

## Cooperative Banks' Business Model at the Crossroads between Financial Performance and Societal Involvement

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### Abstract

*In the aftermath of the financial crisis the European financial system, particularly banks, still struggles to recover the lost public confidence. Ethical financial behavior and customer centricity have gained weight, not only from the viewpoint of banking customers, but also from international organizations' one. The paper aims at analyzing the strengths and challenges associated with a different banking model, namely the cooperative banks' one, in terms of its ability to maintain its genuine, cooperative principles. The paper provides a comprehensive insight into the intrinsic financial indicators and their evolution over time. The descriptive statistics analysis comprises the 23 member organizations of European Association of Co-operative Banks, which represent the cooperative banks operating in EU countries, to have a complete picture of their positioning, in terms of market share, liquidity, capitalization and contribution to the domestic financial depth. Secondly, we conducted an exploratory approach named Cluster Analysis, for two years of reference, in order to identify most resembling business models and gather them in the same cluster. The results emphasized which cooperative member organizations still follow the original cooperative business model and mission, and which of them have migrated towards a more commercial banking one.*

**Keywords:** cooperative bank, business model, resilience indicators, cluster analysis

**JEL Classification:** C38, G21

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### Introduction

The paper aims to generate analytical and empirical information concerning a special segment of the financial sector, represented by cooperative banks. Traditionally, cooperative banks have played an important role in alleviating the

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needs of local communities and enhancing the financial and social inclusion. Their activity conciliates the interests of society with their own financial interests, to ensure business going concern and compliance with prudential regulations.

In conjunction with the vulnerabilities and needs of the country of residence, they have clearly defined their mission: human and social development (social housing, health and education), mitigation of financial and social exclusion, by funding low income or marginalized social groups as well as small and medium-sized enterprises.

This highly specialized but less sophisticated business model is now back in practitioners and regulatory bodies' attention, since it proved its ability in withstanding the negative effects of the 2008 financial crisis and providing a continuous flow of funding to local communities and small investors. Moreover, according to the European Association of Cooperative Banks latest statistics for 2016-year end, in several EU countries cooperative banks represent a sizeable part of the banking industry's market share. Their market share in terms of deposits is of over 61% in France, 38.5% in Finland, 34% in Netherlands, 33.7% in Austria and 26% in Cyprus. As regards the market share in terms of loans, cooperative banks in France record 59.2%, followed by Finland with 35.4%, Austria with 32.9% and Denmark with 30.8%.

In addition, their basic features such as conservative and simple business model, with high solvency and asset quality and lower loan-to-deposit ratios have determined the European Investment Bank (EIB) (EIF, 2016) to rely on cooperative banks as a tool for increasing lending to small and medium sized enterprises and start-ups. EIB's objective is to launch a new financing instrument, called "Cooperative Banks & Smaller Institutions" particularly targeted to SMEs financing in Europe, as they usually face access restrictions to finance. Consequently, we are witnessing an increased importance of cooperative banks in the financial industry.

The question to be answered through this paper is whether the cooperative bank business model could depict a high level of flexibility and adaptability to currently changing economic, financial and regulatory environment, while preserving its economic viability and its strong commitment to societal responsibility. We intend to address this question, by combining analytical and exploratory research.

Existing literature in the field witnessed various research directions. Several studies have assessed the performance of cooperative banks, in terms of estimating efficiency scores: Pasiouras, Sifodaskalakis and Zopounidis (2007) for Greek banks, Chen, Chen and Peng (2008) for a bank in Taiwan, Ganesan (2009) and Feroze (2012) for Indian banks, Othman, Kari and Hamdan (2013) for Malaysian ones, Koch-Rogge, Westermann and Wilberg (2013) for German banks. Jovanovic, Arnold and Voigt (2017) have assessed the impact of Basel III financial

regulation on the business model (costs, revenues, volume of activities) of German cooperative banks. A different research direction has been explored by Clark, Mare and Radić (2018), which focused on the relationship between competition, risk preferences and market structure in the European cooperative banking between 2006 and 2014.

However, few empirical researches have been performed for European cooperative banks, and to our knowledge, there is no study that comprehensively evaluates the cooperative banks operating in EU countries from the standpoint of similarities in their business model assessed in terms of financial resilience indicators. This topic has been, so far, superficially explored in the research literature. A recent paper (Ayadi, 2017) discusses the diversity of financial models in Europe, with emphasis on cooperative banks, in terms of performance and risk exhibited in a crisis situation. We intend to remove this bottleneck through a comprehensive, country-by-country analysis, to depict the particularities of resident cooperative banks in terms of business strategy, range of products, target customers and intrinsic financial indicators.

