financial crisis since the Great Depression of the 1930s. It resulted in the threat of total collapse of large financial institutions, the bailout of banks by national governments and downturns in stock markets around the world. In many areas, the housing market also suffered, resulting in evictions, foreclosures and prolonged unemployment. The crisis played a significant role in the failure of key businesses, declines in consumer wealth estimated in unreal amounts and a downturn in economic activity leading to the 2008 – 2012 global recession and contributing to the European sovereign - debt crisis. The active phase of the crisis, which manifested as a liquidity crisis, can be dated from August 9, 2007, when BNP Paribas terminated withdrawals from three hedge funds citing "a complete evaporation of liquidity".

The co-operative banks and their economic model, have not been on shelter and were hit by the financial environment. If we are studying a little bit the history of these two kinds of financial institution, we easily find that, at the origins, these two categories were only one. It seems that the first credit union appeared in Germany, around the year 1869, in order to satisfy the financial needs of a specific category of people: farmers. Even in our days is hard for a farmer to obtain financial resources in order to work the land, but when we speak about the farmers who lived 200 years ago, we realized that these new financial institution appeared due to a social and financial need. Of course we can say that credit co-operatives appeared,

due to social and economic needs, and furthermore, as Jones (2001) states, these financial institutions appeared as a need to alleviate the handicap associated with growth of modern capitalism.

In this article we will try to emphasize the concept of co-operative bank. The simplest definition of a co-operative bank is that of a financial entity which belongs to its members, who are at the same time the owners and the customers of their bank. Co-operative banks are often created by persons belonging to the same local or professional community or sharing a common interest. Co-operative banks generally provide their members with a wide range of banking and financial services including loans, deposits and accounts.

The most important thing to understand is that co-operative banks differ from commercial banks by their organization, their goals, their values and their governance. Cooperative banks are in fact a mixture between a union and a business, unlike commercial banks that are oriented only to maximize profit. The purpose and the potential of this credit institution is starting to become a strong argument in discussions about economic growth.

Birchall and Ketilson (2009) emphasized seven principles, which are main guidelines for co-operatives:

1. Open membership and voluntary:
2. Democratic member control;
3. Member economic participation;
4. Autonomy and independence;
5. Education and training;
6. Cooperation among co-operatives;
7. Concern for community.

This scientific paper comprises six sections: the first section represents the introduction, where we emphasized the context that determined the selection of this theme, the second section covers the main literature review on the researched topic, section three describes briefly the methodology used, the data and the statistic variables necessary in order to produce the results, section four highlights the main findings of the research, section five concludes the paper and the last section includes the references used for writing this paper.

Taking into account the latest transformations underwent by credit institutions, we aim through this paper to analyze the main determinants and internal factors for the financial stability of a co-operative bank.

2. Literature review

The economics of banking literature acknowledges various determinants of bank profitability. These include the size of the bank; the extent to which the bank has a diversified network; the attitude of the bank's board towards risk; the bank's ownership characteristics; and the level of external competition the bank encounters (McKillop and Ferguson, 1993; Rhoades, 1997; Goddard *et al*., 2001). Using cross-sectional and dynamic panel estimation to investigate selected determinants of profitability in six major European banking sectors: Denmark, France, Germany, Italy, Spain and the UK, for the period 1992 – 1998, the results suggest that despite intensifying competition there is still significant persistence of abnormal profit from year to year. Although there are some significant size–profit relationships in some of the estimations, overall the evidence for any consistent or systematic size–profitability relationship is unconvincing. The relationship between the relative size of a bank's portfolio and its profitability is positive for the UK, but negative for some other countries, where banks seem to have experienced mixed results from diversification into OBS activity. The relationship between the capital–assets ratio (CAR) and profitability is positive. Finally, although in Germany cooperative banks underperformed relatively to commercial banks, there

is little evidence of a systematic relationship between ownership type and profitability elsewhere.

