

Essays on Governance and Failure of Co-operative Banks: The Portuguese Agricultural Credit Co-operatives

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To my daughter Aléxia and my mother Amélia

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Table of Contents

List of Figures	iv
List of Tables.....	v
Abstract	vi
Resumo.....	vii
Chapter 1 – Introduction	1
1.1 - Background and problem statement	1
1.2 - Objectives and methodology	3
1.3 - Outline of the thesis.....	4
1.4 - References	5
Chapter 2 - The Economic Nature of Co-operative Banks	7
2.1 - Introduction	7
2.2 - The cooperative model of enterprise	8
2.3 - The rationale of co-operative banks	9
2.3.1 - Agency theory.....	10
2.3.2 - Transaction cost economics (TCE).....	13
2.3.3 - Property rights theory	15
2.4 - Co-operative banks specificity	18
2.4.1 - Economic objective.....	18
2.4.2 - Members	19
2.4.3 - Equity.....	21
2.4.4 - Decision making process	22

2.4.5 - Business model	23
2.4.6 - Operational dimension	24
2.5 - Corporate Governance	25
2.5.1 - The corporate governance model of co-operative banks	26
2.5.2 - Networks	30
2.5 - Final remarks	35
2.6 - References	37
Chapter 3 - The Portuguese Co-operative Credit System	46
3.1 - Introduction	46
3.2 - The genesis	47
3.3 - Credito Agrícola in Portuguese banking.....	51
3.3.1 - Regional development	54
3.3.2 - Internationalization.....	56
3.4 - Structure and governance	56
3.5 - Conclusions	65
3.6 - References	66
Chapter 4 - The Governance Control Mechanisms of CCAM	67
4.1 - Introduction	67
4.2 - The CCAM governance mechanisms	70
4.2.1 - Regulatory framework	71
4.2.2 - Ownership structure	71
4.2.3 - Internal monitoring	72
4.2.4 - External monitoring	75
4.2.5 - “Market” for corporate control	77
4.2.6 - Executive compensation	77
4.3 - Model, data and results.....	79

4.3.1 - Model	79
4.3.2 - Data	83
4.3.3 - Results.....	85
4.4 - Conclusions	89
4.5 - References	91
Chapter 5 - The Determinants of CCAM Failure.....	94
5.1 - Introduction	94
5.2 - Agriculture, co-operatives and agricultural credit in Portugal	96
5.3 - The corporate failure event: modelling and prediction.....	99
5.3.1 - Multiple Discriminant Analysis (MDA).....	103
5.3.2 - Logistic Regression Analysis (LRA)	104
5.3.3 - Earlier studies of co-operative and non co-operative bank failures	106
5.4 - Data and sample.....	109
5.4.1 - The CCAM failure event	109
5.4.2 - Sample	112
5.5 - Model and variables.....	114
5.5.1 - Model	114
5.5.2 - Variables	114
5.6 - Results	119
5.6.1 - Logit model.....	120
5.6.2 - Discriminant Analysis model.....	123
5.7 - Conclusions	125
5.8 - References	126
Chapter 6 - Conclusions	134

List of Figures

Figure 2.1 - Transaction cost economics model.....	14
Figure 2.2 - Cognitive map of contract	15
Figure 2.3 - Circular authority in integrated co-operative banks	33
Figure 3.1 - Year of creation of CCAM.....	49
Figure 3.2 - Crédito Agrícola group structure.....	51
Figure 3.3 - Crédito Agrícola local market share.....	55
Figure 3.4 - Customer profile of the biggest Portuguese banks	55
Figure 3.5 - Governance structure of SICAM.....	63
Figure 4.1 - CCAM governance mechanisms	70
Figure 4.2 - Co-operative doctrine and ownership structure of CCAM.....	72
Figure 4.3 - CCAM internal governance control	73

List of Tables

Table 2.1 - Agency theory overview	11
Table 2.2 - Comparison of organization economics theories	17
Table 3.1 - Creation and evolution of CCAM in the 20th century	49
Table 3.2 - Evolution of SICAM 1995-2010	50
Table 3.3 - The biggest Portuguese retail banks, by December 2010	52
Table 3.4 - Crédito Agrícola ranking, by December 2010	53
Table 3.5 - Portuguese credit co-operatives portrayal	58
Table 4.1 - Values assumed by the dependent variable in the MNL models	80
Table 4.2 - Explanatory variables and expected coefficients signals	82
Table 4.3 - Group summary statistics	84
Table 5.1 - Causes of corporate failure	101
Table 5.2 - LRA and MDA key characteristics and assumptions	106
Table 5.3 - Summary group statistics	113
Table 5.4 - Variable definitions and transformations	116
Table 5.5 - Expects signs of variable coefficients	119
Table 5.6 - LRA coefficients and significance level	120
Table 5.7 - LRA classification * of CCAM	122
Table 5.8 - MDA classification coefficients	123
Table 5.9 - CCAM classification * by the MDA model	124

Abstract

The 2008 global crisis, and the European sovereign debt crisis that follow it, originated, among other consequences, a general mistrust in financial institutions. This situation encourages the debate on the role of co-operative banks within a fairer society and their social responsibility as a key in the economic recovery, namely in the south European countries.

The co-operative banking sector remains poorly understood and its specific governance challenges remain largely unexplored. The research included in this thesis aims to improve knowledge of the conduct and performance of the co-operative banks, and its findings should support the decision making process by members and management, mainly in terms of governance model. Thus, the main objective of this research is to analyse, both theoretically and empirically, the governance and financial robustness of co-operative banks, taking as a reference the Portuguese agricultural credit co-operatives (CCAM) and their integrated system (SICAM). Specifically, the thesis is structured in order to answer the following questions: (1) What are the economic bases of co-operative banks?; (2) How does a particular regulatory framework affect co-operative banking activity?; (3) What is the impact of the different governance mechanisms of co-operative banks on control management?; and (4) What are the explanatory factors of Portuguese co-operative bank failures?

Besides the Introduction (Chapter 1) and the Conclusions (Chapter 6), the answer to these four questions is formulated in the chapters 2 to 5. Chapter 2 includes a survey of the economic nature of the co-operatives as a specific economic organisation, highlighting the strengths and the weaknesses of the governance model of co-operative banking. Chapter 3 presents a literature review of the regulatory framework and some historic data on the Portuguese co-operative credit system. Chapter 4 is concerned with the governance of co-operative banks, paying special attention to the control mechanisms operating within SICAM and assessing its effect on CCAM performance by two multinomial logit models. Chapter 5 is concerned with the survival of CCAM associated within SICAM, analysing the determinants of CCAM failures, by the estimation of a logistic regression analysis and a multiple discriminant analysis. In empirical terms, the period under analysis is mainly 1995–2009.

As recognized in the literature on the topic, the co-operative governance model presents deficiencies in controlling agency conflicts, mainly resulting from its co-operative nature, which can jeopardize its survival. Operating in network, the CCAM are able to improve the effectiveness of CCAM governance mechanisms and, consequently, their performance. The results highlight the importance of the supervision role of Central CCAM in the performance of its associates. Moreover, the analysis of CCAM failure emphasizes the importance of diversifying CCAM income sources and of improving cost efficiency. This result support CCAM lobbying for the removal of product restrictions, in order to achieve better conditions to compete with IOF banks, at a time when these banks are reorienting their activities towards traditional banking activity, i.e., domestic retail banking, the usual business core of CCAM.

Resumo

A crise global de 2008 e a crise europeia da dívida soberana que se lhe seguiu originaram, entre outras consequências, uma desconfiança generalizada nas instituições financeiras. Esta situação incita ao debate relativamente ao papel dos bancos cooperativos numa sociedade que se quer mais justa e a sua responsabilidade social, enquanto agentes chave para recuperação económica, especialmente, nos países do sul da Europa.

O sector bancário cooperativo permanece pouco compreendido e os desafios que se colocam à sua governação permanecem largamente inexplorados. A pesquisa incluída nesta tese visa aprofundar os conhecimentos sobre a conduta e desempenho dos bancos cooperativos e as suas descobertas apoiar o processo de tomada de decisão de membros e gestores, principalmente, em termos de governação. Assim, o principal objectivo deste estudo é analisar, em termos teóricos e empíricos, a governação e robustez financeira dos bancos cooperativos, tendo como referência as Caixas de Crédito Agrícola Mútuo (CCAM) e o seu sistema integrado (SICAM). Especificamente, a tese está estruturada de modo a responder às seguintes questões: (1) Quais as bases económicas dos bancos cooperativos?; (2) De que forma o seu enquadramento legal afecta a actividade da banca cooperativa?; (3) Qual o impacto dos diferentes mecanismos de governação dos bancos cooperativos no controlo da gestão?; e, por fim, (4) Quais os factores explicativos da falência dos bancos cooperativos portugueses?

Além da Introdução (Capítulo 1) e das Conclusões (Capítulo 6), a resposta a estas quatro questões é formulada nos capítulos 2 a 5. O Capítulo 2 inclui uma resenha sobre a natureza económica das cooperativas enquanto organização económica específica, salientando as forças e fraquezas do modelo de governação da banca cooperativa. O Capítulo 3 apresenta uma revisão da regulamentação e alguns dados históricos sobre o sector da banca cooperativa em Portugal. O Capítulo 4 debruça-se sobre a governação dos bancos cooperativos, tomando especial atenção aos mecanismos de controlo que operam dentro do SICAM e avaliando os seus efeitos sobre a performance das CCAM através de dois modelos multinominal *logit*. O Capítulo 5 examina a sobrevivência das CCAM associadas do SICAM, analisando os determinantes do desaparecimento das CCAM, através de um modelo de regressão logística e outro de análise discriminante múltipla. Em termos empíricos, o período sob análise é, predominantemente, 1995-2009.

Como reconhecido na literatura sobre o tópico, o modelo de governação cooperativa apresenta deficiências no controlo dos conflitos de agência, particularmente devido à sua natureza cooperativa, podendo mesmo por em causa a sua sobrevivência. Funcionando em rede, as CCAM foram capazes de melhorar a eficácia dos seus mecanismos de governação e, conseqüentemente, a sua performance. Os resultados salientam a importância do papel de supervisão da Caixa Central na performance das suas associadas. A análise da falência das CCAM enfatiza a importância da diversificação das suas fontes de rendimento e da melhoria da eficiência custo, justificando assim o *lobbying* desenvolvido pelas CCAM no sentido da remoção das restrições à sua oferta de produtos, para melhor competir com os restantes bancos numa altura em que estes estão a reorientar as suas actividades para a banca tradicional, ou seja, para a banca a retalho doméstica, o negócio central das CCAM.

Chapter 1 - Introduction

1.1 - Background and problem statement

Co-operation, as an economic and business model, was born in England in response to the abuses of market power and asymmetric information generated by the Industrial Revolution, and subsequently spread to other countries. It is a social movement that enjoyed the attention of scholars such as Mill, Cairns, Pareto and Pigou (Hanich, 2005). About 150 years later, the economic analysis of co-operatives has vanished from most economic textbooks, enjoying relatively little publicity (Shawn, 2007; Cuevas and Fischer, 2009). As a governance model, the co-operative has also been neglected by policymakers in most European countries (Schoppe, 1996; Groeneveld and Sjaauw-Koen-Fa, 2009).

However, in the financial sector of some European countries, surprisingly, they are among the largest and fastest growing groups. In countries like Germany, Finland or Netherlands co-operative banks¹ hold more than 40% of individual deposits, in France almost 60%, and in the European Union they have a market share of 20% for deposits, 176 million clients, approximately 1/3 of Europe's population and 50 million members (Oliver Wyman, 2008; EACB, 2010).

Regarded by many people as an obsolete business model, the recent financial and ensuing economic crisis has proved that they are (still) a valid alternative way of doing business. Indeed, in the aftermath of the 2008 financial crisis the dominant banking model based on investor-owned firms (IOFs) is being questioned while other models, regarded in the past as a lower level, like co-operatives, have weathered the crisis better. Worldwide, co-operative banks remain financially sound, because their inherent characteristics allow them to persevere and, in some cases, to outperform their peers (Birchall and Ketilson, 2009; Ayadi *et al.*, 2010; EACB, 2010). Kodres and Narain (2010: 14) highlight the merits of co-operative banks, claiming that "... *these banks (co-*

¹ In this thesis term "co-operative bank" includes also saving and credit co-operatives and credit unions.

operative), less reliant on shareholders' expectations, were generally able to avoid many of the mistakes made by larger private sector institutions. Though not always considered the most efficient, vibrant, or innovative institutions, in many countries they dependably and safely supply the small and medium-sized enterprises and many households with their credit needs".

The current economic crisis and the mistrust in financial institutions encourage the debate on the role of co-operative banks within a fairer society and their responsibility as key economic and social players in the challenges of economic development. Their historical background and important role in boosting local development give them a key role in economic recovery. Moreover, given the present lack of confidence in the shareholder model as an overriding paradigm, co-operation can be the foundation of a more sustainable, fair and transparent way of doing business.

The co-operative banking sector remains poorly understood and its specific governance challenges remain largely unexplored (Shawn, 2007; Cuevas and Fischer, 2009; Ayadi *et al.*, 2010). Also in Portugal, studies regarding governance and survival of non-profit institutions and of co-operative banks in particular are almost non-existent.

The research included in this thesis aims to improve the knowledge of the conduct and performance of the co-operative banks, and its findings should support the decision making process by members and management, mainly in terms of governance model. Good governance is accepted as a vital tool to achieve sustainable growth of organisations. Effective governance mechanisms within a company could make bankruptcy less likely (Shawn, 2007; Schwizer and Stefanelli, 2009) and failure prediction models help to evaluate financial health and to detect financial distress before it is too late.

The research attempts to answer the following questions:

- What are the economic bases of co-operative banks?
- How does a particular regulatory framework affect co-operative banking activity?
- What is the impact of the different governance mechanisms of co-operative banks on control management?
- What are the explanatory factors of Portuguese co-operative bank failures?

1.2 - Objectives and methodology

The main objective of the research is to analyse, both theoretically and empirically, the governance and financial robustness of co-operative banks. The theoretical part focuses on the economic nature of co-operative banks, while the empirical part is concerned with the governance structure of co-operative banks, as well as with insolvency (or failure), taking as the object of study the Portuguese agricultural credit co-operatives (CCAM) and their integrated system (SICAM).

The achievement of the main goal resolves itself into the following four specific objectives or tasks, each one presented in a separate chapter:

- The survey of the literature (chapter 2) provides the theoretical bases of the economic nature of co-operative banks, their strengths and weaknesses, and recent trends in governance models.
- Focusing on the Portuguese agricultural co-operative credit system, the regulatory framework is analysed in chapter 3.
- Using the agency theory approach, the governance structure of the Portuguese agricultural credit cooperatives (CCAM) is analysed in chapter 4.
- Focusing on CCAM, the issue of co-operative banks failure is analysed in chapter 5.

Methodologically, the option was to present the four topics in separate chapters, while bearing in mind the strong connections between them. By this reason the structure of each chapter is similar to a scientific paper², including, where applicable: introduction, literature review, empirical analysis, conclusions and references. In empirical terms, the period under analysis is mainly 1995–2009. The data are collected from different sources. The non-financial data are obtained from “Diário da República”, Ministry of Justice website, CCAM Annual Reports, CCAM by-laws and other SICAM official statements released during the study period. Additional information on CCAM governance is gathered by questionnaire to the CCAM managers. Annual accounting reports provide CCAM financial data. Finally, data for the banking system is collected from Bank of Portugal and Portuguese Banking Association annual reports and other publications.

² The chapters were written in order to can be read independently, so some overlap of issues is present.

1.3 - Outline of the thesis

In addition to this Introduction (chapter 1), the thesis includes four essays on the governance and failure of co-operative banks (chapters 2 to 5) and conclusions (chapter 6).

Chapter 2 includes a survey of the economic nature of the co-operatives as a specific economic organisation, highlighting the strengths and the weaknesses of the co-operative banking governance model. A co-operative bank is an organisation established to resolve the credit rationing problems emerging from market failures (namely, market power and asymmetric information). In this chapter the following topics are discussed: (a) the rationale behind co-operative banks, using concepts mainly provided by agency, transaction costs economics and property rights theories; (b) the particularities of co-operative banks derived from their co-operative nature; (c) the governance model of co-operative banks, paying special attention to the network issues. This chapter provides the theoretical support for the remaining chapters, namely, for chapters 3 and 4.

Chapter 3 presents a literature review of the regulatory framework and some historic data on the Portuguese co-operative credit system. The chapter describes: (a) the establishment and evolution of the credit cooperative system in Portugal, emphasising its importance to the domestic retail banking system and development of rural regions; (b) the structure and organization of the system, in particular its legal framework and governance model.

Chapter 4 is concerned with the governance of co-operative banks, paying special attention to the control mechanisms operating within SICAM and its effect on CCAM performance. The results of two multinomial logit models on the effect of different governance control mechanisms on the performance of CCAM show that internal control mechanisms are less efficient than external ones in disciplining management.