The novelty of the paper against similar research in this field resides in gathering a comprehensive sample, comprising all the 23 member organizations of European Association of Co-operative Banks, which represent the cooperative banks active in EU countries. They have been analyzed in a comparative fashion in two years of reference: 2008, which marks the beginning and spread of the global financial crisis, and 2015, the most recent year for which there is public available data.

The research objectives to be undertaken within this paper have been addressed in the following sections. Section one summarizes the literature in the field and the main research assumptions tested over time. Section two discusses the cooperative banks' actual place in the European financial market. It is performed an analysis of the descriptive statistics for a broad set of indicators, meant to illustrate financial soundness and viability and the contribution to the national economy. Section three describes the methodology, which consists in performing a cluster analysis, to reveal if there is a pattern of similitude or, on the contrary, high heterogeneity between different intrinsic characteristics of cooperative banks. Section four explains the results obtained while the last section concludes.

## **1. Cooperative Banks' Business Model – Evidence from Economic Literature**

Cooperative banks are a typical retail-oriented institution. Usually, their asset size is smaller compared to other financial institutions. Their financial role gravitates around providing loans to households and small and medium-sized enterprises

and deposit-taking services. The key values of this specific business model are “trust between the bank and its members/clients, democratic and prudent governance, resilience to adverse market developments, close proximity to customers, social commitment and solidarity” (EACB, 2014, p. 2).

The cooperative banks’ landscape comprises entities highly heterogeneous in terms of size, business mix and governance model, unified however by several basic features: ownership by their members/customers, strong commitment to cooperative values and customer centricity (McCarroll and Habberfield, 2012).

Ferri, Kalmi and Kerola (2014, p. 195; 196) include cooperative banks in the category of stakeholder banks, by relying on several arguments: their major aim is not profit maximization; focused on maximizing the consumer surplus of their customers; are typically locally oriented, operating in a limited geographical area, near their customers; are relationship-lending oriented; the members of the cooperative and board members are typically local residents and in some cases entrepreneurs.

Cooperative banks are increasingly being perceived as a major contributor to social cohesion and local economy development, through their ample territorial coverage and their significant market share held in terms of deposits and credit in several European financial markets (Fonteyne, 2007).

According to Fonteyne and Hardy (2011), the widespread and long lasting success of the cooperative banking model may be explained by their ability to solve problems of opportunistic behavior in the mainstream banking and attendant financial stability risks.

Investigating whether there is a link between the type of bank ownership and the lending policies adopted by a bank, Ferri, Kalmi and Kerola (2014, p. 195) found that cooperative banks implemented less pro cyclical loan supply policies during 1999 – 2011 than shareholder banks. Consequently, by adjusting the loan supply at a smaller pace than the changes in the monetary policy interest rate, cooperative banks proved having the potential for mitigating the volatility of the credit supply.

In a study by Köhler (2014) it has been assessed whether the different types of financial institutions, which are characterized by distinct business models, exert an impact on bank stability. The study comprised saving banks, investment banks, cooperative banks, commercial banks and bank holding companies in 15 EU countries between 2002 and 2011.

The findings revealed that cooperative banks might consolidate their financial soundness and profitability by increasing the share of non-interest income in total operating income and compressing the share of non-deposit funding in total liabilities.

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Fiordelisi and Mare (2013) pointed out that the probability of survival of cooperative banks in Italy is positively and statistically significant influenced by efficiency levels (in terms of costs and profit) and by the presence of strong capital adequacy. The hypothesis of increased financial stability depicted by cooperative banks relative to commercial banks is argued by Cihák and Hesse (2007) and Groeneveld (2012) by relying on the soft information the cooperatives hold on their members or customers, which decrease the likelihood of making lending mistakes. A rigorous empirical analysis performed by Fiordelisi and Mare (2014) outlined the direct and positive relationship established between cooperative banks' degree of competition and soundness. When cooperatives' market power is low, the competition among them is tight and implicitly stability is high.

In practice, it can be noticed three trends: some cooperative banks remained focused on core banking activities, in order to fulfill the interests of their members as main consumers of financial services. Others depict a dilution of the cooperative character, by tending to behave like commercial banks and putting on the second place the interests of their members. Interestingly, cooperative banks that hold the biggest market shares are not relying on genuinely cooperative principles, but declare they implement a customer-centric universal banking model or fulfill the role of financial services providers, covering a broad range of services supplied: retail banking, wholesale banking, corporate and investment banking, payment systems, asset management, leasing and real estate services. In this respect, Giegold (2012) argued that if cooperative banks were to adapt to the functioning of commercial banks in order to remain economically viable, this would imply very high social and systemic costs for Europe.