Interest in the efficiency of banks has spawned a substantial literature examining economies of scale (size) and scope (product mix), and technical, economic and x-efficiency. Most researchers using data up to the mid - 1980s find that scale economies were evident at low asset size levels but became exhausted as size increased. Using 1988 – 1998 data, Scholtens (2000) finds that the profits of European banks classed as small (in terms of assets) grew faster than those of the larger banks, while Williams (2003) finds the opposite for foreign banks based in Australia. Using 1989 – 1996 data, Goddard *et al*. (2001) find that scale economies and productive efficiency in European banking were positively related to profits, but *ceteris paribus* smaller banks were more profitable than their larger counterparts. Berger and Humphrey's (1997) review finds consistent evidence that large banks are more efficient on average than small ones, but it is less clear whether large banks benefit significantly from scale economies. Profitability is more likely to be enhanced by emulating industry best practice in terms of technology and management structure than by increasing size *per se*.

These categories of financial institution, called co-operative banks, were not analyzed in great detail in the literature compared to credit unions or even commercial banks. It is well known that, credit unions have as main purpose helping their members with financial resources in time of need. At origins, co-operative banks or credit co-operatives, as they were known, had the same purpose as credit union. Despite this, we think that, due to several structural changes, today co-operative banks have reached the point when they try to maintain a balance between helping the members to obtain financial resources when they need them and profit maximization. We consider that profit maximization tends to became a purpose of co-operative banks due to the fact that these banks started to diversifie their products and offer financial support not only for the members.

A business like that has its typology of development as stated Ferguinson and Mckillop (1997) and Sibbald et al. (2002). They described four stages in co-operative banks development: birth stage (the business is run by volunteers), exploration of economy of scale (business is run by paid employees and it is offering a wide range of products), maturity (business is run by professional staff and it is offering multi-product services) and post-maturity stage (business tends to sacrifice the distinctiveness).

In the economic literature, there is interest in finding the main determinants for consolidation of co-operative banks. With regard to this, Hosono et al. (2005) found that in the Japan case, the less profitable and cost efficient banks could be a target for a larger bank. Moreover, the process of acquiring a bank improved cost efficiency and in the end the profitability. Going further, Maggiolini and Mistrulli (2005) survival, showed that the life duration of a co-operative bank is positively correlated to market share of larger banks, being higher when in the market there is a lack of banks, and smaller in the opposite case. Moreover, it seems that profit maximization has a significant impact on the probability of survival of co-operative banks (Fiordelisi and Salvatore, 2013).

Early research into the determinants of the banks' performance was based on the structure – conduct – performance (SCP) paradigm and focused on the interpretation of a positive empirical relationship between concentration and profitability. According to the 'collusion' hypothesis, a small number of banks may be able to collude either implicitly or explicitly, resulting in higher interest rates charged on loans, lower rates paid on deposits, higher fees and so on.

Collusion is more difficult if the number of banks is large. That is why this model is suitable for co-operative banks which are in a smaller number, present on the market. In contrast, according to the 'efficiency' hypothesis a positive concentration – profitability

relationship may reflect a positive relationship between size and efficiency. It is therefore uncertain whether the high profits of large banks are a consequence of concentrated market structures and collusion, or superior production and management techniques that reduce costs, creating high returns (Hassan *et al*., 2013).

3. Methodology

3.1. The model

The aim of this paper is to see the meaner through which the both loans and deposits affected the cooperative banks' profitability from the European Union. More specifically we study the ratio between the total loans and assets and total deposits on assets, because we consider that these 2 variable are the best proxies for the bank management. Further we want to see their effect on bank's profitability after the beginning of financial crisis from 2008.

We will follow the Athanasoglu et al. (2006) methodology, by using 2 proxy for profitability, namely: return on assets (ROA) and return on equity (ROE) and expressing the relationship between the selected determinants using the following regression model:

(1) $$ROA_t / ROE_t = \alpha_0 + \beta_1 \cdot LA_t + \beta_2 \cdot DA_t + \varepsilon_t$$

where, LA – loan to assets ratios and DA – deposits to asset ratio. All variables are expressed in percentages.