Chapter 5 is concerned with the survival of CCAM associated within SICAM, analysing the determinants of CCAM failures. The estimation of a logistic regression analysis (LRA) and a multiple discriminant analysis (MDA) allows the identification of “problematic” CCAM and the evaluation of their risk of insolvency as a function of

financial indicators. These results can be used by the stakeholders as a tool to predict bankruptcies with sufficient lead time in order to take appropriate actions.

Chapter 6 summarizes the main conclusions of the thesis.

Additionally, the author declares that Chapter 2 is solely her own work. Parts of Chapter 3, 4 and 5 have been published as jointly authored articles with João Rebelo. Of the work presented here in Chapters 3, 4 and 5, at least eighty per cent of it is my own work. The article based on material presented in Chapter 3 has been presented in the 2010 ICA European Research Conference at the University of Lyon, France, and is also part of a book about the Credit Co-operative System in the European Union countries, to be edited by Simeon Karafolas and with publication expected in 2012. The article based on material presented in Chapter 4 was first presented in 2005 ICA European Research Conference at the University of Cork, Ireland, and a more recent version to the 2011 ICA Global Research Conference at the University of Helsinki, Finland. The article based on material presented in Chapter 5 has been presented in the 3rd International Research Conference on the Social Economy of CIRIEC at the University of Valladolid, Spain, and is also accepted for publication in the *Agricultural Finance Review*, with publication expected in 2012.

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Chapter 2 - The Economic Nature of Co-operative Banks

2.1 - Introduction

The co-operative institutions have often dominated agriculture, housing finance, banking and life assurance markets. It is evident that the interest of analysts, policy makers and researchers in the co-operative banking model has increased considerably over the last two years (EACB, 2010). The European Association of Co-operative Banks attributes this increased attention to the fact that co-operative banks escaped relatively unscathed from the 2008 financial and economic crisis thanks to their unique characteristics, not least in terms of their corporate governance. This is an encouraging development, given that the characteristics and achievements of co-operative banks have been largely neglected in studies, publications, the press and various reports.

This chapter aims to contribute to a better understanding of the co-operative banking model, specially, its economic bases. With this goal in mind, this study assesses the strengths and weakness of the co-operative model, particularly, of co-operative banks. Thus, section 2 presents the definition and main characteristics of the co-operative model; section 3 discusses the rationale beyond co-operative banks, particularly, the arguments presented by agency, transaction costs economics and property rights theories; section 4 discusses the co-operative banks specificity regarding economic objective, membership, equity, decision making process, business model and operational dimension; and section 5 analyses co-operative banks governance model, its strengths and weakness, giving especial attention to the network issues.

2.2 - The cooperative model of enterprise

The nature of a co-operative is often described by its internal statutes or by-laws. National laws on co-operatives also exist, providing the general principles of operation and the protection of members and third parties from the activities of these institutions (Ayadi *et al.*, 2010).

The International Co-operative Alliance (ICA) defines co-operative as “*An autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise*” (ICA, 2007).

Traditionally, co-operatives are guided by seven principles: (a) voluntary and open membership; (b) democratic member control; (c) member economic participation; (d) autonomy and independence; (e) education, training and information; (f) co-operation among co-operatives; and (g) concern for community. The first four are core principles without which a co-operative would lose its identity; they guarantee the conditions under which members own, control and benefit (use) from the business. The education principle is a commitment to make membership effective and so is a precondition for democratic control, while co-operation among co-operatives is really a business strategy without which co-operatives remain economically vulnerable. The last principle, concern for community, recognises that, unlike investors, co-operative members tend also to be members of a particular community (Birchall and Ketilson, 2009).

The traditional co-operative is an user-owned and user-controlled business that distributes benefits on the basis of use³ (Barton, 1989). Its goal is to provide benefits to members, which has impact on business decisions. As a result, is an organization by and for the members’. Co-operative members take part in operations in three ways: (a) participation in ownership; (b) participation in control; and (c) participation in surpluses based on usage.

Membership is co-operatives’ distinctive attribute and the source of its general advantages. When the purposes of the business are aligned with those of members who are both investors and consumers of the cooperative, the results are loyalty,

³ Fonteyne (2007) says that co-operatives incorporate their profits into their products.

commitment, shared knowledge, and member participation, underpinned by strong economic incentives. These are the kinds of values that any business organisation would want but that investor-owned business can only achieve by mimicking the idea of membership. The general disadvantages are the opposite of the advantages; when the purposes of the business are not aligned with those of the members, apathy or cynicism result, members lose interest and cease to participate. This leads to management pursuing their own interests, and to complacency and a reinforcement of oligarchic tendencies among the board (Birchall and Ketilson, 2009).

The main features of co-operatives are: (a) free association (of qualifying persons) and withdrawal, resulting in a variable co-operative capital base; (b) the non-transferability of membership, implying the absence of a market for member shares; (c) a democratic structure usually giving each member one vote regardless of his investment; (d) profit distribution that is often restricted and is not necessarily proportional to members' shareholdings; (e) ownership rights that are in effect limited to the nominal co-operative capital represented by member shares (and therefore do not extend to the reserves and the total economic value of the co-operative); and (f) the pursuit of specific member interests rather than profit maximization (Fonteyne, 2007).

Several categories of co-operatives exist, depending on their purpose and the nature of their members (producer co-operatives, consumer co-operatives, worker co-operatives, and so on). Financial sector co-operatives are usually inserted in the category of consumer co-operatives (Fonteyne, 2007).

2.3 - The rationale of co-operative banks

Literature considers the co-operative banking model as particularly suited to the provision of financial services, partly due to co-operative banks ability to address more efficiently any inherent agency problems (Ayadi *et al.*, 2010). Kay (1991) suggests that the special value of mutuality rests on its capacity to establish and sustain relationship contract structures. Thus, they have a comparative advantage in establishing trust (Kay, 2006) which is particularly important in the presence of asymmetric information between the supplier of financial services and the customer, and consequently in longer-term contracts.

Private banks (investor-owned firms (IOFs) and profit maximizing) are one of the most ancient forms of capitalistic organization, existing well before the Industrial Revolution, when other organizational forms, like co-operative banks, emerged mainly due to specific market failures (namely, market power and asymmetric information). Co-operative banks appear as the “natural solution” to the problem of adverse selection (credit rationing) providing access to financial services for agents (as micro and small enterprises (SMEs), poor individuals, small farmers) otherwise rationed out by an IOF banking system (Cuevas and Fisher, 2006).

Classical and neoclassical schools of thought explain the existence of co-operatives as the consequence of immature market developments or market developments in a non-productive direction. Co-operatives are not described as a business enterprise *per se*, being the emergence of co-operatives understood in the context of social reform (Hanish, 2005).

On the other hand, the New Institutional Economics currents argue that ownership structures and organizational forms are an endogenous result of rational choices made by agents facing market failures (Cuevas and Fischer, 2006). Thus, co-operative banks distinctive features justify their specific role. Cuevas and Fischer (2006) refer three different and complementary approaches, based on the theories of agency, transaction costs economics and property rights, in order to understand how institutional features may deal more effectively with market failures. A brief review of these theories can help to a better understanding of co-operative banks existence as economic organizations different of IOFs.

2.3.1 - Agency theory

Agency theory suggests that the firm can be viewed as a nexus of contracts (loosely defined) between resource holders. This approach attempts to describe the relationship between the principal (who delegates work) and the agent (who performs that work) using a metaphor of a contract (Jensen and Meckling, 1976). The authors argue that under conditions of incomplete information and uncertainty, which characterize most business settings, two agency problems arise: adverse selection and moral hazard. Adverse selection is the condition under which the principal cannot ascertain if the

agent accurately represents his ability to do the work for which he is being paid. Moral hazard is the condition under which the principal cannot be sure if the agent has put forth maximal effort. Moreover, the problem of risk sharing is also present, when the principal and the agent have different attitudes toward risk (Eisenhardt, 1989). An overview of agency theory is given in Table 2.1.

Table 2.1 - Agency theory overview

Key idea	Principal-agent relationships should reflect efficient organization of information and risk-bearing costs
Unit of analysis	Contract between principal and agent
Human assumptions	Self interest
	Bounded rationality
	Risk aversion
Organizational assumptions	Partial goal conflict among stakeholders
	Efficiency as the effectiveness criterion
	Information asymmetry between principal and agent
Information assumption	Information as a purchasable commodity
Contracting problem	Agency (moral hazard and adverse selection)
	Risk sharing
Problem domain	Relationships in which the principal and agent have partly differing goals and risk preferences (e.g. compensation, regulation, leadership, impression management, whistle blowing, vertical integration, transfer pricing)

Source: Eisenhardt (1989)

The agency theory approach assumes that the existence of asymmetric information between lenders and borrowers is a key issue for evaluating how agency problems may be tackled and sorted out by banking contracts (Boscia and Di Salvo, 2009). The literature suggests that a co-operative bank experiments lower agency costs due to a peer-monitoring⁴ mechanism, which reduces asymmetric information on the part of customer-members (Stiglitz, 1990). Boscia and Di Salvo (2009) refer that co-operative banks mutuality characteristic may lead to a greater loyalty of customers to “their bank” and it can result in lower agency and delegating costs between banks and their members. Members have more motivation to control and monitor the management of co-operative banks, by reducing the opportunistic behaviour of managers, and by acquiring more accessible information on their activity and by peer-monitoring

⁴ Specific monitoring or controlling activity performed by members-clients-employees on the possible opportunistic behaviour of other operators and customers.

mechanisms. Moreover, the cost of screening and monitoring customer-members is lower in a co-operative bank, because information is more easily accessible, and soft information⁵ about the borrower is normally coupled with hard information, enhancing the quality and scope of the data available. Peer-monitoring also acts as a form of contract enforcement, since the risk of social and moral sanctions within the co-operative bank's community can also be considered a strong incentive to reduce free-riding or even fraudulent behaviors. Thus, co-operative banks may be endowed with greater social interaction and mutual trust between bank loan officers and its customers, which can be translated in lower monitoring costs for the bank and better credit terms for its customers. The proper knowledge of the customer's economic and financial situation and of the quality of its investment projects usually implies the acquisition of soft information and the use of relationship-lending technology. Therefore, the bank's loan officer assumes a key role as repository of the soft information collected by the bank about their customers and the local environment. Performing this task involves a trade-off between the loan officer autonomy regarding lending decisions and the minimization of agency costs. The few hierarchical levels and local nature of co-operative banks can give them an advantage in managing this trade-off (Boscia and Di Salvo, 2009).

In the same way, co-operative banks mutuality characteristic can curb opportunistic behaviour by managers, since it is not their goal to maximize profits through the exploitation of information asymmetries (Kane and Hendershott, 1996; Fonteyne, 2007).

Moreover, Bunker (2009) indicates that co-operative ownership structures resolve some of the principal-agent risk sharing problems that typically emerge in IOFs. Effectively, in IOF banks is usual that the principal (stockholders) searches for high short run investments based on high risk behaviour and on a diversified portfolio of financial assets, allowing them to play with the substitution effect between financial assets. For managers, bankruptcy has higher costs (e.g. losing job, income, reputation, and in some case, perks), so, they may have much lower risk appetites. This discrepancy between principal and agent, partially resolved by compensation packages, is not present in co-

⁵ Private, unstructured information.

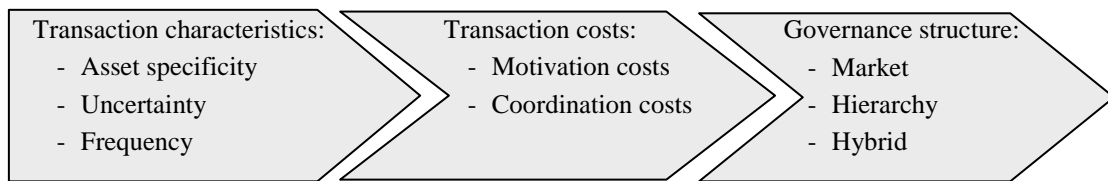
operatives, since the member-customers are the principal, they do not search to maximize the return of investments assuming therefore less risky behaviours.

2.3.2 - Transaction cost economics (TCE)

TCE studies how trading partners protect themselves from the hazards associated with exchange relationships. In a complex world, contracts are typically incomplete, thus parties who invest in relationship-specific assets expose themselves to potential opportunistic behaviour problems, i.e., a participant in a transaction can renege on the contract or can take advantage of the asymmetric dependency or asymmetric information and try to renegotiate and appropriate quasi-rents from its partner (Williamson, 1975, 1985, 1995; Klein *et al.*, 1978; Grossman and Hart, 1986; Hart and Moore, 1990). The transaction costs are the costs incurred in doing an economic exchange, especially, the costs associated with designing, signing and enforcing contracts, and are broadly break down into motivation and coordination costs (Milgrom and Roberts, 1992). Motivation costs are mainly caused by opportunism, and refer to the costs of motivating specialized agents to align their interests, such as: cost of cheating or opportunistic behaviour (Williamson, 1975, 1985); agency cost among owners, managers, and debt holders (Jensen and Meckling, 1976). Coordination costs are mainly caused by bounded rationality, and refer to the costs of coordinating the actions between specialized agents, such as: cost of obtaining information (Stigler, 1961); cost of coordinating input in production (Alchian and Demsetz, 1972) and measurement costs (Barzel, 1982). The basic assumption of TCE is that decision makers will choose whichever governance structure⁶ minimizes the total cost associated with a transaction (Coase, 1937), as expressed in Figure 2.1.

⁶ Williamson (1996) defined a governance structure as an “*institutional framework in which the integrity of a transaction or related set of transactions is decided*” (Williamson, 1996:11). Governance thus consists of formal and informal structures and rules that enable carrying out economic transactions in an economic manner (Wieland, 2005). TCE maintains that hierarchies and markets are alternative governance structures to organizing economic activity (Arrow, 1974) and that firms need to align governance structure and transaction characteristics (Williamson 1985; Silverman *et al.*, 1997).

Figure 2.1 - Transaction cost economics model



By virtue of their local ethos and proximity to their member-customers, co-operative banks have traditionally engaged in relationship banking and hence facilitated access to finance to SMEs, craftsmen, farmers, etc., i.e. those who commonly have difficulties to access for loans of traditional banks (De Bruyn and Ferri, 2005). The proximity of the firm and the peculiar nature of the customer relationship give the co-operative bank some transaction-cost-specific advantages which may foster the placement of lending contracts at small enterprises (Boscia and Di Salvo, 2009).

Transaction costs advantage was especially important at the beginning of the activity of any financial institution, no co-operative banks exception. The supply of an efficient and sustainable financial service to rural populations implies the accomplishment of a range of conditions related with the customers, difficult to achieve for banks in the initial years. It was complex to set up healthy financial relationships, mainly because it was costly to gather “informational capital” about the clients. Co-operatives have two competitive advantages: their clients are their members, so the costs of gathering “informational capital” are lower and, furthermore, because all co-operative members’ solidarily respond to the co-operative losses, they actively monitor themselves. Moreover, the social and informal network of members or potential members is also relevant as a determining factor in decreasing transaction costs and in the process of establishing and running the activity of a co-operative (Guinnane, 2001; Cabo *et al.*, 2006). Fonteyne (2007) also emphasises the informational advantages of co-operatives, particularly evident in small credit unions, since the common bond of a credit union provides information about consumers, and a smaller breadth of socio-economic backgrounds to accommodate with products and rates. Plus, since owners are also customers, co-operatives can better identify their customers’ desires.

However, the advantage of co-operative bank’s information supremacy has significantly decreased over recent decades. Credit rating services have evolved dramatically and now commercial banks and co-operatives hold similar insight into the credit-worthiness

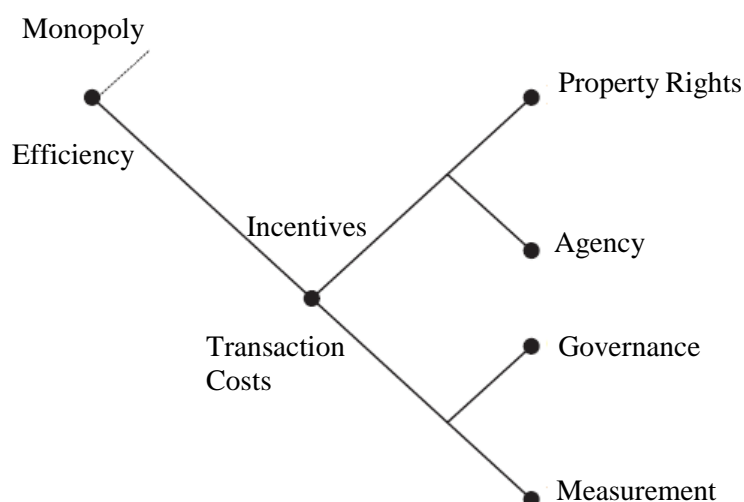
of borrowers. To further mitigate this advantage, the distance between managers and members tends to increase over the life of the co-operative (Fonteyne, 2007), because as the bank grows and expands its activity (geographically and range of products offered) customers exert less control over managers, and managers know less about their customers.

2.3.3 - Property rights theory

Property rights are defined as a socially and legally enforced right to select uses of an economic good, giving the owners the right to claim the residual returns of the firm and participate in the decision making process. Legal constraints regarding the assets' use or the assignment of rights to others through contracts prevent the owner from exercising all the rights associated with ownership of an asset.

