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Probability of default and efficiency in cooperative banking



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ABSTRACT

Cooperative banks are small credit institutions, and they are more likely than commercial banks to default in periods of financial stability. Focusing on Italy (one of the largest cooperative banking markets), we analyze the contribution of efficiency to the estimation of the probability of default of cooperative banks. We estimate several measures of bank efficiency, and we run a discrete-time survival model to determine whether different managerial abilities play different roles in predicting bank failures. We show that higher efficiency levels (both in cost minimization and revenue and profit maximization) have a positive and statistically significant link with the probability of survival of cooperative banks. We also find that capital adequacy reduces the probability of default, supporting the view that higher capital buffers provide additional loss absorbency and reduce moral hazard problems.

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1. Introduction

Cooperative banks play a key role in the European banking industry. In 2010, cooperative banks were a driving force for socially committed business at the local level through their 3900 member banks, 65,000 branches, more than 770,000 employees, 50 million members, and 180 million clients

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(European Association of Co-operative Banks, 2011). Overall, cooperative banks account for approximately one fifth of the European banking system (market shares of deposits and credits are 21% and 19%, respectively). Various studies (Groeneveld and de Vries, 2009; Cihák and Hesse, 2007; Groeneveld, 2012) suggest that cooperative banks are, on average, more stable than commercial banks because they have a great deal of soft information (which is hard to collect) on the creditworthiness of members/customers, and therefore they are much less likely to make lending mistakes. However, in times of financial stability, regulators are more prone to let a distressed bank go into default if it is a small cooperative bank. This outcome is consistent with the Too-Big-To-Fail policy (i.e., regulators avoid letting the largest and most powerful banks go out of business in order to prevent panic in financial markets) and the Too-Important-To-Fail argument (i.e., regulators avoid letting the most well-known and systematically important banks go out of business in order to prevent the risk that many banks fail together). For instance, the default rate of Italian cooperative banks was almost four times higher than that of commercial banks in the period before the financial crisis (1997–2006). Specifically, there were 44 default cases among cooperative banks (default rate 1.04%) and 8 among commercial banks (default rate 0.28%).

Our paper analyses the determinants of the probability of survival of cooperative banks. What drives the default of banks? Is efficiency a determinant in the default of banks? Does managerial skill play a role in the financial distress of small credit institutions? The purpose of this paper is to empirically address these questions in regard to cooperative banks. Because there is evidence that higher efficiency reduces bank risk-taking (e.g., Berger and DeYoung, 1997; Fiordelisi et al., 2011; Cihák and Schaeck, forthcoming), we posit that a lower exposure to risky assets increases the survival time of a bank. Consequently, we argue that higher efficiency favours bank soundness. Surprisingly, there is limited available empirical evidence supporting this expectation. As such, we posit that bank survival is related to the managerial ability to save costs (cost efficiency), maximize revenues (revenue efficiency), and maximize profits (operating and interest efficiency).

We have three main results. First, we show that more efficient banks (efficient either in cost saving or in revenue maximization) have a higher probability of survival. Second, we find that when a bank's managerial ability to minimize costs and maximize revenues are jointly considered (e.g., efficiency in generating interest income), more skilful management increases the bank's survival time. Third, we find evidence to support the view that traditional financial ratios are consistent predictors of bank distress. In this regard, we show that capital is a key determinant of bank soundness.

We analyze a large sample with more than 4200 observations – all the Italian cooperative banks between 1997 and 2009. We estimate the probability of default by running a discrete-time survival model that relates a change in the hazard rate to an absolute change in a given covariate, all else being equal. We focus on Italy because this case is particularly interesting for various reasons. First, cooperative banks play a crucial role in the Italian banking market – Italian cooperative banks² have approximately 36,000 employees, 6.7 million clients, 1.1 million members,³ and 7.3% of the market share of deposits.⁴ Second, the Italian cooperative banking sector is the fourth largest in Europe after Germany, France, and Austria (in 2010, 6.7%⁵ of the total assets under management in the EU 27 cooperative banking sector). Finally, Italy presents a useful laboratory setting to analyze the impact of the economic, social, and demographic conditions of local areas on bank efficiency. The Italian regions display very different conditions that must be considered to accurately estimate the probability of failure.

The remainder of the paper is organized as follows: Section 2 briefly reviews the relevant literature. In Section 3, we formulate our research hypotheses and describe the data employed in the empirical analysis. Section 4 summarizes the methodology. Section 5 reports the results of the analysis. Section 6 addresses the predictive accuracy of the model, and Section 7 concludes and offers final remarks.

² Note that Italian Banche Popolari are not covered in the present analysis because, in terms of governance, they more closely resemble joint-stock companies (Fonteyne, 2007).

³ Source of data: Italian Federation of Cooperative Banks (Federcasse), estimated data at 31/12/2011.

⁴ Source of data: European Association of Co-operative Banks (2011).

⁵ Source of data: own calculation using data from the European Association of Cooperative Banks (2011). Cooperative networks, such as the Dutch Rabobank and the French Crédit Agricole, are not considered in the calculation.

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