A third trend is represented by cooperative banks' intention to become promoters of ethics and sustainability in the banking sector, without denying their fundamental mission, based on the local community solidarity. Only a few studies have signaled, until present, the cooperatives' potential for development in the sphere of sustainable business, lacking however a rigorous substantiation.

Barbu and Vintila (2007) summarized the various forms of cooperative banks' organization, depending on the country of origin and noted that, in a predominantly competitive economic world in which the emphasis is on profitability, ethical banks and cooperative banks are the only entities whose activity is compatible with the notion of social responsibility. Sachs (2010) believes that cooperative banks' customer-oriented activity opens their way to the European family of social, ethical finances. De Clerck (2010) noticed that, over time, cooperative banks have expanded their range of activities, but lost social values specific to their mission. However, some of them have recently rediscovered their fundamental values and try the reorientation of certain activities. Wright (2013)

investigates cooperative banks' positioning in the UK financial sector and their potential to become ethical lenders, so as to alleviate the deficiencies of traditional lenders. On the other hand, Fonteyne and Hardy (2011) argue that a cooperative bank may not be the only way in the pursuit of the banking ethical behavior, but it may be an effective one.

## 2. Descriptive Analysis of Cooperative Banks' Business Model

In the following it has been depicted, through an analytical EU cross-country investigation, the peculiarities of the cooperative banks' business model. The paper aims to bring a notable contribution to the state of knowledge, by expanding the existing research directions with a new one, focused on cooperative banks' resilience indicators.

Cooperative banks' business model is further described by several financial indicators. We proxy the liquidity position by the loan/deposit ratio, operational efficiency is proxy by cost to income ratio, profitability is represented by ROE, capital adequacy is depicted by Tier 1 capital, the structure of assets and liabilities is represented by the share of loans in total assets and the share of deposits in total liabilities, the loans' market share is computed as loans provided by cooperative banks in total loans provided by banks in the country of residence. In addition, for measuring their individual contribution to the domestic financial depth it has been computed two proxies: the total credit provided by each cooperative bank as percentage of domestic GDP and total deposits as percentage of domestic GDP.

Table 1  
Cooperative Banks' Descriptive Statistics for 2007 Year-end

	Liquidity ratio	Tier 1	ROE	LOG (Number of customers)	Market share (for loans)	Cost/ income ratio	Deposits/GDP	Loans/GDP	Deposits/total liabilities	Loans/total assets
Mean	88.01	12.2	11.18	6.30	10.7	66.4	14.4	13.5	68.8	57.0
Maximum	153.49	39.7	26.20	7.64	31.1	89.0	56.9	62.3	92.9	82.9
Minimum	14.34	6.0	0.80	4.91	0.7	35.0	0.02	0.03	16.2	6.8
Std. dev.	32.56	7.8	5.64	0.83	9.8	12.2	16.4	18.0	20.5	18.2
Skewness	0.23	2.3	0.56	-0.34	0.8	-0.3	1.3	1.5	-1.0	-1.0
Kurtosis	3.23	8.2	3.68	2.04	2.2	3.6	3.7	4.2	3.0	3.8
Jarque-Bera	0.25	45.9	1.64	1.33	3.1	0.6	6.9	10.2	3.9	4.7
Probability	0.88	0.0	0.44	0.51	0.2	0.7	0.0	0.0	0.1	0.1
Observations	23	23	23	23	23	23	23	23	23	23

Source: Authors' computations, based on data from European Association of Co-operative Banks databases.

Tables 1 and 2 illustrate the descriptive statistics for all these variables, at two different moments in time (2007 and 2015) so as to obtain a summarized, aggregated picture of the business model's features for the entire sample of cooperatives operating in European countries.

In terms of the liquidity positions, cooperative banks record the highest heterogeneity, as indicated by the maximum (153.49%) and minimum levels (14.34%) and by the standard deviation (32.56). There are five cooperatives (Österreichische Raiffeisenbanken in Austria, Crédit Agricole in France, Assoc. Nazionale fra le Banche Popolari in Italy, Rabobank Nederland in Netherlands, Creditcoop in Romania) that exceed the 100% share of loans into total deposits, suggesting that their business model is closely related to the one of commercial banks.

Indeed, if we take a look at their consolidated financial statements, we notice that on the liability side apart from deposits, an important share is held by debt securities issued, subordinated debt and derivative financial instruments and other trade liabilities. On the asset side, loans provided are complemented by investments in financial assets to be held until maturity or for trading purposes, derivative financial instruments and deposits constituted to other banks. This finding is reinforced by the descriptive statistics depicting the structure of assets and liabilities.