3.2. The data

In our paper we will analyze the meaner through which the loans and deposits made by a co-operative bank affect its' profitability. In order to achieve this, we will use only the co-operative banks from European Unions, which are members in the European Association of Co-operative Banks. All the banks included in the sample are presented in the table 1.

Table 1. Selected banks, members of European Association of Co-operative Banks

Country	Cooperative Bank	Country	Cooperative Bank
Austria	Österreichische Raiffeisenbanken Österreichischer Genossenschaftsverband	Italy	Assoc. Nazionale fra le Banche Popolari FEDERCASSE
Bulgaria	Central Co-operative Bank	Lithuania	Association of Lithuanian credit unions
Cyprus	Co-operative Central Bank	Luxembourg	Banque Raiffeissen
Denmark	Sammenslutningen Danske Andelskasser	Netherlands	Rabobank Nederland
Finland	OP-Pohjola Group	Poland	Krajowy Zwiazek Banków Spóldzielczych
France	Crédit Agricole*	Portugal	Crédito Agrícola
	Crédit Mutuel	Romania	Creditcoop
	BPCE	Slovenia	Dezelna Banka Slovenije d.d.
Germany	BVR/DZ Bank	Spain	Unión Nacional de Cooperativas de Crédito
Greece	Association of Cooperative Banks of Greece	Sweden	Landshypotek*
Hungary	National Federation of Savings Co-operatives	United Kingdom	The Co-operative Bank

Source: based on data available on http://www.eacb.coop/en/home.html; * - There are no data available for ROA/ROE

Even if there are 24 co-operative banks from European Union, which are members in the European Association of Co-operative Banks, for 2 of them, namely Crédit Agricole (France) and Landshypotek (Sweden), we were not able to find data regarding the ROE and ROA, so we exclude them for the analysis.

Because we are interested to find the effect of loan to asset ratio and deposits to asset ratio on banks' profitability after the beginning of the crisis, we took the annual data for each of selected bank for the period 2008 - 2012, from the Key Statistics Financial Indicators, available on the official site of European Association of Co-operative Banks.

Table 2. Descriptive statistics for the average values for all banks selected in the sample

Variable	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
ROA	0.42%	0.40%	2.10%	-3.33%	0.71%	-2.7616	16.7683
ROE	6.19%	5.87%	19.60%	-18.43%	5.32%	-0.9912	7.2974
LA	61.05%	63.48%	88.11%	0.05%	15.44%	-1.4294	6.1503
DA	67.37%	73.85%	99.19%	3.80%	19.51%	-1.0705	3.9977

Source: authors' calculation

The main descriptive indicators for the selected variable are presented in the table 2. We are able to see that the average value for the ROE ratio is 14 times higher than the ROA ratio. Moreover the value of loans to assets ratio and the value for deposits to asset ratio have the same average value of almost 60%, which seems to be a considerable amount.

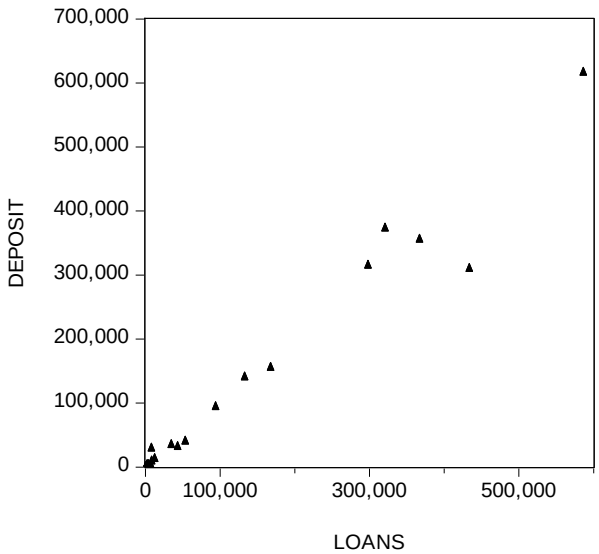

Figure 1: The relationship between loans and deposits for selected banks (mil. EUR)

In the figure 1, we present the graphical relationship between the value of loans and deposits detained by each bank. At a first glance we can see that there is a linear relationship between these two variables, which means the fact that a higher value of deposits will correspond to a higher value of loans. This suggest us the fact that the banks use equally both type of products, loans and deposits, in their daily business.