Property rights theory has common intellectual antecedents with TCE and agency theory. Accordingly, Williamson's (1985: 24) "*cognitive map of contract*" places each of these theories in the efficiency branch of organizational economics (Figure 2.2).

Figure 2.2 - Cognitive map of contract



Source: Williamson (1985)

The starting point of the property rights theory is, like in TCE, the impossibility to write enforceable comprehensive contracts (Hart and Moore, 1999). Relationship-specific investments create the opportunity for hold up, that is, for *ex-post* appropriation of

revenues by the non-investing contract participant. The anticipation of possible hold-up may lead to under-investment in the economic relationship (Bijman, 2002). Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995) define a firm as a collection of non-human assets under common ownership, where ownership means holding residual rights of control, that is, the right to control the uses of assets under contingencies that are not specified in the contract. The allocation of residual rights of control affects the behaviour and resource allocation. For example, agents will be less inclined to invest in specific assets if they do not own these and relevant complementary assets. Owning an asset is important if one undertakes a non-contractible investment which is specific to the asset; if one does not own the asset, one is subject to the hold-up threat by the owner.

The property rights theory argues that the authority to make such decisions ultimately rests with the owner(s) of the firm (Hart and Moore, 1990). Ownership of assets leads to efficient decisions, since the owner holds the residual control rights and receives the residual returns, and thus, he bears the full financial impact of his choices.

The degree of separation between owners and managers, and the uniformity of interests and values among shareholders or members, are two components relevant for assessing the viability and efficiency of different property right models.

Table 2.2 provides the general distinctions among the three theoretical perspectives of the firm: the agency theory, TCE and property rights theory taking into account the unit of analysis, focal dimension and cost concern, contractual focus, theoretical orientation, strategic intent, and sources of market frictions.

Table 2.2 - Comparison of organization economics theories

	Agency theory	TCE	Property rights theory
Unit of analysis Focal dimension	Principal–agent contract Incentives	Transaction Various types of asset specificity	Institution Property rights
Focal cost concern	Residual loss	Unsuitability Holdup problems	Externalities Rent-seeking
Contractual focus	<i>Ex ante</i> incentive alignment. Monitoring mechanisms	Choice of (<i>ex post</i>) governance mechanism	<i>Ex ante</i> property rights allocation and <i>ex post</i> distributional conflicts
Theoretical orientation	Constrained optimization	Comparative assessment	Comparative assessment
Strategic intent	Shareholder perspective	Shareholder perspective	Stakeholder perspective
Sources of market frictions	Information asymmetry, unobservability, risk aversion (by agents)	Bounded rationality, uncertainty, information asymmetry, opportunism, and asset specificity	Externalities, unclearly defined and difficult to enforce property rights (Weak appropriability), vested interests

Source: Kim and Mahoney (2005)

The literature on property rights agrees on the hypothesis that the separation between owners and managers in a co-operative is rather severe, resulting of its wide and fragmented dispersed ownership, and the consequent difficulty of an efficient allocation of property rights. A high degree of separation between ownership and management may actually foster divergence of objectives among different stakeholders of a co-operative firm, reducing its efficiency (Hart and Moore, 1998) and bring about expense-preference behaviours by their managers. However, compared with private IOF banks, a co-operative bank may present lower agency costs consequence of its more efficient internal decision making process, as the chain of decisions is usually shorter, reducing the separation between ownership and management. This separation may also be reduced by appointing only members as managers and fostering members' participation at the annual general assembly and other social events. Besides, the admission of new members is usually conditioned to the preservation of the common bonding, co-operative principles and values (Boscia and Di Salvo, 2009).

2.4 - Co-operative banks specificity

In their long history dating back to the nineteenth century, co-operative banks have long been an integral, successful, and well-established part of the financial system in many countries. The essence of co-operative banking is quite simple: members, who include both savers and borrowers, use the co-operative to recycle money from those who have it to those who need it, without anybody outside taking a profit and with interest rates set so that the system works in everyone's interest (Birchall and Ketilson, 2009). Co-operative banks present several distinctive characteristics from IOFs, some deriving from their co-operative nature and others from their business approach, with reflex in the economic objective, membership, equity, decision making process, business model and operational dimension.

2.4.1 - Economic objective

Co-operative banks are non-profit institutions. Their main objective is to promote the well-being of their members – mutuality. In this perspective, Ayadi *et al.* (2010) defines co-operative banks as *Stakeholder Value* banks, given that maximizing profits and the rate of return on capital are not their dominant business objectives, contrary to the typical IOF bank, classified as *Shareholder Value* bank. However, if profit is not a goal in itself, as with all banks (irrespective of their capital structure), co-operative banks do need to earn a minimum rate of return on assets in order to safeguard their continuity, to finance growth and credit, and to provide a buffer for inclement times (Groeneveld and de Vries, 2009; Ayadi *et al.*, 2010).

On the other hand, co-operative banks' purpose inhibits managers' incentives to the exploitation of information asymmetries. This is particularly crucial in the 21st century, given the breadth and complexities of financial products; when all banks hold great advantages over their clients due to a greater understanding of products. This, together with "lock-in" from long-term contracts, is often exploited by IOF banks. The consumer-owned structure of co-operative banks does not encourage this behaviour and allows for greater client bank trust. Moreover, in their efforts to maximize consumer welfare, managers might provide financial products at below profit maximizing rates,

extend their services into rural areas that may be unprofitable, or donate money and efforts to their community (Fonteyne, 2007).

Finally, being non-profit firms, co-operatives usually imposes limitations on the distribution of profits, transferring alternatively the net benefit to the equity and following a riskless strategy of capitalization (Cihak and Hesse, 2007; Boscia and Di Salvo, 2009). In this way, Oliver Wyman (2008) refers that co-operatives currently represent a relatively safe haven for investors, working to more risk-averse, longer time horizon investment objectives than shareholder driven institutions. The relevant property rights literature (see Fama and Jensen, 1983) also supports the idea that co-operative banks are more likely to be characterised by relatively low risk business structures. The main reason for co-operative banks to present less risky behaviour is related with the fact that: (a) they are not under maximise short run profits, being more inclined to adopt a longer-term horizon in their business decisions and lending policies (Oliver Wyman, 2008); (b) co-operative banks “shares” are not tradable, so the financial assets substitution effect problem does not arise and members present less risk behaviour (Drake and Llewellyn, 2001); (c) co-operative banks strong local presence and the proximity allows them to have a better understanding of the needs and the risk profiles of their customers and essentially to mitigate acute asymmetric information (Oliver Wyman, 2008); (d) the absence of traditional banks agency problems resulting from the potential conflict between the owners (equity shareholders) and depositors/customers⁷, as owners and customers (and depositors) are largely one and the same (Ayadi *et al.*, 2010).

2.4.2 - Members

Co-operative banks as a collective vertical integration structure are owned by the members who are also customers⁸ and, in most cases, ownership is at local or regional level. Oliver Wyman (2008) refers that the member ownership concept, central to the

⁷ For example, equity shareholders may prefer a higher risk profile for the institution than would depositors due to the former’s limited liability. This implies that shareholders can benefit from potentially significant “upside gains” while being exposed to only limited downside potential. In opposite, depositors do not share this upside potential and would implicitly be subject to greater risk given the limited scope of deposit insurance.

⁸ Although a co-operative bank may have customers who are not members, a key feature of co-operatives is that, in general, there is no formal separation of owner-customers and non-owner-customers.

co-operative model, is also an unique aspect that is hard to replicate outside co-operative structures. Vital to the establishment of earlier co-operative banks, it remains today's common defining feature and source of differentiation from IOF competitors.

Collective ownership means that income rights and decision-rights are not assigned to any member individually, but are held by all members together. Both collective income rights and collective decision rights may lead to inefficiencies. For instance, collective ownership may be disadvantageous for the co-operative in attracting long term equity capital, for risky investments, such as in marketing and innovation (Bijman, 2002).

Moreover, as ownership stakes (member's capital "shares") in co-operative banks are not tradable in an open market, it is virtually impossible for hostile bids for ownership to take place. Members cannot sell their ownership stakes in an open secondary market (although in some cases they can sell them back to the bank). Exit is however possible through the redeemability of members' shares. In other cases, members may trade membership certificates in a closed market available only to members. Because of this and of the usual absence of a stock exchange listing, there is no market in corporate control since it is virtually impossible for hostile bids for ownership to take place: a co-operative bank cannot be bought by new owners, which makes its ownership structure effectively impossible to be subject to a hostile take-over (Oliver Wyman, 2008).

Cook (1995) refers that most co-operatives have no or limited options for trading property rights, originating that the property rights in co-operatives are ill defined and non-tradable, which may lead to inefficient decisions⁹ and resulting in five "vaguely defined property rights" problems: Free Rider Problem, Horizon Problem, Portfolio Problem, Control Problem, and Influence Costs Problem. The Free Rider Problem results when gains from cooperative action can be accessed by individuals that did not fully invest in developing the gains, whether those individuals are new(er) members or non-members. The Horizon Problem results from residual claims that do not extend as

⁹ Ownership of assets leads to efficient decisions about using these assets. However, if property rights are not well defined, not tradable or not well protected, inefficient choices may be made (Milgrom and Roberts, 1992: 294). *"If no one clearly owns a valuable asset, then no one has an incentive to guard its value properly. If property rights are not tradable, then there is little hope that assets will end up with those people who can make the best use of them and therefore value them most. If property rights are not secure, then owners will not invest great amounts, in assets that they may lose with no compensation, or they may sink valuable resources into protecting their claims."* Property rights that are ill defined, badly enforceable and non-tradable will lead to inefficient decisions, because decision maker no longer bears the full impact of his choices.

far as the economic life of the underlying asset. Like the Horizon Problem, the Portfolio Problem stems from the tied nature of the equity in the cooperative; the organization's investment portfolio may not reflect the interests or risk attitudes of any given investor/member, although members cannot withdraw and reallocate their investments. The Control Problem is similar in nature to the shareholder-manager problem in IOFs, but is compounded by the lack of external competitive market pressures (e.g., stock markets and the market for corporate control) that help discipline managers in IOFs. Influence Costs are incumbent to all organizations where decisions affect wealth distribution among members. These costs are greater if there is a wider variety of interests among group members and when the potential gains are greater.

2.4.3 - Equity

Co-operative banks have only limited access to external capital (equity) independent of their members, thus they have no (or very limited) externally-held risk capital. Therefore, co-operative banks usually retain profits to ensure the "organic growth" of their equity. Without accessing to publicly raised capital, co-operative banks may find supplying extraordinary demands for capital restricted or more costly than IOF banks. It is not so easy to increase rapidly the number of their members or raise members' shareholdings, especially when they offer low returns on investments, resulting of the statutory limitations on profit distribution (Boscia and Di Salvo, 2009).

The net economic value co-operatives capital (i.e. total assets net of debts and the nominal value of members' shares, which, in accounting terms, partially appears in the books as reserves), provides an intergenerational endowment without final owners (Fonteyne, 2007). Indeed, it is not owned by the current cohort of members, but rather by the co-operative itself. As underlined by Fonteyne (2007), the net economic value is essentially an owner-less intergenerational endowment, available for use by current members, under the implicit or explicit understanding that they will grow it further and pass it on to the next generation of members. Thus, the co-operative bank managers are custodians of an intergenerational transfer, which could create governance issues and the potential for opportunistic behaviour of managers. Nonetheless, the intergenerational endowment gives to the co-operatives a significant advantage over

IOF banks in the cost of capital, since co-operatives do not remunerate owners on earnings of the intergenerational endowment.

Moreover, co-operatives tend to pay-out less on equity than IOF firms. Members usually purchase the minimum required shares acting as a membership fee, with many members not viewing the shares as a profitable investment, despite the low cost of capital can be transferred by managers to members in the form of lower lending rates and higher interest on deposits (Fonteyne, 2007).

2.4.4 - Decision making process

Regardless the level of participation on equity the cooperative bank members have an important role on the governance structure, although the precise arrangements vary considerably between them. Governance arrangements are based on the democratic principle “one member one vote”, with no possibility of unbundling voting and membership.

Boscia and Di Salvo (2009) refer that co-operative members’ “sense of belonging” can result in lower agency and delegating costs between co-operatives and members, and is reinforced by the “one member one vote” rule. However, this also can lead to possible agency problems between owners and management, mainly linked to free riding behaviours, with small share members having few incentives to control managers’ opportunistic behaviour (Spøgaard, 1994; Nilsson, 2001; Boscia and Di Salvo, 2009).

Otherwise, democratic governance may require longer decision-making processes, which can hamper the co-operative in its competition with an IOF, particularly if the heterogeneity among members implies more time and human resources in the decision making process (Bijman, 2002) and resulting in inflexibility, inertia, and reluctance to start new business activities (Reynolds, 1997; Hendrikse, 1998; van Bekkum, 2001; Borgen, 2004).

2.4.5 - Business model

Co-operative banks' business model is conditioned by the structure of property rights and governance, but also by their limited operational size and territorial area. Consequently, co-operative banks usually operate in retail banking and in a context of proximity with their membership base and local territory. Indeed, co-operative banks have a common vocation towards banking relationships with SMEs and households, which is fostered by close proximity with customers as a result of the co-operative ethos. This is the adequate environment for a strong and loyal customer base. Moreover, this relationship based conduct is supported by an extensive branch networking (in some cases even disproportionate to their size) which, along with their loyal customers, helps co-operatives retain deposits during a long time. Unlike IOF banks who often find it quite difficult to move, since they are unable to retain many customers, forcing them to essentially start from scratch (Fonteyne, 2007).

According to Boscia and Di Salvo (2009), geographical proximity allows local co-operative banks to have higher level (more and better quality) of information about the socio-economic characteristics of their actual and potential customers and target market. Thus, efficiently reducing and managing information asymmetries on customers' risk profiles, and consequently helping "proximity" banks to screen (so avoiding adverse selection), to monitor (so avoiding moral hazard) and also to manage insolvency (so avoiding bankruptcy, since the bank is able to investigate the overall wealth and income capacity of the debtor). The proximity allows banks to serve specific segments of the market lending about which only meagre and low-quality information is usually available and is, consequently, not served by large banks, which are unable to capture that information. Since proximity banks know their customers well, they are able to finance them even when they are in financial troubles, thereby creating and developing a stronger, durable, and closer financial relationship with their clients. This advantage is, generally, enhanced by the continuity and the proximity of loyal staff, who enforces information efficiency and strengthens customer relationships. Co-operative bank employees often spend their entire careers in a small and well defined market, knowing their customers' economic and financial characteristics, behaviour and personality (Borroni, 1996). Also, the employees tend to be from similar backgrounds as their customers, enhancing the relationship with the co-operative bank users (Becht *et al.*, 2003; Juvin, 2005).

Small dimension and proximity are important for local community, since social sanctions are applied when the opportunistic behaviour of a borrower compromises the wealth of local co-operative banks (Pagano and Panunzi, 1998). This is however a double-edged sword, since it can lead to a possibly abnormal involvement of banks in the socio-economic conditions of their local communities, leading co-operative banks to finance customers and projects without considering the minimum requirement for the profitability of each investment or be influenced by political considerations or prominent persons in the management of loan decisions (Piot, 1997).

Fonteyne (2007) emphasizes that co-operative banks' strictly defined target market (some credit unions are legally bound to their constituency) and their reliance on retail-based income makes them unable to raise capital as quickly as commercial banks which have much more freedom in the pursuit of depositors. Co-operatives are unable to move to another region or other business activities when the respective branch or sector of activity is in crisis (Shawn, 2007).

2.4.6 - Operational dimension

Co-operative banks are of small and medium size, geographically limited to a restricted geographic area. The small (limited) size implies a simple and less bureaucratized hierarchic structure, characterized by flexibility in the decision making process and especially tailored to local customers and lower costs of internal delegation, when compared with classical commercial banks (Cerasi and Daltung, 1996). However, the flexibility and the low level of bureaucratization of bank decisions, which initially are competitive advantages, may become disadvantages when they allow loan decisions to become too "informal" and based on "personal" factors (Nakamua, 1994), i.e., irrational economic decisions.

Co-operative bank limited size has also negative implications in terms of internal operational efficiency¹⁰, inhibiting the exploitation of scale and scope economies entailing a heavier operative-cost structure and limiting its ability to recruit highly

¹⁰ As part of a network with an integrated structure, small and medium co-operative banks can minor these limitations as we will see in section 2.5.2.

qualified management and train their staff, reducing its ability to react to trends in the financial markets (Boscia and Di Salvo, 2009).

Furthermore, small co-operative banks' investment activity is concentrated in restrict local markets, being their loan portfolios less diversified and, consequently, they have higher risk concentration¹¹. Moreover, a small size potentially limits the effectiveness and the efficiency of investments which require a minimum portfolio size and may lead to a lower investment capacity in technology and in branch networks, which may also represent a market disadvantage, since small co-operative banks offering a low diversification range of products and services are less competitive than the larger banks able to offer a wider and more sophisticated array of products and services.