The market share of cooperative banks loans in total loans provided by banks in the country of residence shows that some cooperatives concentrate a relatively important share on the domestic credit market. For instance, the highest ratio is recorded by OP-Pohjola Group in Finland (31.1%), while Rabobank Nederland, Crédit Agricole in France, Österreichische Raiffeisenbanken in Austria held almost a quarter of this market. A negligible share is held by Creditcoop in Romania, Association of Lithuanian credit unions and Association of Cooperative Banks of Greece, with less than 1%.

Related to tier 1 indicator, some cooperatives are very well capitalized (Co-operative Central Bank in Cyprus with 40%, Creditcoop in Romania with 28%), others hold a tier 1 ratio between 11 and 18% (cooperatives in Bulgaria, Denmark, Finland, Italy, Lithuania, Netherlands, Portugal and Slovenia), while those in Greece, Hungary and Spain record the lowest levels, of around 6%.

The financial return ROE oscillates between the highest values of 26.2% recorded by Co-operative Central Bank in Cyprus, 17 – 18% depicted by cooperatives in Austria, Poland and Slovenia, and the lowest levels, of around 4%, in Lithuania and Romania and 0.8% in UK.

In respect of the cooperative banks' individual contribution to the domestic financial depth, the two proxies (the total credit provided by each cooperative bank as percentage of domestic GDP and total deposits as percentage of domestic GDP) record large values of the standard deviation statistic, pointing that data is

spread out over a broad range. There are four cooperatives that depict the highest values of both indicators: Österreichische Raiffeisenbanken in Austria, Co-operative Central Bank in Cyprus, Rabobank Nederland and Crédit Agricole in France. A negligible contribution to the domestic financial depth has Creditcoop from Romania (0.02% and respectively 0.03%), while cooperatives in UK, Lithuania, Greece and Denmark record values below 1%.

The number of customers of cooperative banks (in logarithm) is the only variable whose time series is homogenous, as suggested by the low value of standard deviation (0.83). The lowest the standard deviation, the closest to its average is the data in the sample.

Table 2

**Cooperative Banks' Descriptive Statistics for 2015 Year-end**

	Liquidity ratio	Tier 1	ROE	LOG (Number of customers)	Market share (for loans)	Cost/income ratio	Deposits/GDP	Loans/GDP	Deposits/total liabilities	Loans/total assets
Mean	1.73	16.13	0.90	6.35	13.47	64.52	0.17	0.20	0.65	0.64
Maximum	17.88	23.90	10.30	7.70	34.90	98.00	0.77	0.77	0.90	1.04
Minimum	0.49	7.00	-30.80	3.42	0.80	41.90	0.00	0.00	0.05	0.42
Std. Dev.	3.62	4.93	11.08	1.01	10.60	12.67	0.20	0.23	0.20	0.16
Skewness	4.33	-0.24	-2.02	-1.06	0.45	0.63	1.64	1.12	-1.26	0.86
Kurtosis	19.88	2.37	5.99	4.40	1.91	3.83	4.99	3.03	4.65	3.36
Jarque-Bera	330.00	0.58	23.15	5.93	1.81	2.09	13.51	4.59	8.35	2.81
Probability	0.00	0.75	0.00	0.05	0.40	0.35	0.00	0.10	0.02	0.25
Observations	23	23	23	23	23	23	23	23	23	23

Source: Authors' computations, based on data from European Association of Co-operative Banks databases.

Descriptive statistics have been recomputed for 2015 year-end data (the most recent year for which EACB provides financial information regarding its members), to synthesize the developments recorded at the level of EU cooperative banking industry. The variables considered recorded either a decrease or a steady level of their standard deviation, outlining that the presence of extreme values has diminished since end-2007. The highest standard deviation levels, indicating persistent discrepancies between promotional banks, have been experienced by cost-income ratio, followed by ROE and the market share in terms of loans.

Overall, the analysis of descriptive statistics in both years reflects that cooperative banks' business models and risk appetite are relative heterogeneous, a finding that is in line with the current trends. Some of them are oriented towards a more commercial activity, while others have maintained their traditional lines of activity, being concerned more on relationship banking than on the catching-up process with their commercial bank peers.

### 3. Methodological Overview

The research method applied is an exploratory classification tool, called Cluster analysis, meant to reveal whether there is a pattern of resemblance or, on the contrary, high heterogeneity between the different intrinsic characteristics of cooperative banks.

Cluster analysis is a statistical procedure that uncovers latent information existing in the initially unclassified dataset, by grouping “continuous variables into qualitative categories based on the distribution of the values in those variables” (Gupta, 1999, p. 32) and creating an operational classification into more manageable, meaningful clusters, on the basis of a series of resemblance coefficients and linkage rules.