4. Results

The first step of our analysis is to see if the series are stationary. In order to verify this we apply Breitung panel unit root test. Based on the results presented in table 3 we are able to see that all series are stationary, so we can go further and estimate the regression model.

Table 3. Stationarity test results

Variable	H_0: I(1)	
	statistic	Prob.
ROA	-14.7200***	0.0000
ROE	-20.3136***	0.0000
LA	-5.4694***	0.0000
DA	-14.3071***	0.0000

*** - Indicates significant at the 0.01 level

In order to prevent the multicolinearity between the variable, we estimate the correlation between the loan to asset ratio and deposit to asset ratio. Based on the results presented in table 4 we are able to see that the correlation is around 0.30, so we can consider that this value is not so high to include co-linearity into regression model.

Table 4. Correlation test

Correlation	DA	LA
DA	1.000000	
LA	0.308711	1.000000

We estimate two regression model, by taking into account the both proxy for profitability: ROA and ROE. The results are presented on table 5.

At a first glance we are able to see that in both cases the profitability for period 2008-2012 were sensitive to the value of deposits that the co-operative banks had. The value of this ratio has affected positively the profitability of bank. This can be explain based on the low liquidity existing on the financial markets during financial crisis, so any recourses of liquidity for a bank was like air. The deposits detained by clients at co-operative banks, help them to continue their activity during financial crisis, this being the reason why deposits significantly affected the profitability of co-operative banks.

Table 5. Estimated models with ROE and ROA as dependent variable

Variable	***ROE***	***ROA***
Constant	3.8411	0.0475
	(2.3154)[a]	(0.3099)
LA	-3.0458	0.0918
	(3.7149)	(0.4972)
DA	6.2456**	0.4692*
	(2.9582)	(0.3959)
R^2	0.0421	0.0196
R^2 (adj)	0.0232	0.0004

[a] – (standard errors in parentheses) *, ** - Indicates significant at the 0.1 level and 0.05

In the same time, we see that the loan given to the clients didn't affect significantly the profitability, because due to the lack of liquidity, financial institutions had reduced the credit activity, and they have lend less money to the people and business. We all know, that the co-operative banks activity were less affected by the financial crisis, compared to the commercial banks, so we suppose that the money obtained by co-operative banks from their clients deposits were used further to give loans, but of course in a more prudential manner.

5. Conclusions

Through this paper, we want to identify the maner through which the deposits and loans of each co-operative bank, affected its' profitability during the period after the beginning of the financial crisis from 2008. In order to achieve this, we select all the co-operative banks from European union which are member of the European Association of Co-operative Banks, and based on the annual data obtained from this association official web site, we analyse the relationship between the profitability (we use two proxy for this: return on assets and return on equity) and the deposit to asset ratio and loan to asset ratio.

All the analysed variables are stationary, so we could estimate the regression model without problems. Moreover, the correlation between the two independent variables, LA and DA is around 0.30, which in our opinion is a small value, so there will not be problems regarding the multicolinearity in the model.

We obtain that the profitability for period 2008 - 2012 was sensitive to the changes in the deposits to asset ratios. So we can extrapolate from this the fact that based on the low liquidity existing on the financial markets during financial crisis, any recourses of liquidity for a bank were like air. That it is why the deposits detained by clients at co-operative banks, help them to continue their activity during financial crisis, this being the reason why deposits significantly affected the profitability of co-operative banks.

Going further, we didn't obtain a significant influence of loan to asset ratio. We think that, due to the lack of liquidity, financial institutions had reduced the credit activity, and they have lent less money to the people and business. Despite this, co-operative banks activity was less affected by the financial crisis, compared to the commercial banks.

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