2.5 - Corporate Governance

The Organization for Economic Co-operation and Development (OECD) defines corporate governance (CG) as *“a set of relationships between a company's management, its board, its shareholders, and other stakeholders. CG also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined. Good CG should provide proper incentives for the board and management to pursue objectives that are in the interests of the company and its shareholders and should facilitate effective monitoring”* (OECD, 2004:11). But, CG goes beyond the simple valuing of the decision making process and how the strategic decisions are adopted and monitored, implying that the economic, financial and social role of the institutions also need be considered (Tormo and Vañó, 2008).

The CG¹² has been focused on the separation between property and control of the company, namely in agency relationship problems resulting from the owners delegation

¹¹ Co-operatives typically have a small and homogenous pool of depositors which leaves them vulnerable to volatilities in their specific market. Rather than having their risk hedged by a heterogeneous customer population, like larger commercial banks, co-operatives are subject to the full force of swings in their individual market. However, these volatilities can be limited by branch networking and financial markets through such derivative products as credit default swaps (Fonteyne, 2007).

¹² For a survey on CG see Shleifer and Vishny (1997); La Porta *et al.* (1999); OECD (2003).

of the firm's management in the directors. But the problem of governance is not limited to the scope of owners and managers. The organizations interact with a multiplicity of economic and social agents who depend on the success of the company (client-users, suppliers, public administrations, supervisors or community). From the stakeholders perspective CG refers to the mechanisms of participation and representation of the different agents, in order to reach a balance among them, avoiding conflict of interests, fomenting the transparency and facilitating joint control, thus giving trust and stability to the institution (Tormo and Vañó, 2008).

2.5.1 - The corporate governance model of co-operative banks

The governance model of co-operative banks can be approached at from both the theoretical and the regulatory sides¹³. When compared with that of IOF banks, the co-operative model has a few distinct weak points, mainly correlated with the institutional asset (Schwizer and Stefanelli, 2009).

Banks, as other complex organizations, systematically suffer from agency conflicts between owners and managers (e.g. managerial conservation and entrenchment). Since, the existence of banks depends on the asymmetric information between lenders and borrowers, causing also depositors/bank-owners agency conflict. The bank, as an organization or auctioneer that substitutes the direct change of money, is useful and welfare is enhanced if the costs of additional conflicts that it causes are lower than the costs of the original (lender-borrower) relationship.

The key feature of co-operative banks is that the distinction between lender and borrower is more blurred. The depositors/shareholders and members/borrowers often overlap, thus dampening some conflicts of interests (Coco and Ferri, 2010). Fischer and Mahfoudhi (2002) support this moral hazard argument, considering that under conditions of information asymmetry, debtholders and depositors (the principals), trusting their savings to an IOF bank, are subject to moral hazard exercised by shareholders (the agents) that manage those funds. This happens because the shareholders of banks will be encouraged to assume risk (in on- and off-balance sheet

¹³ In this thesis see chapter 3 and 4 for CCAM.

positions) that can result in a transfer of wealth from the debtors and depositors to them. The mutual characteristics of co-operative banks tend to prevent the conflict between shareholders and depositors.

Moreover, in an agency-theoretic framework, managers are usually considered risk averse and encouraged to hold assets that will ensure the safety of the institution they manage. The severity of this effect is a function of the entrenchment of managers. In fact, managers are perceived as conservative decision makers that seek to preserve their employment through low risk investment decisions (Hirshleifer and Thakor, 1992) or by a choice of financing (Blazenko, 1987; Berger *et al.*, 1997) that reduces the risk of equity, an incentive that stands in clear contradiction with IOF shareholders' interests. This implies that when control (under management) and ownership (by shareholders) are separated, banks tend to be less risk assumers. In co-operative banks, once the member-customers (principal) do not wish to maximize profits, they show much lower risk appetites and share the risk aversion with managers (Staatz, 1987; Fischer and Mahfoudhi, 2002; Bunger, 2009; Coco and Ferri, 2010).

Ayadi *et al.* (2010) summarize four issues favouring co-operative banks ability to deal with agency problems: (a) co-operative members' claims in co-operative banks are, in principle, redeemable on demand, as stated by Fama and Jensen (1983:318) "*the decision of the claim holder to withdraw resources is a form of partial take-over or liquidation which deprives management of control over assets. This control right can be exercised independently by each claim holder. It does not require a proxy fight, a tender offer, or any other concerted take-over bid. In contrast, customer decisions in open non-financial corporations and the repricing of the corporation's securities in the capital market provide signals about the performance of its decision agents. Without further action, however, either internal or from the market for take-overs, the judgment of customers and of the capital market leave the assets of the open non-financial corporation under the control of the managers*"; (b) in co-operative banks, owners can exercise the easy and costless option of exit, which represents a powerful discipline mechanism and a direct threat to managers, since when a depositor withdraws funds, the capacity of the co-operative bank is immediately reduced, whereas the sale of an equity stake in an IOF bank does not remove assets from the control of the banks management neither immediately influence the capacity of the firm though the share price might fall; (c) the absence of capital market option functions as control mechanism, as co-

operatives traditionally rely on retained profits for growth, business mistakes, exerting the effect of destroying equity, cannot be offset by external injections of capital and thus tends to make co-operative banks more risk-averse; and (d) the absence of shareholder/creditor conflicts, due to the nature of the debt contract¹⁴, shareholders have greater incentives to encourage the firm to take more risk than do debt holders.

Coco and Ferri (2010) consider that the perils for bank instability come mainly from bank owners' perverse incentives and, therefore, from the agency problem between them and depositors, absent issues in co-operative banks given its owner-customer feature. Moreover, the opportunistic behaviour is less likely since co-operative bank members usually feature a network of linkages beyond the pure lending relationship, with positive effects. By this reason the stigma associated with a default is possibly larger and both screening and cross monitoring among members/borrowers is simplified.

There is wide agreement that control by members in co-operatives is indeed weak, much more so than in corporations with diffused ownership (see Akella and Greenbaum, 1988; Keating and Keating, 1992; Gorton and Schmid, 1999). Indeed, the absence of traditional control mechanisms such as the monitory shareholders who are not involved in the daily life of the co-operative bank, or by block shareholders, and absence of market stock can exacerbate the agency problems, creating "inertial management" situations which can, in the worst case, even compromise the financial survival of the co-operative (Staatz 1987; Gorton and Schmid, 1999; Becht *et al.*, 2003; Cuevas and Fischer, 2006; Schwizer and Stefanelli, 2009). Therefore the setup of limits to the discretion of managers may be more useful in co-operative banks than in IOF banks (EACB, 2010).

Ory and Lemzeri (2007) discussing "agency costs" in French co-operatives refer that principals have trouble in monitoring managers because they are subject to less disclosure regulation than joint-stock firms and do not face market discipline, a difficulty exacerbated by the dispersed ownership of co-operatives. Moreover, in joint-

¹⁴ Specifically, the nature of the debt contract dictates that if a risky (*ex ante*) investment produces high (*ex post*) returns well above the face value of the debt, equity holders will capture the gains while debt holders receive only their fixed contractual payments. If, however, the investment fails, then, due to their limited liability, equity holders will face only limited downside risk while debt holders will face the same downside risk without any compensating upside potential.

stock firms, large shareholders have the financial tools to deal with shareholder meetings and enough power to exert pressure onto managers, thus benefiting the smaller shareholders who do not have the means to attend meetings or make informed decisions about the company. In co-operatives the democratic principle “one member, one vote” makes collective action more difficult than in IOFs (Gorton and Schmid, 1999; Ory and Lemzeri, 2007).

Fonteyne (2007) mentions that co-operative members are rationally ignorant, since the “one member one vote” principle makes individual vote unlikely to have any influence. Thus, managers can allow inefficiencies to linger without principal action being taken against them. This lack of oversight makes co-operatives prone to managerial problems, as embezzlement or an empire-building, with managers being tempted by the large intergenerational endowment to engage in expansion strategies, self-interest and promotion in detriment of members’ well-being¹⁵.

The lack of managerial vigilance can also be intensified by co-operative banks chronic low profitability which makes it difficult to pay competitive salaries when compared with IOF banks. Fonteyne (2007) notes that co-operative banks payroll is generally flatter than their competitors, making it difficult to acquire top talent. This is especially true for IOF bank managers, who command very large remuneration packages. Juvin (2005) suggests that talented managers can be encouraged to accept lower pay because of the social standing and elevated feeling of utility, that come with working at a co-operative.

Schwizer and Stefanelli (2009) refer that for shareholder-management transactions, the highly fragmented nature of the co-operatives’ capital and the restrictions in the profits distribution could be a strong disincentive for members control management behaviour, leading to greater shareholder-management problems within the agency framework. That can lead to “captive” (attending mainly to the interests of a particular category of stakeholder) decisions, instead to global decisions that balance and harmonize the interests of the different stakeholders within the co-operative. The authors also notice that the presence of informal governance mechanisms, typical of the co-operative model (based on peer-monitoring among members and on extra-economic (social) sanctions

¹⁵ For empirical evidence of co-operative management pursuit of self-interest see, for example, Mester (1991); Hinson and Stewart (1999); Gorton and Schmid (1999); Leggett and Strand (1999).

imposed on debtors) leads, in the long term, to a gradual decline if it continues to increase the territorial area where the co-operative bank operates, intensifying the potential conflict within the co-operative.

To sum up, in the theoretical debate on co-operative agency problems is often alleged greater scope for managers of co-operative banks to engage in rent-seeking or expense-preference behaviour, since the owners have less influence on managers than shareholders in IOF banks. This is partly explained by the fact that the co-operative members are larger in number, have smaller ownership stakes, and are more dispersed. However, the empirical evidence does not support the proposition that co-operative banks systematically have higher costs (Ayadi *et al.*, 2010).

Comparisons are often made in the literature between the governance models of different types of firm ownership structures. A general perspective is that agency costs (associated with principal-agent issues) exist in all forms of firm structure and they are handled differently in different typology of firms. To this conclusion we must keep in mind that there are imperfections in all forms of governance arrangements, so it is invalid to compare the actual arrangements in one model with a perfect theoretical version of a different model (Ayadi *et al.*, 2010). We will come back to the topic of co-operatives governance in chapter 4 (and less in chapter 3) particularly in regards to governance control mechanisms operating within Portuguese Agricultural Credit Co-operatives.

2.5.2 - Networks

Although co-operative banks operate in a specific market (most co-operative banks operate at a local level and in a given regional space), technological and regulatory threats are challenging co-operative banks, especially the more locally focused and those with limited size. This environment forces them to modify their strategies in order to achieve better efficiency and profitability. Consequently, co-operative banks feel the need of restructuring and redesigning their products and processes, as well as setting up new operational and organizational structures. Their overall strategies need to be oriented towards strengthening their relationships with their customers by enhancing

traditional lending activity, reconciling this with modern financial services (Boscia and Di Salvo, 2009).

Like many other IOF banks, co-operative banks have witnessed consolidation strategies to increase their size, in order to achieve scale economies to obtain operational efficiencies and adequate returns on investments. Consolidation is a powerful strategy but, at the same time, especially for co-operative banks, it may be dangerous. Increasing size generally tends to weaken some of co-operative banks' competitive advantages, namely information power. Weaker customer relationships, less localism, less information for managers and loan officers, less peer-monitoring, fewer social penalties, less social control from the local community on bank conduct; more agency problems; and more rigid organizational forms are troubles that the co-operative banks need to overcome (Boscia and Di Salvo, 2009).

Another strategy for co-operative banks to overcome the limitations and the restrictions of limited dimension and resources is the development of alliances and networks with other co-operative banks. In particular, a positive experience has flowed from their joining regional and national structures, federations, and other centralized organizations. In this way co-operative banks balance their strong local roots with an expansion and improvement in the supply of financial services (EACB, 2004).

Worldwide, co-operative banks often evolve into pyramid-shaped national structures, with two or three levels of organizational decentralization (national, regional or local). These can be assimilated to "integrated" systems or simply to a "network". A system with such a range allows lower levels wide margins of autonomy in managing customer relations and core-business activities and, at the same time, allocates policy direction and control to the higher level, which allows it to rationalize the use of resources and the growth of investments (Boscia and Di Salvo, 2009).

There are several strategic and managerial advantages for co-operative bank networks. Besides limiting replicable costs, centralised institutions also arise out of a need to effectively reduce the "brand name externality problem" (Guinnane, 1997). Ayadi *et al.* (2010) summarizes:

1. Networks allow small and medium co-operative banks to benefit from economies of scale (and scope), especially in back office and administration

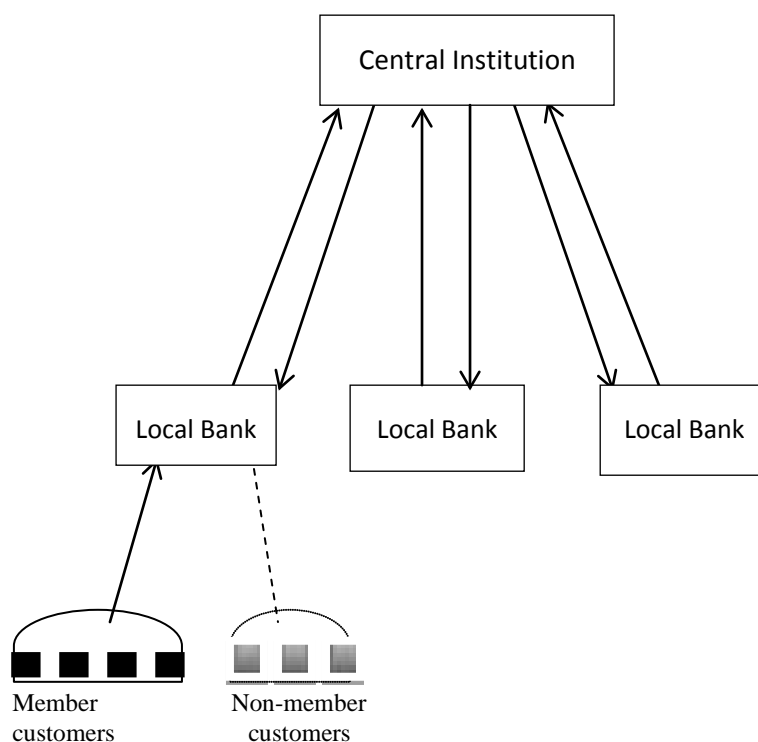
functions. In this way, relatively small banks are able to secure collective economies of scale that each one is too small to generate internally. Thus, services as information and technology support, data processing, training, accounting, marketing, product development, and representation are left to network institutions that act as centralised service providers.

2. Mutual support schemes provided by network allow the associated banks to assign a zero weight for intranetwork exposures and also serve to secure the certainty of repayment for creditors and depositors, thereby enhancing the banks' funding opportunities.
3. Depending on the level of network co-operation between local and central institutions, the network central institution may perform the task of a central bank, intermediating liquidity within the network, and management consultancy, disseminating best practice within the network.
4. The network may also have subsidiaries providing services that benefit both member banks and their customers, which may not be feasible for individual member banks to provide themselves directly.
5. Member banks may also gain through the reputation and profile of the central institution, including an increase in customer trust in banks which are known to be part of a credible network.

On the other hand, the network may also represent a threat to member banks. For example, if the central institution pursues objectives that are at odds with the co-operative principles and prioritisation of the members' benefits or an excessive amount of centralisation worsens the co-operative banks' ability to respond to the customer local needs. The net benefits will depend upon the nature of the network, the specific role of central institution and whether the local banks can continue fulfilling their functions as co-operative institutions (Ayadi *et al.*, 2010).

In highly integrated co-operative banks we can observe a "circular authority", as in Figure 2.3.

Figure 2.3 - Circular authority in integrated co-operative banks



Source: Ayadi *et al.* (2010)

If in co-operative banks member-customers exercise their power by voting and claiming their rights to residual earnings, in integrated systems, the second-tier body is owned by primary-level organizations and its supervisory body is constituted by their representatives. It is a closed system where the primary level organizations have the customary ownership rights on secondary level organizations, but these have also some well-specified control rights towards the primary level organizations that, otherwise, are controlled by their member-customers (Ferri *et al.*, 2010).

The integrated structure helps controlling the principal-agency problem generated in the primary level due to the dispersed ownership structure (Desrochers and Fischer, 2005; Cuevas and Fischer, 2006). Moreover, the higher degree of integration reduces the variability of financial efficiency indicators of co-operative banks (Desrochers and Fischer, 2005). Beside possible associative integrations and working to protect the relation between single banks (and the relation among these and their stakeholders) the presence of a central organism, having the hierarchical control functions of local banks and the strategic and organizational support functions, can mitigate conflict between the

management and the ownership of the co-operative bank (Schwizer and Stefanelli, 2009).

Partly attesting to the growing importance of top-down authority in co-operative bank networks, national regulators have gradually delegated the supervision of local banks (all of which are separately licensed credit institutions) to the central institutions. In terms of supervision, this is equivalent to treating the entire network as a consolidated group (Ayadi *et al.*, 2010).

Network governance structures have their own governance issues, namely issues related with agency and coordination. The co-operatives have been introduced a variety of governance mechanisms to reinforce bottom-up ownership, including: a democratic voting structure, whereby members choose representatives of local institutions who then choose representatives in central organisations; distribution of benefits to members; election of directors of central institutions by local banks; and so forth. Highly integrated systems introduce an opposing problem, because central institutions have stronger incentives than local institutions to safeguard the mutual resources (i.e. the shared brand-name, pooled reserve fund, etc), the so called *appropriability hazard* (AH) problem, whereby counterparts may act opportunistically to obtain the rents provided by the alliance (Descrochers and Fischer, 2005).