Its output consists in identifying an optimal group membership composed by fairly homogenous cooperative banks, by relying on proxy variables that describe financial resilience intrinsic characteristics in such a manner that the degree of resemblance between two cooperatives is maximal if they are included in the same cluster or minimal, if they are not.

It has to be outlined that this classification method is not based on exhaustive criteria. Consequently, the results of Cluster analysis cannot be extrapolated to other time periods or larger samples of financial institutions; they are valid only for the research assumptions tested and can be interpreted only in the light of the classification criteria chosen.

Classification methods provide hierarchies based on several typologies of variables, chosen based on a given criteria or research assumption. Economic literature relies more and more on broad datasets of indicators, instead of using single indicators, as they are able to provide a comprehensive picture on a given phenomenon. Consequently, there are two main research directions: performing a classification approach or building a composite indicator. In both cases, there isn't a generally, large-scale accepted method to perform the analysis. The choice of the methods manipulates, to some extent, the results while employing normalization techniques, weighting schemes and aggregation formulas is fundamental for ensuring data reliability but very subjective (Hudrlíková, 2013).

We performed a hierarchical cluster analysis due to the flexibility provided in identifying similar clusters, without subjectively imposing a pre-established number of clusters to be obtained. To compute the distance between individual cooperative banks (expressed in the form of a *resemblance coefficient*), we chose a traditional distance measure namely the Squared Euclidean distance. It has an easy, intuitive interpretation: the bigger its value, the broader the dissimilarities between the cooperative banks and hence greater heterogeneity across their business models. A number of studies (Wolfson, Zagros and James, 2004; Gutierrez

and Sorensen, 2006; Chung and Tijdens, 2009) recommend its use when the purpose of the research is to put stronger weight on entities whose intrinsic features are highly varying, as it has the ability to signal more accurately the outliers.

The second step consisted in defining an inter-group distance measure or linkage rule, so as to identify and merge together two or more resembling groups. Studies in the field advocate for the use of Ward method, due to its ANOVA-like features.

The final output of Cluster analysis, represented by the optimal amount of clusters determined through the successive computation of Squared Euclidean distance and Ward distance, is synthesized in the form of a dendrogram (known also as tree-like diagram or hierarchical tree), which will constitute the basis for examining resembling cooperative banks' business model profile.

#### **4. Analysis and Results**

The financial variables included in the Cluster analysis relate to the liquidity position, profitability, capital adequacy and cost efficiency. All these indicators act as financial resilience measures; by aggregating their levels and analyzing them in comparison, for the entire cooperative banks in the sample, it can be depicted signals related to the business behavior and risk attitude, as well as the dynamics recorded in each year considered.

The liquidity has been determined through the proxy indicator total credits as percentage of deposits collected, to depict if there is a balance between the funding provided to households and SMEs and the funding attracted. When explaining the differences between cooperatives in terms of profitability (ROE, ROA), one should take into account that some of them may intentionally under-price certain financial products available to their members, contributing to a lowering of the potential revenues which would have been obtained otherwise. To account for the cooperative banks' financial strength from a regulators' point of view, it has been employed the tier 1 capital ratio. Cost efficiency is traditionally proxy in the economic literature through the cost to income ratio.