The AH arises in situations of inter-firm alliances that involve technology transfers and common production of goods and services in the presence of weak property rights (Hagedoorn, 1993; Oxley, 1997). AH can be traced to difficulties in adequately specifying payoff relevant activities under conditions of bounded rationality, monitoring the execution of prescribed activities, and/or enforcing contracts through the courts to control opportunism (Oxley, 1997). For this author AH increases when: (a) the alliance involves product or process designs rather than when only production or marketing activities are undertaken; (b) the range of products increases; (c) a wider geographical area is covered by the alliance; (d) more firms are involved. All these factors play a role in networks of co-operative banks and, being engaged in product design and production, they can cover an enormous range of products, huge geographical areas, often the entire country, and hundreds or thousands of institutions.

One common response to reduce AH risk is to give the central institutions an appropriate level of authority and control (Ayadi *et al.*, 2010), particularly,

standardising risk-management practices, imposing obligatory audits or giving central institutions the power to restructure the local banks' debt, governance structure and pushing for a merger process.

Moreover, in a co-operative banking network the single co-operative, which is already a first-level governance unit, becomes also a governance element at the system level. Thus, the network requires a complex balance to converge the "system" company objectives, considering that the central organisms lump together the various co-operatives, with peculiarities and diversified (even territorial) needs.

Likewise, increasing the size of the banking co-operative system credit, by the height of the hierarchical pyramid and further diversifying the profile of members, increases the costs of control or co-ordination (Williamson, 1967). This requires a governance model based on mechanisms that act on the entire network structure. Accordingly, the network can adopt other governance mechanisms (Di Salvo, 2003) ranging from exclusively associative types of company integration - as clubs for members or local committees - to varieties of greater integration of the working type - as the allocation of surveying and internal auditing to central bodies that carry out instrumental and auxiliary services for local banks. In most systems, these bodies also act as the institution's mechanisms of cross-guarantee and penalization of each single case guarding the credit exposure of the entire system (cross-guarantee system or joint liability).

2.5 - Final remarks

This chapter sheds light on the economic nature of co-operative banks in general, emphasizing the rationale of co-operative banks on the basis of their specific features, and particularly their governance model.

Co-operative banks differ from other financial institutions in several aspects, namely in: (a) the economic objective, which is not a profit maximizing but the fulfillment of members' well-being; (b) democratic governance principle applying the "one member one vote" rule, with no possibility of unbundling voting and membership; (c) a business model centred on proximity to the local clients and relationship banking, allowing them to be competitive in their local markets, exploiting sound and low-cost local knowledge to identify customers' needs, and to better monitor their risks; (d) equity growth

basically fulfilled through retaining annual earnings; and (e) the non-profit character frees them from the short-term pressure of the capital market which can induce banks to take excessive risks, undermining their stability and endangering their survival.

The co-operative bank governance model allows banks to better reduce the information asymmetries on borrowers and thus overcome the market failure at the origin of their establishment. Moreover, the evidence shows that the governance model of the co-operative banks is the basis of their lower profit volatility, allowing them to pursue longer-term objectives.

As any other firm governance structure model, co-operatives model presents advantages and disadvantages. The typical co-operative governance model specificity is the presence of informal governance mechanisms, based on peer-monitoring among members and on extra-economic sanctions imposed on the debtors, which leads, in the long term, to a gradual decline, inflated by the increasing of the territorial area where the co-operative bank operates. Furthermore, technological and regulatory challenges are forcing co-operative banks, especially the more locally focused and with small size, to restructure and engage in integration strategies in order to achieve efficiency and profitability. Integrated networks support co-operative banks' management, activities and organization, allows them to have more efficient back-offices and offer a wider array of products to serve customers but also present some specific agency and coordination problems that must be efficiently addressed in order to ensure the correct running of the integrated co-operative banking system.

This chapter underlined the importance of an efficient CG model to align co-operative banks stakeholders interests (and efforts) for the survival of the organization. In this framework, in order to a better understanding how *Caixas de Crédito Agrícola Mútuo* can enhance economic and social performance, and ultimately, their chances to survive, to solve managers-owners agency problem, rooted in this theoretical chapter, the next chapters will be focused on the governance control and financial survival the Portuguese Co-operative Credit System.

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Chapter 3 - The Portuguese Co-operative Credit System

3.1 - Introduction

Nowadays, the financial system enterprises operate in an environment full of threats but also of opportunities. Indeed, as a consequence of corporate scandals and world financial crisis, along the last decade, the banking activity is constrained by ethical self-restraining as well as innovative regulations enforced by domestic and international governance institutions. It is in this new environment that *“over the past decade, dull but safe, cooperative banks have steadily increased their share of retail banking in Europe’s credit banking market.... A 2009 study by the Bundesbank, Germany’s central bank, into the connection between financial stability and bank ownership also found that co-operative banks were much less likely to fail than those owned by private shareholders....Part of the reason may lie on ownership and governance structures (The Economist, January 23d 2010: 66).*

The main aim of this chapter is to provide some insights about the Portuguese regulatory framework of co-operative banks, in order to understand how a particular regulatory framework affects co-operative banking activity. To achieve this goal, besides this introduction the chapter is organized as follows: section 2 describes the evolution of the agricultural credit cooperative system; section 3 illustrates the Credito Agricola positioning in Portuguese banking; section 4 includes a description of the Portuguese agricultural credit co-operatives regulatory framework and its governance model; finally, section 5 presents the conclusions.

3.2 - The genesis

The Co-operative Credit System in Portugal comprises only agricultural credit co-operatives. Its present corporate format was created in 1911, but the genesis of Portuguese agricultural credit co-operatives (Caixa de Crédito Agrícola Mutuo – CCAM) goes back to the XVI century, to an institution called Common Barns, allowing farmers to keep stocks and seek financing. The early CCAM were very small units and membership consisted of small farmers with low incomes. The beginning of the system was an absolute failure: the capital provided by the state was insufficient to accomplish the objectives; and the co-operatives were used to pursue managers' personal goals, and management errors and even fraud were commonly found during audit (Cabo, 2003). Despite these setbacks the number of CCAM grew significantly until the 1929 financial crisis (see Table 3.1 next page). Subsequently, CCAM were placed under the umbrella of the Caixa Geral de Depósitos, a public institution and, also the biggest Portuguese bank. During the dictatorial and fascist regime “Estado Novo” (1931-1974), the CCAM were used to restrict the expansion of communist ideology and for the political control of the rural population. It was a lifeless period for CCAM. Thus, until 1976 the CCAM played a minor role in the Portuguese banking system, with a share of less than 1% of total deposits and credit (Rebelo and Mendes, 1996).

Following the 1974 political changes, all private financial institutions were nationalized, except for CCAM and foreign financial institutions. Moreover, CCAM started a lobby movement for autonomy, expanding implantation and broadening its activity, and in 1978 the National Federation of Agricultural Co-operative Credit Institutions (FENACAM) was created to support and represent the interests of its members, both domestically and internationally.

In 1982, the sixty-year old Agricultural Co-operative Credit law underwent profound alterations with the publication of a specific Legal Regime for Agricultural Co-operative Credit (Regime Jurídico do Crédito Agrícola Mútuo - RJCAM). Subsequently, CCAM threw off the guardianship of the Caixa Geral de Depósitos, and in 1984, the Caixa Central de Crédito Agrícola Mutuo (Central CCAM) was founded, with the purpose of regulating credit activity of its members.

In 1986 Portugal joined the European Union, and the following ten years were a period of profound changes in the Portuguese economy. The CCAM were considered an important player in the framework of a financing strategy for the development of the agricultural sector. Thus, during the 1980s CCAM activity experienced a spectacular growth, reflected in annual rates superior to 40% for deposits, and approximately 35% for loans and net assets, on average (Cabo, 2003). However, it was a decade of wild growth and mismanagement, with negative consequences for CCAM performance, jeopardising its survival.

In 1991 the Integrated System of Agricultural Co-operative Credit (SICAM) was created by an association of the Central CCAM and the CCAM. The Central CCAM was empowered to supervise, intervene, guide and represent SICAM. SICAM established a regime of co-responsibility between the Central CCAM and its members, so solvency and liquidity supervision was accountable on a consolidated basis. A more demanding framework for the creation and functioning of the CCAM, along with the reinforcement of CCAM funds, ended the joint liability of CCAM members. The “*agency agreement*” allowed CCAM to broker operations forbidden in its normal scope of activity, by acting as an agent of the Central CCAM.

Four years later, in 1995, the RJCAM was modified, widening the scope of CCAM operations to other activities connected with the rural world such as hunting, fishing, agro-tourism and handicrafts, and allowing CCAM to share with its members part of the net benefit (limited to 30% of net profits and in accord with legal and prudential equity requirements) and convert reserves into capital shares transferable to members. These modifications were crucial for boosting CCAM ability to attract new (and more heavily-investing) members, improving CCAM capitalization. Additionally, the new diploma expanded the Central CCAM’s activities, converting it into a truly universal bank.

In 2009 new changes were introduced in RJCAM, adopting a governance model closer to that adopted by investors’ own firms and extending CCAM activity and membership, widening the members’ scope as well as enabling the CCAM to extend credit operations to non-members or purposes not agriculturally related (although within specific limits). Additionally, once CCAM complied with the prudential requirements applied to banks, they were authorized to perform the majority of commercial activities carried out by other financial institutions.

Table 3.1 summarises the dynamic of creation and evolution of the CCAM during the last century.

Table 3.1 - Creation and evolution of CCAM in the 20th century

New CCAM		Existing CCAM	
Before 1920	95		
[1920; 1930[	67		
[1930; 1940[	48		
[1940; 1950[	18	In 1950	132
[1950; 1960[	17	In 1960	149
[1960; 1970[	4	In 1970	144
[1970; 1980[	21*	In 1980	157
[1980; 1990[	57	In 1990	222
[1990; 2000[	6**	In 2000	145

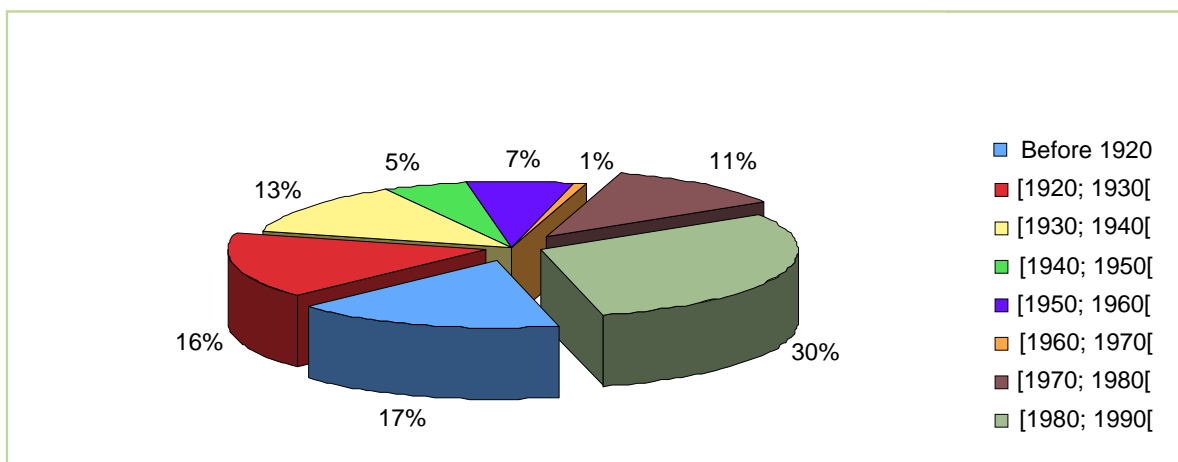
Notes: *19: [1974; 1980]; ** resulting from the merging of existent CCAM.

Source: Adapted from Cabo (2003)

An analysis of Table 3.1 shows that, in the early days, the creation and demise of CCAM was accentuated. Until 1950, for each 5 CCAM created, 2 failed. During the Estado Novo the number of CCAM was relatively stable. After the April revolution, in 1974, CCAM gained a new lease of life and proliferated, especially in the 1980s. In the last two decades no genuinely “new” CCAM were born, the only ones created resulting from a process of merger.

Figure 3.1 illustrates the age of existent CCAM in 1990. We can see that more than 40% of the existing CCAM were still juvenile, created in the 1970s and 1980s.

Figure 3.1 - Year of creation of CCAM



Source: Authors' elaboration based on information available on Bank of Portugal website

With the exception of the island of Madeira, all the continental (mainland) territory was now already covered by CCAM, which, allied with regional restrictions on CCAM activity, made it economically and legally impossible to establish new CCAM.

With the formation of SICAM, in 1991, CCAM entered into an era of consolidation, and the creation of new CCAM was a rare event. Thus, during the last two decades (Table 3.2), along with the organic growth of the CCAM, a regional merger process occurred, and consequently, the number of CCAM fell from the earlier 220 in the 1990s to 90 (85 integrated in SICAM, 5 independents) in 2010. Mergers between local CCAM have considerably increased their size both in terms of assets and number of branches per CCAM. Profitability¹⁶ has also improved. Indeed, at the time SICAM was created, the CCAM presented overall negative net results¹⁷, but the ongoing restructuring process allowed CCAM to improve their performance and experience profitability levels close to or even higher than those of the Portuguese banking system in general.

Table 3.2 - Evolution of SICAM 1995-2010

	Number of CCAM	Average Assets per CCAM (million €)	Average Branches per CCAM (#)	ROA*
1995	186	22,28	2,5	-0.3%
2000	140	47,56	–	0.7%
2001	132	54,88	4,3	1.0%
2002	121	61,50	4,6	0.5%
2003	120	67,00	5,0	1.0%
2004	118	71,80	5,2	1.0%
2005	111	82,00	5,7	0.9%
2006	105	91,60	6,0	1.0%
2007	100	102,50	6,4	1.1%
2008	92	116,90	7,2	1.1%
2009	88	137,50	7,8	0.3%
2010	85	155,44	8,2	0.3%

Note: * Ratios for 1995 to 2006 calculated in accordance with Portuguese rules (PCSB), transitional rules in 2007 (NCA) and IAS for 2008 to 2010.

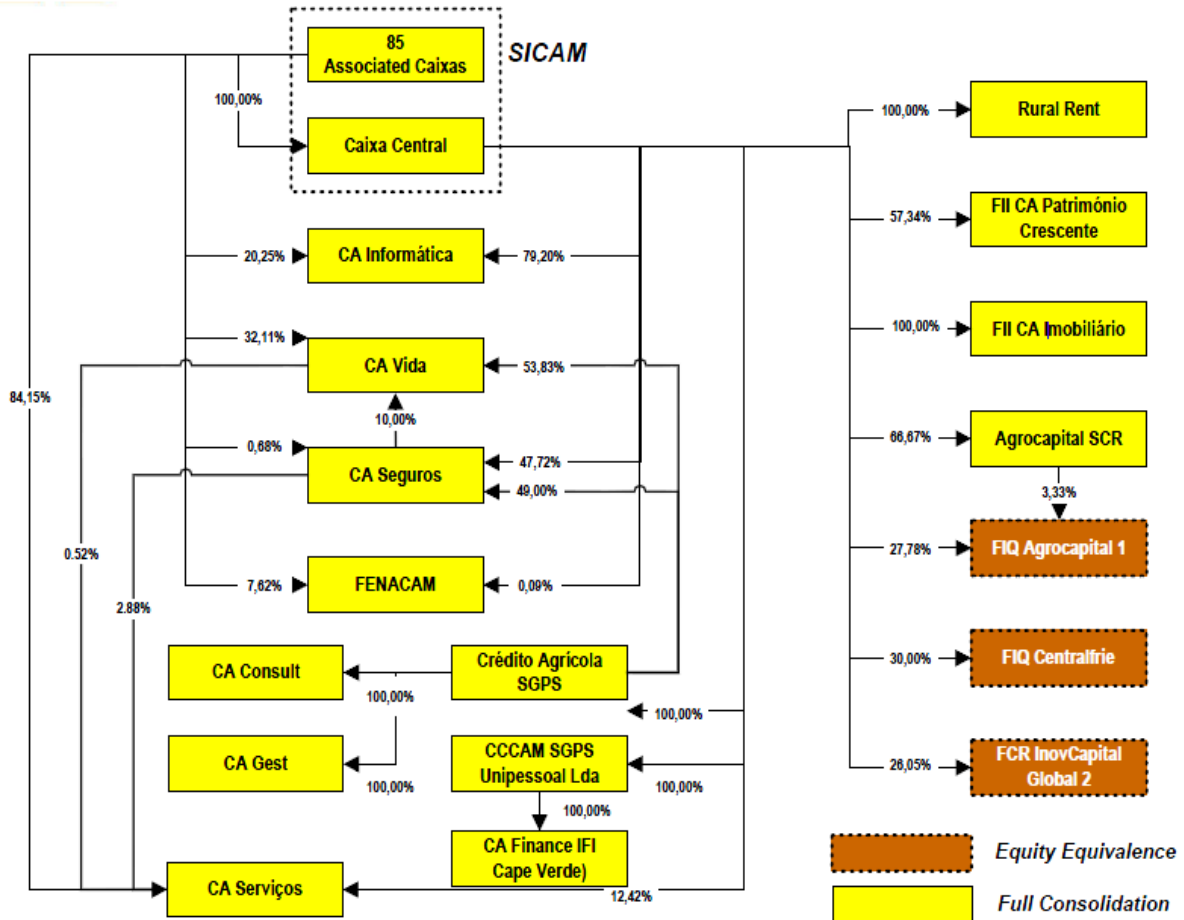
Source: Authors' elaboration based on CCAM annual reports

¹⁶ Return on assets – ROA

¹⁷ The 1992-1993 Portuguese agricultural crisis together with CCAM difficulty in attract new members ended in the continuous degradation of CCAM results, which became negative from 1992-1995 (Cabo, 2003).

Simultaneously, in the 1990s the Crédito Agrícola Group was founded. Nowadays, the Credito Agrícola group is one of the leading financial groups in Portugal, composed of a large number of small- to medium-sized co-operative banks (CCAM) and some specialized companies - like the shared services centre CA Serviços - under the supervision of the Central CCAM resulting in the Group represented in Figure 3.2.

Figure 3.2 - Crédito Agrícola group structure



Source: Crédito Agrícola (2011a)

3.3 - Credito Agrícola in Portuguese banking

Today, the Crédito Agrícola (or SICAM) is a financial Group that spans the country, with around 400 thousand members in 2010; 1.1 million customers, mainly small- and medium-scale savers, farmers, SMEs and traders; 85 local banks – the CCAM – with a network of 700 branches, scattered across the mainland and in the autonomous region of the Azores; a balance sheet of 14 thousand million euro; equity totalling 1,100 million

euro; a solvency ratio – core tier 1 – of 12.3%; and a transformation ratio of close on 90% (Crédito Agrícola, 2011b).

These figures rank Crédito Agrícola as the 5th Portuguese financial group: 7th in terms of Net Assets; 6th in Deposits and 3rd regarding the dimension of the Retail Franchise. Table 3.3 presents the market share of the four biggest Portuguese banks and Crédito Agrícola (CA) in the Portuguese banking system. It shows that CA has an important position in the Portuguese banking system, in regard to employment, network of branches and customer deposits.

Table 3.3 - The biggest Portuguese retail banks, by December 2010

(Values in euro million and for domestic activity only)

	CGD		Millennium BCP		BES		Banco BPI		CA	
	Values	Market Share	Values	Market Share	Values	Market Share	Values	Market Share	Values	Market Share
Employment (#)	9,672	17.01%	9,899	17.41%	6,142	10.81%	7,032	12.37%	3,876	6.82%
Branches (#)	869	13.93%	881	14.12%	700	11.22%	750	12.02%	691	11.07%
Net Assets	112,903	22.30%	102,144	20.18%	75,964	15.01%	42,417	8.38%	13,213	2.61%
Equity	6,202	21.84%	6,609	23.28%	6,258	22.04%	1,055	3.72%	1,026	3.61%
Net Profit	47	4.18%	301	26.59%	256	22.64%	89	7.88%	36	3.21%
Net Loans	69,715	24.15%	52,999	18.36%	41,096	14.24%	28,381	9.83%	8,069	2.80%
Total Deposits	54,788	28.11%	31,367	16.09%	26,591	13.64%	16,656	8.54%	9,989	5.12%

Source: Authors' elaboration based on company annual reports; Bank of Portugal and Portuguese Banking Association websites.

A structural analysis (Table 3.4) shows the robustness of Crédito Agrícola. The value of deposits continues to be way above loans, leaving SICAM with a strong liquidity position on its balance sheet, and the highest solvency ratio (Tier 1) of all the Portuguese banks. This gives Crédito Agrícola a solid security buffer crucial in the current economic and financial crisis context.

Table 3.4 - Crédito Agrícola ranking, by December 2010

Performance Indicators	Values	Ranking
Transformation Ratio *	86.2%	1 st
Efficiency Ratio **	67.1%	
Return on Assets (ROA) ***	0.3%	
Return on Equity (ROE) ****	3.5%	
Solvency Tier 1 Ratio *****	12.6%	1 st
Customer claims:		
Deposits: claims <i>per</i> 1000 accounts	0.07	1st
Mortgage credit: claims <i>per</i> 1000 contracts	0.42	1st
Checks: claims <i>per</i> 10,000 checks processed	0.05	1st

Notes: * Net Loans / Deposits; ** Structural Costs / Net Worth [Structural costs include amortisation + general administrative expenses + staff costs; Net Worth include financial margin + net commissions + other income (including results from financial operations)]; *** Net Profit/ Average Net Assets; **** Net Profit / Equity; ***** Basic Own Funds / Weighted Risks (assets + off-balance-sheet items)

Source: Crédito Agrícola (2011b); Banco de Portugal (2011)

Crédito Agrícola presents the lowest transformation ratio: 86.2%, remaining this indicator at a clearly conservative level. Historically, it has never presented a value higher than 90%, a percentage much inferior to the generality of other financial institutions, which exceed 100%. This fact has a positive influence in terms of CCAM liquidity.

Efficiency ratio reflects CCAM efficiency-cost efforts and its ability to explore scale and scope economies. SICAM efforts to control the increase of structural costs below net worth were crushed by the harsher operating conditions and especially by the deterioration in the financial margin resulting from the policy adopted by the monetary authorities in response to the liquidity problem (consequence of the 2008 financial and subsequent sovereign debt crisis) affecting other financial institutions. Therefore, the overall performance of Crédito Agrícola has changed for the worse and results have continued to be badly hit, as they were in 2009, by extraneous factors connected to monetary policy rather than the crisis itself (Crédito Agrícola, 2010a). Thus, return on operations overall was poor, with ROA at 0.3%, and ROE at 3.5%, well below the figures of 1.1% and 13.08%, respectively, for 2008.

But the co-operative business model upon which Crédito Agrícola is founded has also proved to be resilient¹⁸ during hard times, with its robust capitalisation and ample liquidity. Low but steady results allow Crédito Agrícola to bolster its financial situation, which is today very robust. Given the co-operative nature of Crédito Agrícola, profits are mostly directed to the reinforcement of equity. This continuous reinforcement is reflected in the solvency ratio of 12.6%, the highest in the Portuguese banking sector and much higher than the 8% imposed by the Bank of Portugal.

Finally, the Crédito Agrícola business model approach reflects on the quality of the services provided, as the excellent scoring on the customer claims indicator shows. The “recipe” lies in its better understanding of proximity as a factor in banking, backed by an extensive network of branches and points of contact with its members and customers. A model regarded by many, before the present financial crisis, as “obsolete”...

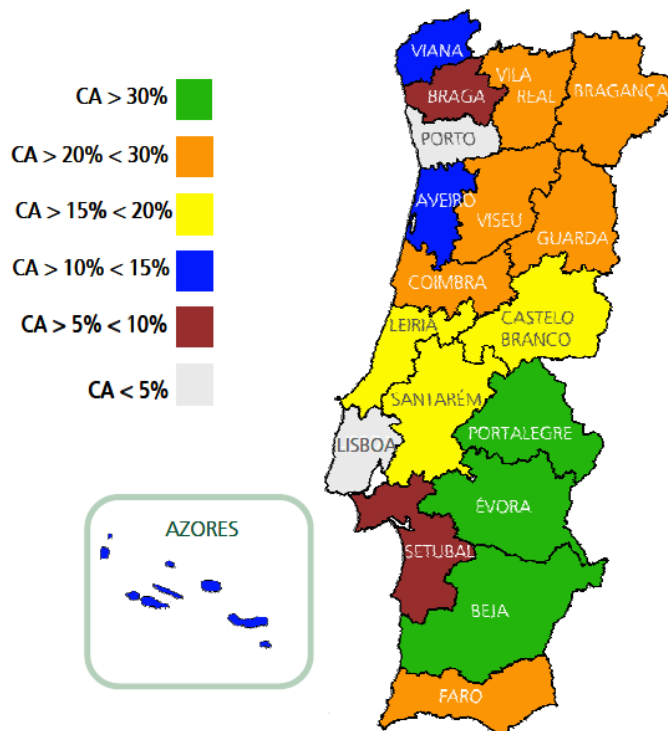
3.3.1 - Regional development

The real importance of Crédito Agrícola in the Portuguese banking industry is entrenched in its business approach. Notable for their unique form of proximity to their communities, the CCAM are a powerhouse for local and regional development, fulfilling the Crédito Agrícola corporate mission “... *contributing to the development of Local Communities*” (Crédito Agrícola, 2009). The CCAM fulfil their mission, being spread across the entire domestic territory, with the exception of the island of Madeira.

Apart from the two metropolitan areas, the Crédito Agrícola has a solid presence, as shown in Figure 3.3, with a market share which, in some regions – the North, Centre and South of the country – is more than 15%. In some parts, the figure rises to over 30%. But there is another, more important point: in hundreds of places across the countryside, the only link into the financial system available for the local economy is the Crédito Agrícola network or its facilities – the ATMs, the automatic banking counters or the POSs – installed by the local CCAM (Crédito Agrícola, 2011b).

¹⁸ The interim 2011 financial results show a substantial improvement with the Crédito Agrícola presenting 53.3 million euro of net profits, 46.8% above the ones of 2010 (Crédito Agrícola, 2012). This growth is particularly significant when the profits of the Portuguese IOF banks continue to decrease and in some of them even became negative.

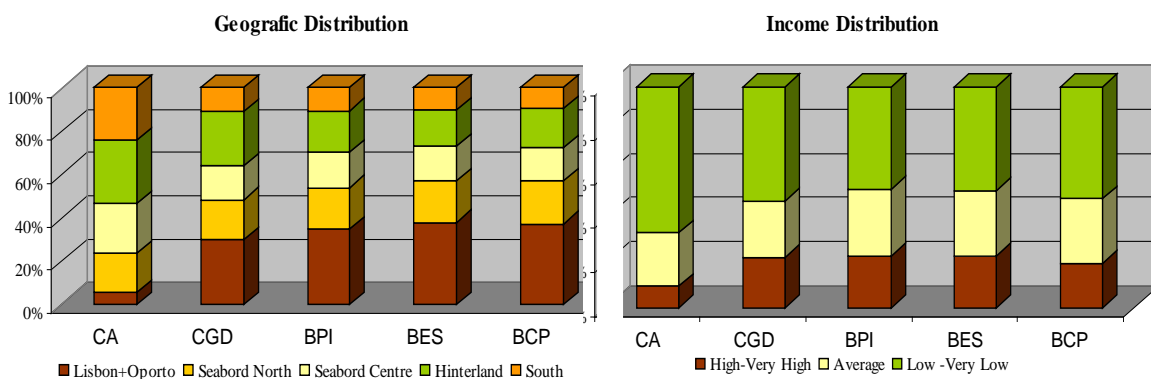
Figure 3.3 - Crédito Agrícola local market share



Source: Crédito Agrícola (2011b)

In terms of geographic distribution (Figure 3. 4) CCAM are very different from the other banks, given that over half of its customers (53.3%) live in the country’s inland regions. The Crédito Agrícola has a special responsibility in these circumstances. Its distribution across regions means it is present in many places where economic strength has been sapped. Thus, a very high proportion of the customers (more than 90%) have low or moderate incomes (Crédito Agrícola, 2009).

Figure 3.4 - Customer profile of the biggest Portuguese banks



Source: Adapted from Crédito Agrícola (2009)

3.3.2 - Internationalization

Although 1992 marks the beginning of international business activity, it is still a new area for Crédito Agrícola. In 2010, Crédito Agrícola involvement in international business operations reached 1,670.5 million Euro. Market share stands at 1.8% (Crédito Agrícola, 2011a). In particular, emigration is a specific segment with a role in the Group which has been growing consistently over recent years, thanks to the excellent geographical distribution of Crédito Agrícola throughout the country and the dynamic approach of the Group's branches abroad. The sustained increase in emigrant remittances is symptomatic of this area of Group operations, as can be seen from the Group market share: 15.5% in emigrant remittances and 3.4% in emigrant deposits, in 2010. The foreign branches of the Crédito Agrícola (International Financial Institution in Praia, Republic of Cape Verde and 2 Representative Offices, in Paris and Luxembourg) showed results of around 243 thousand euro, with assets under management standing at 70 million euro.

3.4 - Structure and governance

Essentially, the agricultural co-operative credit system in Portugal is made up of an integrated system (SICAM) of two types of co-operatives: the central and the individual (single, associated or member), i.e., SICAM = Central CCAM + Associated CCAM, including 85 CCAM. Together they own several specialised companies forming the Crédito Agrícola Group. The central structures of the group are the Caixa Central de Crédito Agrícola Mútuo and FENACAM. The former is a co-operative banking institution empowered to supervise, orientate and monitor operations in the associated local banks. The latter is a co-operative institution which provides specialised services for the Group.

Membership of the Central CCAM is not mandatory for CCAM. There are CCAM in Portugal which are not members of the Central CCAM or which have withdrawn from membership of the Central CCAM, although the rules for this are more stringent, and approximate more to those that prevail in private credit institutions¹⁹. Currently, only

¹⁹ Portuguese banking activity is regulated by the General Regime of Credit and Financial Institutions (RG), approved by Decree of Law n° 298/92, and with the following alterations.

five CCAM remain outside SICAM. Services are not offered by the Central CCAM to these CCAM.

Except for banking operations, the CCAM follow traditional co-operative principles, namely, open membership, democratic control and restricted residual claims. The dual nature of credit co-operatives is reflected in their formal and institutional solutions.

According to the RJCAM²⁰, the CCAM are credit institutions of a co-operative nature, whose goal is to perform agricultural credit operations in favour of their members, as well as the other banking functions inherent to banking activity. Thus, CCAM are under a special regime, essentially because of their co-operative form and their priority goal of performing agricultural credit operations in favour of their members.

RJCAM specifies that CCAM are created in a co-operative form, with limited liability, and should seek, without the aim of profit, the satisfaction of their members' economic, social and cultural needs and aspirations. The CCAM present in this way structural and intrinsic differences to banks, since according to the law, banks must be in the form of public limited companies (corporations) and, therefore, aim for profit.

The RJCAM impose several limitations resulting from its social objectives, territorial area and members' attributes. In addition it is difficult for CCAM to increase their issued share capital since they cannot publicly do so. These limitations have their counterpart in minor issued share capital, organizational structure, technical and human resources available, solvency, control and accountability requirements (on an individual but not a consolidated basis).

The 2009 RJCAM alterations basically aimed to adjust the CCAM governance model to those established for corporations in the Portuguese Commercial Companies Code²¹, and, simultaneously, to widen the CCAM membership base, bringing it more in line with other financial institutions, and boosting issued share capital increase, in view of the recession felt in the agricultural sector.

Table 3.5, next page, summarizes the main features of co-operative credit, according to Portuguese legislation.

²⁰ Approved by Decree of Law n° 24/91, with the following alterations, and republished in apex of the Decree of Law n.° 142/2009.

²¹ Approved by Decree of Law n° 262/86, and with the following alterations.

Table 3.5 - Portuguese credit co-operatives portrayal

Creation	Bank of Portugal approval, following the agreement of Central CCAM and FENACAM.
Legal form and nature	Credit Institution, Co-operative form. RJCAM (and subsidiary: RG for the banking activity, and Co-operative Code ²² and other co-operative legislation) applies.
Operations	Granting credit primarily to their members and for financing of primary sector activities. CCAM complying, on individual basis, with prudential rules settled in the RG, can perform operations with non-members or financing activities outside primary sector up to 35% of net assets. Exceptionally, that limit can be raised to 50% by the Bank of Portugal for SICAM associates, at the suggestion of the Central CCAM. Additionally, CCAM that have adequate structural conditions and sufficient funds could be authorized by the Bank of Portugal to perform most of the other activities allowed to banks, with few exceptions.
Membership	Singular or collective persons, who carry out any activity linked to the primary sector (production, transformation or services) in the CCAM territory (or adjacent). Membership outside primary sector activities is permitted but limited to 35% of the CCAM members. Exceptionally, that limit can be raised to 50% by the Bank of Portugal. Minimum shareholding: €500; Minimum of 50 members.
Territorial activity	CCAM activity is restricted to their headquarters municipality. CCAM can expand to an adjacent region if there is no other CCAM operating there, or as a result of a CCAM merger.
Opening of branches	Branch opening is subject the authorization of the Central CCAM for associated CCAM and of the Bank of Portugal, for independent CCAM.
Shareholders capital	Capital is variable; it can be increased by the admission of new members or higher shareholdings or by the incorporation of reserves; or it can be reduced by exit of members or lower shareholdings or by covering losses. Capital reduction is restrained by prudential rules. The maximum reimbursement value is defined by the accounting value net of compulsory reserves. Capital minimum fixed by the Ministry of Finance: 7.5 million euro; SICAM associates: 1.496 million euro (5 million euro until 30th June of 2015 ²³).
Resources	Deposits and other reimbursed funds from their members and/or customers. Access to other financing resources, namely interbank market, requires Bank of Portugal (and Central CCAM for associated CCAM) approval. General financing means stipulated in Co-operative Code, namely, issuing of investment securities or debt.