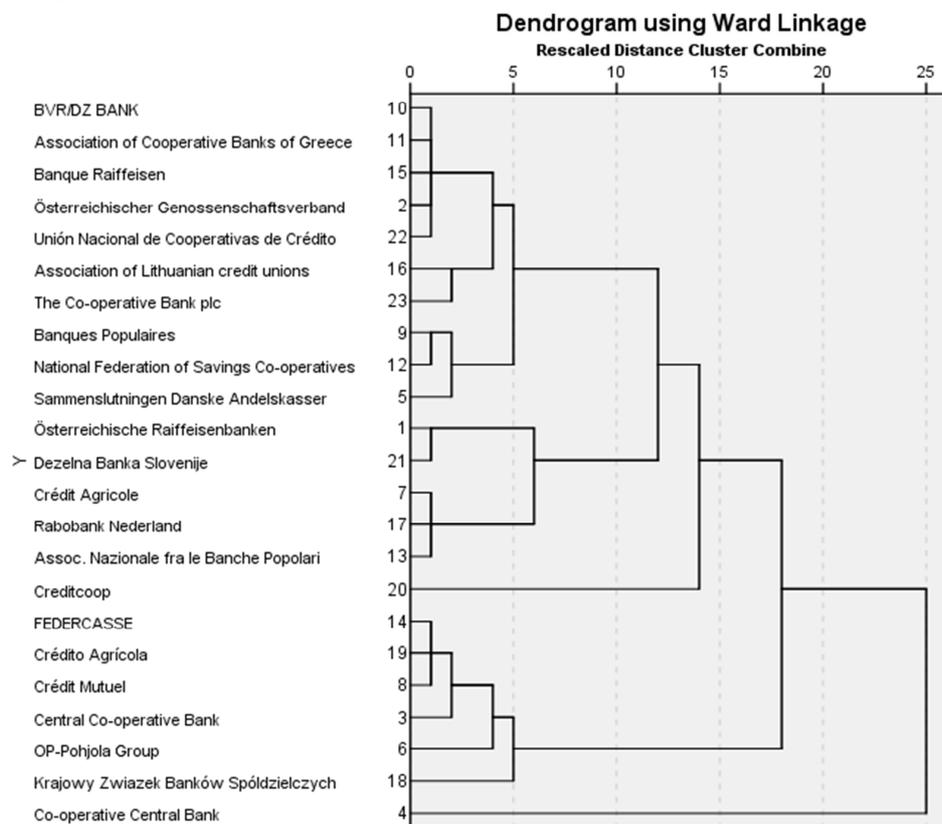
Both economic literature and practitioners state that, historically, cooperative banks shared particular features of resilience indicators, namely: high values of tier 1 capital, modest profitability, low exposure to liquidity risk and relatively high levels of cost-to-income ratio. Any divergence from this path will act as a signal of a shift in the genuine cooperative business model towards a more commercial financial behavior.

Data series for each cooperative member have been taken from the European Association of Cooperative Banks database and cooperative banks' annual reports.

All variables are expressed in percentage and they were previously standardized. It has been checked for multicollinearity between input variables in order to identify the presence of redundant information which could have distorted the final clustering, but correlation coefficients were low. Cluster analysis has been run for every year, the findings being depicted in graphical form, called dendrogram.

The graphical clustering identified for the year 2008, which marked the onset and spread of the financial crisis, is illustrated in Figure 1 below.

Figure 1  
Cooperative Banks' Clustering in 2008



Source: Authors, by using SPSS software.

According to the clustering algorithm, the more lately a bank is placed in the hierarchical tree, the more dissimilar it is with the previous ones. In order to benefit from a closer, in-depth look at the cooperative banks' intrinsic features, it had been analyzed only the clusters formed in the lowest distance interval (0 – 5), as depicted in Figure 1.

The clustering obtained, comprising eight homogenous groups, illustrates the increased heterogeneity between cooperative banks' business models in terms of size, geographical coverage and business mix of activities, being a proof of the broad fragmentation that persists at the level of financial resilience indicators, too.

To gain an insight into the features of each cluster, one has to rely on raw financial indicators' values at end-2008. Thus, the clustering obtained records the following characteristics:

- the cooperative banks included in the first cluster depict an indicator of liquidity close to the sample's average (100%) suggesting that loans granted to customers are entirely covered by the volume of deposits collected from customers or cooperative members. Tier 1 ratio ranges between 6 and 9%, being situated below the sample's average (14.47%). ROE values fluctuate closely to the average of 8.52% while cost-income ratio is closely below the average of 70%, suggesting that cost efficiency is properly managed.

- the second cluster gathers cooperative banks with the lowest liquidity indicator (around 55%) indicating low exposure to liquidity risk, as loans provided are exceeded by the amount of deposits collected. It is a prudent business behavior, compatible with traditional cooperative principles and prudential regulations. The fact that a cooperative bank hadn't used its sources of financing at their full potential, in order to maximize the amount of credit granted, may suggest a risk-averse behavior, concretized in a careful selection of its borrowers, regardless of whether they are its members or not. This reasoning is in line with Fonteyne and Hardy (2011), which explain the risk-averse, conservative lending strategy of cooperative banks by the constraints they face in raising outside equity and other financing. A consequence may be their slow pace reaction to credit growth opportunities and the reluctance in taking on large risk exposures. Capitalization is below average, while profitability and cost efficiency slightly exceed the sample's average. On a medium to long term, managing cost efficiency is vital to a sound going concern of the activity and sustainable profitability.

- the third cluster joins cooperative banks with liquidity close to the average, low capitalization and profitability and closely below the average cost-income ratio. Low tier 1 capital suggests that these banks are more prone to risk taking and exposure to liquidity risk has to be closely monitored.

- the cooperative banks in the fourth cluster recorded high values of the liquidity indicator, above the average. Consequently, the loans provided to customers have as source not only deposits but also additional funding attracted by other means. This feature is specific to cooperative banks of big size or with diversified range of operations, which have the ability to raise quickly capital. Tier 1 is below the average, another clue on the risky business behavior. Profitability is above average and cost efficiency ranges below but close to the average.

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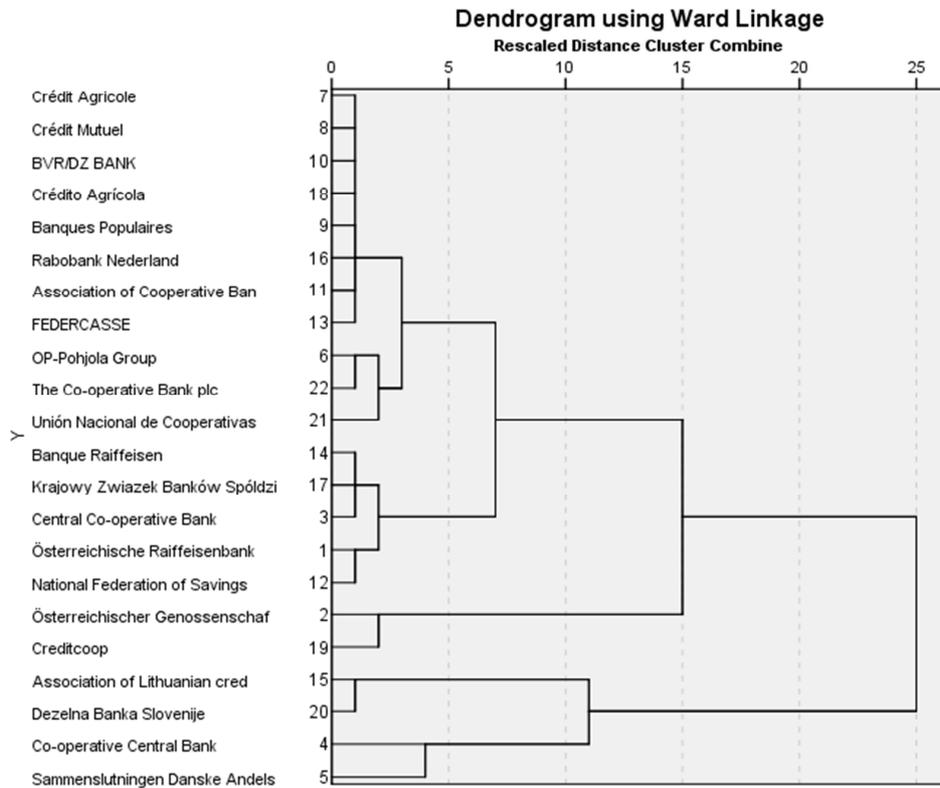
- the fifth cluster is represented by only one cooperative bank, namely Credit-coop (Romania). It records the highest liquidity indicator (1.54), measured as the share of loans in total deposits. Exposure to liquidity risk is high and liquidity management has to be a priority for cooperative bank's top management. However, it has a very good capitalization, tier 1 capital being situated at a comfortable level of 29.8%. McCarroll and Habberfield (2012) proposed an explanation for banks maintaining high levels of tier 1 capital which resides in their "natural conservatism created by distributed, independent governance and limited access to 3rd party capital". This joint participation in cooperative banks' capital diminishes risky incentives and proves efficient especially in terms of credit portfolio management, which records relatively stable impairment rates. Profitability is low, below the sample's average and the cost-to-income ratio records the highest value in the whole sample (90%). One of the sources of operational costs relies in the cooperative banks' distribution model, characterized by high, dispersed branch coverage and proximity with local communities. Local presence through broad branch networks explains at least part of the historically low cost efficiency level (McCarroll and Habberfield 2012).

- the cooperative banks in the sixth cluster recorded above the average values of the liquidity indicator, a situation requiring close monitoring of liquidity risk. Tier 1 capital ratio records a high level (between 12 – 13.8%), ROE is positioned at a mean value while cost-to-income ratio oscillates around the average of 70%. Again, we find features of the traditional, conservative financial behavior of cooperative banks, represented by the good capitalization and high operating costs. Instead, the liquidity position suggests these cooperative banks are willing to take on some risks, in order to increase their customer base and the market share in terms of loans provided.

- the seventh cluster is represented by only one cooperative bank which depicts close to average values for the liquidity indicator and cost efficiency, good capitalization (9.5%) but the highest level of ROE from the entire sample (19.6%).