(Continues next page)

²² Approved by the Law n° 51/96, with the following alterations.²³ By 30th June 2015, CCAM capital should reach at least €5 million; beginning with €2.5 million by 30th June 2011 followed by an annual increase of €0.5 million.

Table 3.5 - Portuguese Credit co-operatives portrayal

(Conclusion)

Financial applications	Besides deposits, CCAM can make applications in public debt under conditions established by the Bank of Portugal. CCAM can only hold participations: (a) in regional unions, Central CCAM and FENACAM; (b) in enterprises whose object is of regional interest (up to 20% of equity); (c) to assure the reimbursement of credits; (d) when especially authorized by Bank of Portugal ²⁴ .
Governance bodies	The management and supervision bodies (composition and competences) stipulated for corporations apply, preserving the importance and competences of the General Assembly, characteristic of the co-operative model.
Shares	No tradability of shares.
Voting rules	Principle of democracy, voting right independent of shareholding position: one member, one vote.
Reserves	CCAM must allocate up to 50% of the net profits to the reserves: (a) at least 20% to the legal reserve until it reaches the value of issued share capital; (b) at least 20% to the special reserve for reinforcement of equity in the case of CCAM under financial restructuring process, until it reaches the value of the amount of the benefits obtained with the process; (c) between 1% - 5% to the members' education; and (d) a max of 5% to the mutual reserve. CCAM statutes can design other reserves.
Profit allocation	After covering eventual losses of previous exercises, profits not allocated to the reserves can be distributed among members. The remuneration of capital shares is limited to 30% of the results ²⁵ . Profits cannot be distributed if the CCAM do not comply with prudential rules, or if the member shareholding is inferior to the minimum required, in which case his portion of the profit will revert to them.
Supervision	Bank of Portugal. Central CCAM for SICAM members.
Tax Policy	Profits are subjected to a rate (IRC) of 20%; excepting the results of no members operations or activities outside co-operative purposes and the taxation on consolidated basis, in which the IRC general rules apply ²⁶ .
Deposits insurance	Insurance Fund of Agricultural Co-operative Credit. This fund as well as securing CCAM customer deposits, performs an active role in the SICAM economic and financial restructuring process, as part of its task to promote SICAM solvency and liquidity.

²⁴ CCAM hold direct participations in the Crédito Agrícola specialized companies under this special authorization.

²⁵ CCAM do not usually give out profit to members. Members' remuneration usually takes the form of capital shares allocation resulting from the incorporation of reserves.

²⁶ According to the Co-operative Tax Statute, Law n° 85/98. Although, according to FENACAM (2009) co-operative credit system is, inside of the Portuguese Financial System, in percentile terms, the greater contributor. In many cases co-operative credit system taxation is triple of the other banking companies.

As mentioned, Crédito Agrícola Group takes a specialized approach to financial services. However, most of the people who use the services of the local CCAM are non-members. Any person may open an account, make deposits, obtain loans, and use the services of the CCAM, complying with the limits imposed by RJCAM (Table 3.5). Of the approximately 1.1 million customers of the Crédito Agrícola Group, only about 400,000 are members.

With certain incentives to membership having been removed in recent tax reforms, the Crédito Agrícola Group is attempting to encourage membership in order to enhance the grass roots of the movement by offering special conditions attaching to financial products and services, such as the “Clube A” card for members. This is a hard task in a country struggling with the declining of rural regions and agro-business industry.

Entering the new millennium, the number of Crédito Agrícola has stagnated, with new entrances scarce and diluted by the exit of members. Simultaneously the number of CCAM customers has declined by almost $\frac{1}{4}$ in one decade. Crédito Agrícola is attempting to diversify its customer’s portfolio, targeting a new type of customer, not linked to the primary sector activities, promoting Crédito Agrícola as a good and friendly brand.

Within general prudential guidelines provided by Central CCAM, the local CCAM have control over their pricing and personal services. In general, CCAM sell products and services developed by the Crédito Agrícola Group and pursuant to formal policies and procedures issued by Central CCAM, to which the local CCAM must adhere. The CCAM operate from a common technology platform.

The operations of the CCAM are restricted, and limited to their headquarters region. Whenever competitive friction between local CCAM arises, their dispute is arbitrated by Central CCAM. The local CCAM consistently honour the principle of non-competition. Any new branch of a CCAM must be approved by the Central CCAM.

The role of the Central CCAM has no parallel in other financial institutions. Central CCAM is a financial institution in co-operative form, offering a full banking service and competing on equal terms with the largest banks operating in Portugal. The Central CCAM aims at the concession of credit and other practices inherent to banking activity, on the same terms as commercial banks. However, it should not compete with its own

members. For example, Central CCAM is authorized to open branches on the same terms as banks, but must previously consult the local CCAM member.

Central CCAM acts as central bank for the group, creating and developing a joint banking strategy. For instance, individual excess of liquidity is transferred to Central CCAM, which can lend to non-primary economic sectors or carry out transactions in the money, foreign exchange or capital markets. It pays the market rate on liquidity deposits and, following the principle of “user payer”, charges fees to the CCAM for consultative and advisory services. Central CCAM does not attempt to generate a profit from its transactions with its member CCAM. It sets prices to recover costs.

The CCAM are its only members and have capitalized it through share investments. As in the case of local CCAM, Central CCAM capital is variable and can be increased by the admission of new members or higher shareholdings, or by the incorporation of reserves, and shareholding reimbursement is restrained by prudential rules and requires General Assembly approval. The minimum capital of Central CCAM, as fixed by the Ministry of Finance, is 17.5 million euro; with minimum shareholding of 5,000 euro and maximum of 10% of capital, except in the case of extraordinary supplies.

Although the Bank of Portugal is responsible for banking sector supervision (i.e., the financial regulator), with regard to SICAM associates the law delegates a great part of these functions to the Central CCAM which, in turn, is under Bank of Portugal supervision. The Bank of Portugal defines the relations and prudential limits applicable to SICAM, and supervises the system accounts on a consolidated basis. Central CCAM assures the fulfilment of SICAM and associated CCAM solvency and liquidity rules and controls and guides them. The accounts consolidation of associated CCAM is a Central CCAM responsibility, in compliance with the terms defined by the Bank of Portugal. Specifically, Central CCAM orientation powers include the definition of general rules: (a) necessary to assure the fulfilment of the solvency and liquidity rules of SICAM and associated CCAM; (b) of commercial and credit granting policies including the setting up of guarantees; (c) regarding admission, remuneration, training and staff qualifications; (d) regarding the creation of new branches; (e) to define general rules of office operation and security.

Furthermore, without prejudicing Bank of Portugal authority, Central CCAM is empowered to control administrative, technical and financing aspects of associated

CCAM, and their organization²⁷ and management. Moreover, Central CCAM can intervene by the assigning a representative to monitor CCAM management or the nomination of provisional directors when it encounters an unbalanced situation which could jeopardize the daily functioning of the CCAM, its solvency is at risk, or serious irregularities occur. In addition, when the member is in (or at risk of) financial unbalance and not following Central CCAM guidelines, Central CCAM can dismiss all or part of the associated management and supervision boards, and assign interim directors to them.

Finally, Central CCAM guarantees its associates without limitations and is also guaranteed by them. In fact, Central CCAM guarantees the obligations assumed by the associated CCAM, even if they are prior to the association, in the same way as a bailer guarantees the obligations of the warrantee, without enjoying the right of exclusion. SICAM is, in this way, subordinated to a double guardianship; in fact Central CCAM is directly responsible not only for the organization, but also for the economic and financial management of its associates.

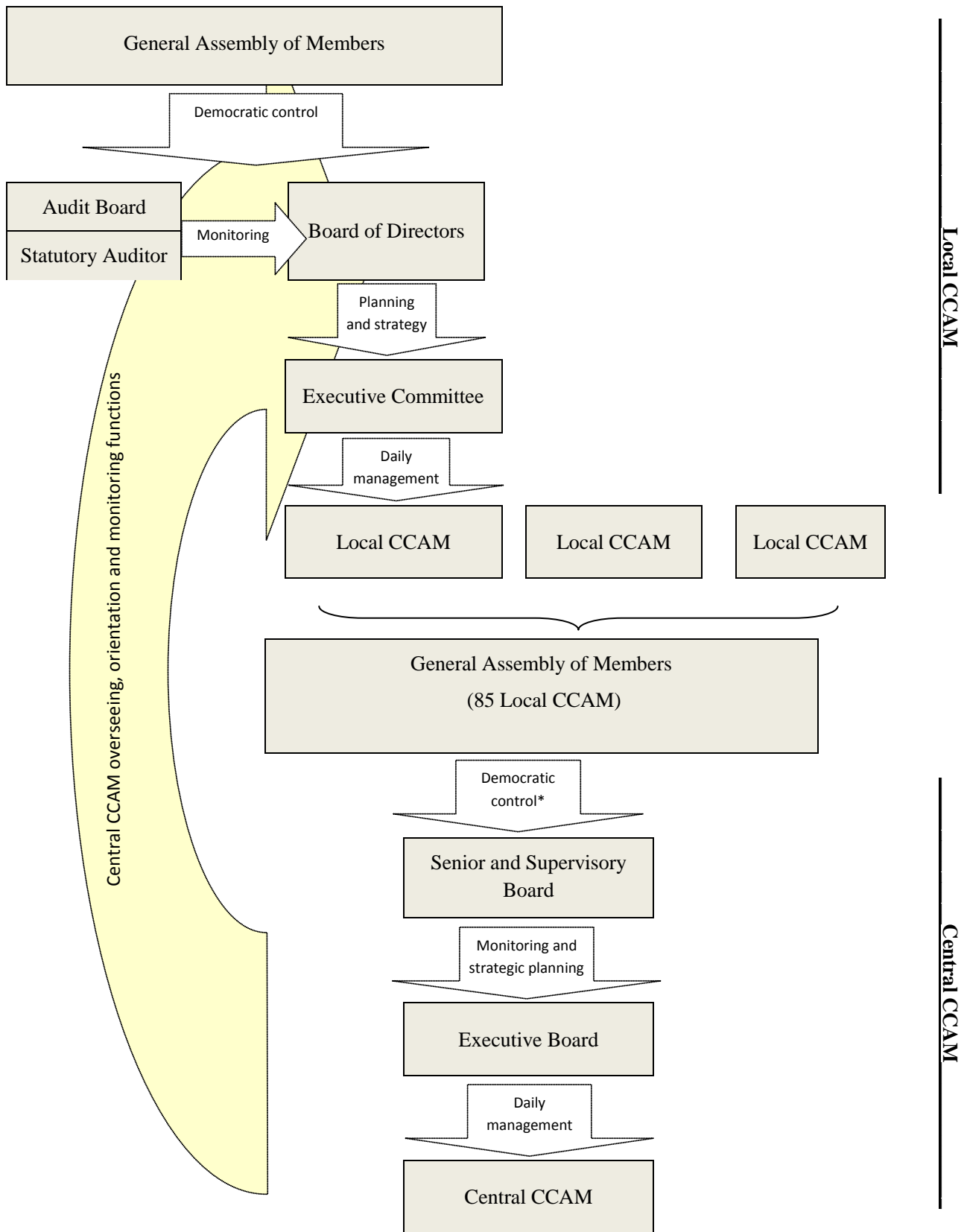
The autonomy of the local CCAM, combined with the assistance the local CCAM receive from Central CCAM, creates a decentralized, but strongly orchestrated, bottom-to-top decision making process.

Figure 3.5, next page, includes a summary of the skeleton of the SICAM structure of governance, i.e. the different governance bodies and linkages between them.

Similarly to most of Portuguese IOFs, local CCAM have adopted the so called, “*Reinforced*” Latin Model, as stipulated in corporations’ law but maintaining the General Assembly (GA) competences deriving from the Co-operative Code. In the “*Reinforced*” Latin Model the management and supervising responsibilities are divided among the Board of Directors (BoD), the Audit Board and a Statutory Auditor (ROC - *Revisor Oficial de Contas*) independent of the Audit Board. It is this last element that provides the characteristic of “reinforced” model, since the Audit Board has the function of effective monitoring and auditing CCAM operations and the ROC the power of analysis and certification of CCAM accounts.

²⁷ Exemplifying, if the Central CCAM has an unfavourable appreciation regarding the registration of a member governance bodies, Bank of Portugal rejects its registration.

Figure 3.5 - Governance structure of SICAM



Note: * Principle of democracy, excepting for some specific decisions (election of the Central CCAM board of directors, budget approval and profits allocation) in which the voting rights can differ according to the shareholding and CCAM average deposits and the solvency ratio.

In most CCAM, the BoD delegates management powers in an Executive Committee or into two or more Chief-Executive Officers. The two biggest CCAM have adopted an advisory board to support the Board of Directors, being all the directors also executive directors.

Co-operatives supreme governance body is the GA and, according to the Co-operative Code, GA is composed by all the co-operative members. GA makes decisions regarding election and remuneration of the members of the management and supervision governing bodies, as well as on major issues like closure of the co-operative, merging and changing the bylaws. The GA also has the right to approve (or refuse) the annual financial report. Decision making process is democratic (one member one vote) and its decisions are mandatory for the other social bodies and to all co-operative members. GA meets at least twice a year, to appreciate the annual report, including the balance sheet and income statements, and for approval of next year plan of activities and budget.

The BoD is the main decision-making body of the CCAM. The BoD, as the fiduciary agent of the members, has the formal authority and legal duty to act in the members' best interests. The members of the BoD are elected by and accountable to the GA. Decisions of the BoD are taken collectively, the responsibilities and liabilities are also collective and solidary. The CCAM bylaws may stipulate authorisation for the BoD to delegate into Executive Directors, or professional managers²⁸ the CCAM operational management.

The Audit Board is responsible for: (a) over-watching the management of the company; ensuring that the law is upheld and the bylaws are observed; (b) verifying the regularity of the books, accounting records and supporting documents and the accuracy of the financial statements; and (c) furnishing statements of opinion on the management report and accounts for the financial year. Moreover, is competence of the Audit Board to suggest the name of the Statutory Auditor to be nominated (elected) by the GA.

Central CCAM adopted a different governance model. The BoD is also the Executive Board of Directors. According the bylaws, there are matters or category of acts that

²⁸ The professional managers are appointed by the BoD. The delegation of powers to professional managers is limited to a restricted range of acts. The BoD remain with the inherent legal responsibilities and duties.

require previous approval of the General and Supervisory Board. The auditing activities are carried out by the General and Supervisory Board and Statutory Auditor.

3.5 - Conclusions

The Portuguese co-operative credit system is a typical example of how the public policy can influence the development of the co-operative banks. Until the 1990s CCAMs had no control over their own life. Having been developed in a top-down process, the CCAM depended on public funds to carry out their mission and were often used to accomplish political goals. Indeed, CCAM were used to provide a public benefit to the rural economy and rural population.

Like co-operatives in other sectors, the CCAM increasingly face survival challenges, partly as a consequence of their co-operative nature. Worldwide co-operatives have adopted varied strategies to combat difficulties inherent to the co-operative definition and use of property rights. Most of the solutions presented are based on some degree of deviation from traditional co-operative principles. CCAM implemented a very different strategy. They opted to focus their efforts on co-operative activity and performance, rather than on the co-operative rules themselves. Still, in the face of an increasingly competitive banking industry, the 2009 RJCAM changes improved CCAM activity, easing product and territory restrictions and approximating their governance model to that of corporations. It was a change which distanced RJCAM from the Co-operative Code. Nevertheless, it is in the Co-operative Code that CCAM can find the solutions to some of their governance problems, without losing their co-operative identity.

The signs of the times are complex and blurred by uncertainties. The world economy is experiencing a crisis never before seen. In Europe, the euro zone countries, above all the most vulnerable, have been caught up in shockwaves that revealed structural weaknesses, and triggered a sovereign debt crisis. With financial resources scarce, the effects caused economic activity to falter, and unemployment to rise significantly. The result has been a plummeting standard of living in many thousands of households, namely in Portugal.

But “what doesn’t kill us make us stronger”. This is perhaps the biggest lesson of the last decade crisis in Europe. Regarding the co-operative banks, its governance model,

considered in a recent past as obsolete, is proving its strengths to overcome quickly the troubles linked with the crisis. The Crédito Agrícola 2011 annual report show that CCAM are recovering from the crisis faster than other national banks, presenting returns similar to the ones of 2008, before the crisis burst out.

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Chapter 4 - The Governance Control Mechanisms of CCAM

4.1 - Introduction

In recent years the importance of corporate governance (CG) has rising new attention, as the 2008 financial crisis illustrates. Co-operatives, like investor-owned firms (IOFs), are subject to pressure for greater efficiency and change in CG, being important for co-operatives to consider CG within the framework of their origins and building up an effective system of internal control (Pellervo, 2000).