- in the eight cluster it has been included another single cooperative bank, which records a liquidity indicator below average, good profitability (8.51%), a relatively high cost-to-income ratio (82%) and the highest capitalization in the entire sample, exceeding 40%. This cooperative bank, located in Cyprus, is the only that maintained into its business behavior the genuine cooperative principles, a fact suggested by the levels recorded by all the resilience indicators considered. It depicts low risk appetite in respect of all major financial risks that could put at danger its going concern and closeness to local communities. The cooperative bank in the seventh cluster is another example of business behavior that tries to remain aligned to cooperative values.

Figure 2  
Cooperative Banks' Clustering in 2015



Source: Authors, by using SPSS software.

In respect of the pattern of resemblance recorded by the financial resilience indicators at end-2015, a first observation relates to the decrease of clusters' number to only 5 and the disappearance of clusters that contain a single cooperative bank and far apart features. This finding points out the presence of a convergence process to more similar financial indicators.

Cooperatives included in cluster 1 depict the highest capitalization, good profitability, around average operational efficiency, but the liquidity risk has to be continuously monitored as loans are entirely covered by deposits or slightly exceed the deposits' level. Cluster 2 includes cooperatives with the lowest levels of the liquidity indicator (around 60 – 86%) denoting a beneficial, prudent strategy for managing financial resources, good capitalization and profitability and relatively high cost to income ratios. Cluster 3 main features are represented by low ROE levels, adequate capitalization, the highest levels of cost/income ratio (85 – 98%) and a liquidity ratio close to the benchmark of 100%. The fourth cluster gathers

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cooperatives with a liquidity ratio below to the benchmark of 100%, good capitalization, low cost-income ratios but high, negative ROE levels (around –30%). The last cluster comprises cooperatives depicting the lowest cost-income ratio (around 44%), suggesting a good management of operational expenditure, adequate capitalization but mixed evidence in terms of liquidity and ROE levels.

## **Conclusion**

One of the outcomes of this paper had been to assess the positioning of EU cooperative banks within the continuously changing financial services industry, by observing the shift recorded by their business behavior across two benchmark years.

We believe that cooperative banks' specificity, in terms of governance, organization and operation has to be preserved as this intrinsic feature will allow them to become a reliable, trustworthy financial entity in the banking system, which can develop and consolidate the ethical, sustainable side of mainstream activity. Emphasizing the ethical orientation of cooperative banks would improve public perception on work undertaken, especially in the sphere of credit and its social and economic impact on local communities. Cooperative banks could become forerunners of the emergence of ethical financial institutions in countries where there are still no such social solidarity institutions.

Secondly, the exploratory research conducted, consisting in the clustering of cooperative banks over time, provided a snapshot on the potential pattern of change recorded by their business models. The results obtained synthesize in a unifying picture the cooperative banks' business behavior in the time period just before and after the financial crisis onset. They revealed that some cooperative banks preserved their natural conservative attitude to risk taking, by still depicting large liquidity positions and relatively high levels of tier 1 capital, while others have started to adopt a more risky business behavior resembling more with the one of commercial banks. Our findings might boost cooperation and joint actions driven by cooperative banks' central entity and policymakers in the countries of residence of cooperative banks which depict similar features. We believe that our exploratory analysis will help cross-country cooperative banks' central entities in setting common directions of action and priorities. The analysis revealed that for the two key-years considered, cooperative banks in some countries always gathered in the same group, which is a clear sign of similitude in terms of financial behavior and management. It is the case of Italy and France, Bulgaria and Poland, Luxembourg and Austria, while Romania and Slovenia exhibited features far apart from all other banks in the sample.

Not least, the paper aims at drawing regulators' and supervisory bodies' attention, at both European and national level, for designing appropriate prudential requirements, adapted to the diversity of the European banking industry, as a necessary step toward the going concern and further developing of this type of financial institutions. As Köhler (2014) argued, supervisors' focus has to shift from traditional indicators of risk, capitalization, liquidity and return towards an in-depth analysis of business models, in order to better understand the sustainability of banking business profits and stability. This is also true for cooperative banks.

The challenge is that cooperative banks may lose sight of their social, community-oriented mission, in trying to fulfill the strengthened regulations related to capital adequacy, liquidity and risk management. It is a topical concern, actively outlined by the European Association of Co-operative Banks (EACB) the more so in the context of the European elections and the new mandates of the EU Institutions (2014 – 2019) which have started last year. In this respect, EACB has drawn up a Roadmap of the cooperative banks' concerns and expectations from EU regulatory bodies, requiring for giving due consideration to the specificities of European cooperative banks, in an attempt that will balance regulation and stimulation of local growth.

In this regard, Šoškić (2015) points out that although financial institutions increasingly operate cross-border, the regulatory and supervisory frameworks are not global. Consequently, he calls for harmonization, at least in major jurisdictions, of regulation and of the degree of convergence in business operating standards.

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