As discussed in Chapter 2, the dominant economic view in economic analysis is that CG deals with the relation between owners and managers, following the agency theory. Using this approach the question to solve is how to make a manager enough committed to the creation of long-term shareholder value as if it was his own money (Tirole, 2006). Even though the question of controlling managers is basically the same in both co-operatives and IOFs, the co-operative has many special features that make governance different and challenging, particularly, their ownership character, goal setting, methods of financing and profit distribution and decision making process. These differences bind not only members more effectively to the activities and running of the co-operative, but also blur the ownership role and bring the owners many other interests in addition to the success of the firm (Pellervo, 2000).

The CG mechanisms available for co-operatives to discipline management differ from those of IOFs (Staatz, 1987; Trechter *et al.*, 1997). Co-operatives do not have the stock market mechanism for assessing their performance (and its management), unlike stock-listed companies they are not scrutinized by the financial media. Indeed the particular

features of the capital shares of co-operatives²⁹ inhibit it to be used as channel of information and control as in the listed companies. Also hostile takeovers or threat of hostile takeover that can lead to the change in management is not available in co-operatives and the application of the democratic principle “one member one vote” prevents the accumulation of votes into blocks and consequently the monitoring by blocks of shareholders. Finally, the alignment of managerial and members interests through executive compensation contracts is complicated, since co-operatives could not use the market share value as a performance indicator or use share options as part of the remuneration package.

The absence of these control mechanisms implies that for disciplining the management co-operatives rely on active and continuous monitoring by the board of directors (BoD). It can be a problematic function, since the BoD of co-operatives are less likely than the boards of IOFs to monitor or replace management (Fama and Jensen, 1983; Rasmusen, 1988) and its delegated power can be damaged by the usually low level of member participation in the co-operative life, including the exercise of voting in general assembly (Spear, 2004).

Being the critical link between members and managers, BoD key functions include over-watching co-operative operations and hire/dismiss management. Particular issues for co-operative boards derive from their elected status which provides no certainty that directors will hold the right skills mix and knowledge to effectively scrutinise management decisions. Frequently, directors do not work full-time or they lack the relevant education to exercise their functions, potentially leading managers to exploit these weaknesses for their own benefit.

Indeed, the co-operative systems of governance contribute to the development of powerful³⁰ and entrenched managers who have more control than in similar IOFs. Furthermore, in the context of co-operative governance structures and especially elected

²⁹ Co-operatives share capital: (a) varies in size (as function of the entry/exit of co-operative members); (b) is accumulated either in proportion to member purchases or investments of the same sum (members do not invest according on the basis of risk as in IOFs); (c) investment in share capital is not freely transferable (sellable) to another person as is a normal shareholding; (d) the value of an investment in co-operative share capital is not determined by the market (repayment of shares is at par value).

³⁰ The development of managerial dominance within co-operatives is linked with the declining of the role of membership in governance (members' apathy), the expansion of the co-operative and a growing domination of commercial values fostered by a professional management distanced from co-operative values (Meister, 1984; Aghion and Tirole, 1997; Cornforth, 2004; Malo and Vezina, 2004; Spear, 2004).

boards, beyond the member-manager conflict, there is also the member-board conflict to consider. Co-operative boards can pursue their own interests at the expense of members as well as be inclined to interfere with the operational responsibilities of managers. Examples of governance problems include directors becoming rent-seekers, taking steps to make sure that members cannot participate, becoming self-perpetuating groups, holding meetings without telling members and giving themselves inappropriate loans (Shaw, 2007; Cuevas and Fischer, 2009). To overcome these weaknesses and develop the co-operative model is essential an effective CG, particularly one that become larger and adopt multi-tier (e.g., management and supervisory) board structures (Commission of the European Communities, 2001).

As described in Chapter 3, the Portuguese Agricultural Credit Co-operatives (Caixas de Crédito Agrícola Mútuo - CCAM) are regulated by the legislation specific to co-operatives and partly covered by company law, and in their banking activity they are subject to similar regulations as those applied to the banking system as a whole. But CCAM differ from banks in two important aspects: they are non-profit firms (therefore return of profits is restricted); and they do not have access to publicly raised capital. The CCAM capital base growth is supported by their retained net benefit. Thus understanding how CCAM governance can work on correcting bad economic performance is a matter of crucial importance to overcome this constraint and ensure the economic and financial survival of CCAM.

The goal of this chapter is to determine the impact of the different governance mechanisms of co-operative banks on control management, by analysing CCAM governance and assess its efficiency in disciplining management. Hence, using data from 1995-2009 period, and multinomial logit models, the relation between CCAM performance and several control mechanisms operating within the Integrated System of Portuguese Agricultural Co-operative Credit (SICAM) is analysed.

To achieve this purpose, the remainder of the chapter consists of three sections. Section 2 provides a summary of the governance mechanisms operating in the CCAM associated from SICAM. Section 3 describes the model, sample and results. Section 4 offers some concluding remarks.

The CCAM information included in the next sections was collected from CCAM Annual Reports, legislation, CCAM by-laws and other official documents,

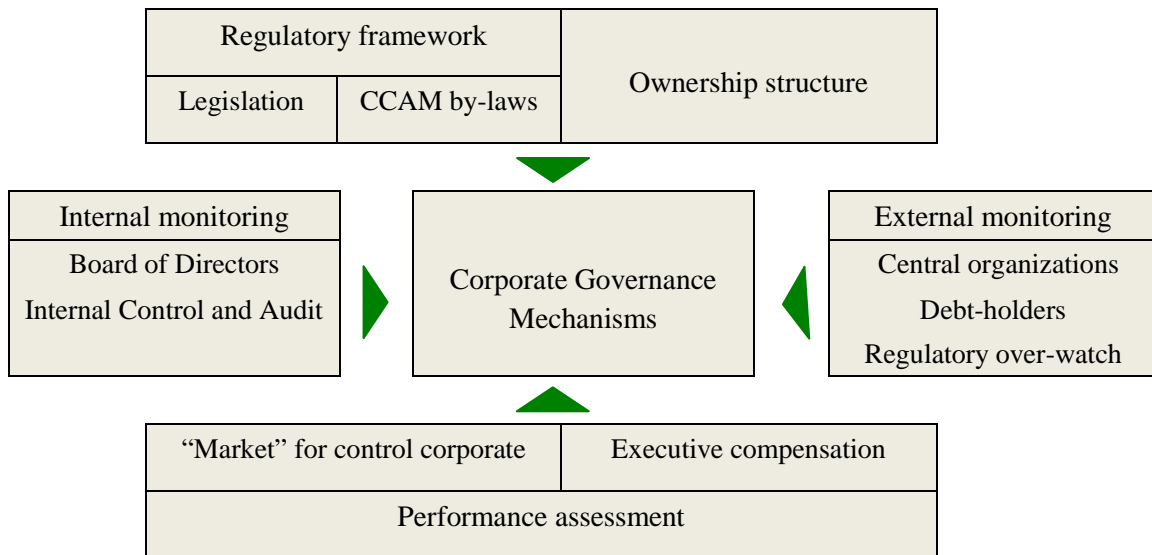
complemented by a questionnaire to CCAM managers regarding CCAM governance, including membership and governance and management bodies functioning.

4.2 - The CCAM governance mechanisms

As described in Chapter 3, the Crédito Agrícola Group has a three-fold structure: local member banks (CCAM), Central CCAM (the network’s central bank) and the subsidiary firms. In its essence, SICAM is an integrated system of separate CCAM and the Central CCAM, a network cooperative bank model with a powerful central bank serving the member banks in a wide scope of products and services.

In terms of CG mechanisms, the CCAM associated to SICAM present a two-tier system: the individual and the system mechanisms. The analysis of the RJCAM, CCAM Annual Reports, by-laws and other official documents and the responses of a questionnaire filled by CCAM managers³¹, result in the identification of the governance mechanisms working in SICAM as illustrated in Figure 4.1 and briefly described in the following subsections.

Figure 4.1 - CCAM governance mechanisms



³¹ A questionnaire was sent to CCAM management intending to collect data in order to characterize CCAM membership and governance. The goal was to identify the different typologies of CCAM governance and construct an econometric model to relate it with CCAM performance in order to identify the most efficient one. Despite Central CCAM collaboration in the administration of the questionnaire (the questionnaire was send directly by Central CCAM to its associates) the rate of response was slightly bellow of 30%, thus, ruining its econometric use.

4.2.1 - Regulatory framework

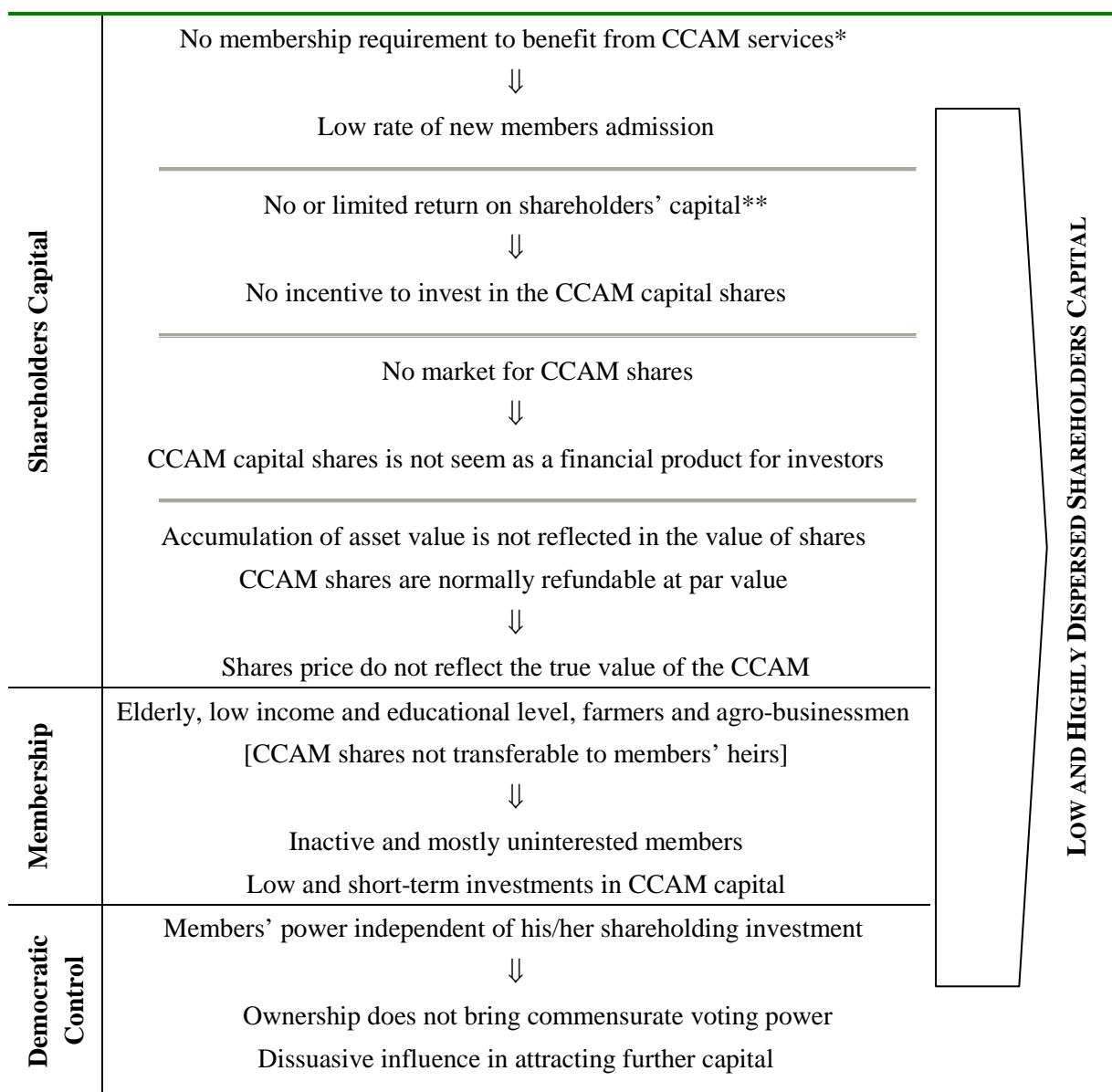
The regulatory framework, including legislation and bylaws, contains the general rules governing the firm (what governance bodies it should have and how their members are elected, what to disclose concerning the company's operations, etc.) and plays a central role in the control of the company (Pellervo, 2000). Similar to most Western European countries, Portuguese co-operatives are regulated by legislation specific to co-operatives, the Co-operative Code, complemented by each sector's particular regulations, the RJCAM for CCAM, and partly covered by company law. The Co-operative Code and the General Regime of Credit and Financial Institution are the subsidiary law. CCAM by-laws comply with them.

4.2.2 - Ownership structure

Except for banking operations, the CCAM are ruled following the traditional co-operative structure with open membership, democratic control and restricted residual claims. Consequently, the CCAM members do not see the CCAM capital as a financial investment and the ownership structure is highly dispersed. Figure 4.2, next page, includes a description of the consequences/effects of the "co-operative nature" on the ownership structure of CCAM.

As a consequence of the CCAM dispersed ownership, they lack the control over management exercised by large (share) owners or block shareholders. Furthermore, by distributing equally the control rights over the CCAM members, power is transferred to the management. The equity ownership structure is exogenous and cannot be adjusted to eliminate managerial inefficiency (Gorton and Schmid, 1999).

Figure 4.2 - Co-operative doctrine and ownership structure of CCAM



Notes: * Since 2009 the CCAM complying, in individual basis, with prudential rules settled in the RG, can perform operations with no members until 35% of the net assets. Exceptionally, that limit can be raised to 50% by the Bank of Portugal for SICAM associates, by Central CCAM suggestion; ** The Portuguese law requires the net benefits to be transferred into reserves and limits the remuneration of capital shares to 30% of the results.

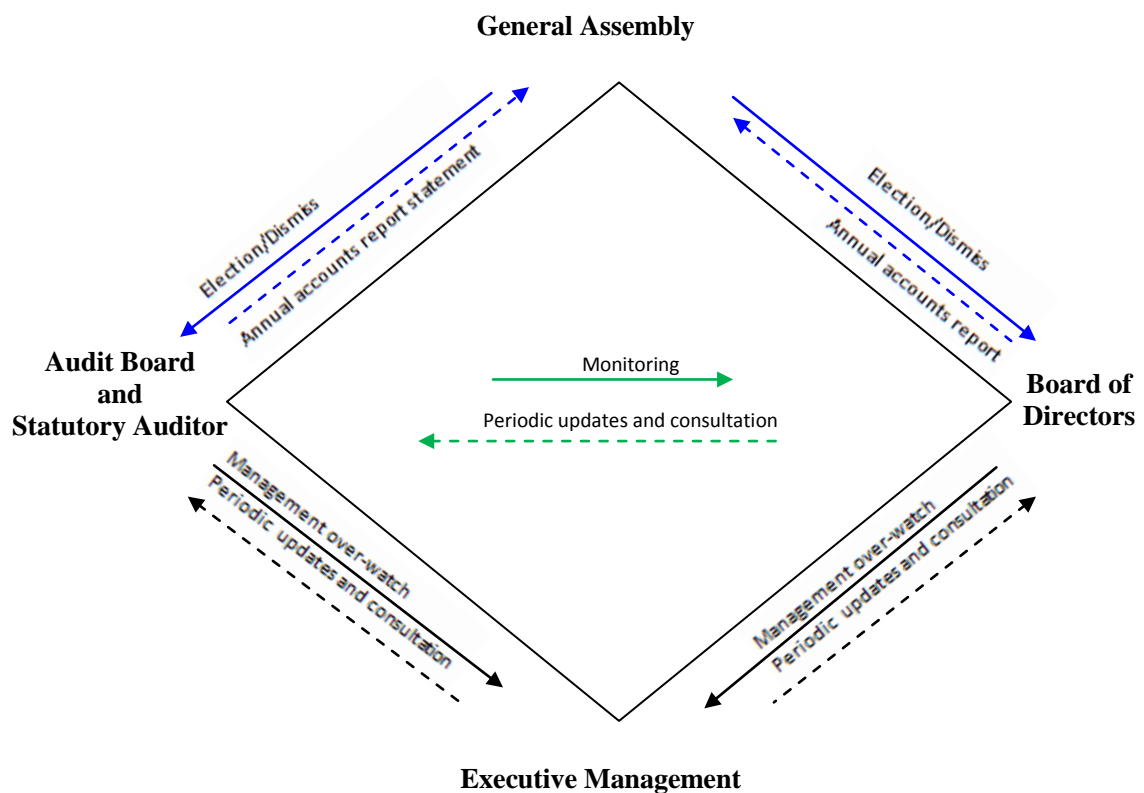
4.2.3 - Internal monitoring

Internal monitoring includes monitoring by the BoD and internal control and audit and aims to achieve reasonable assurance of the CCAM running accordingly to members' purpose, laws and regulations.

As described in Chapter 3, CCAM typical governance structure preserves the co-operative nature of CCAM through the composition and competences of the General

Assembly (GA), although it strengthens the CCAM management and supervising bodies' competences. It is a governance structure that reflects the respect for cooperative principles and the need to maintain a high level of monitoring and coordination, designed to promote management transparency and members' participation, and to ensure the effective operations of the organization. Figure 4.3 summarizes CCAM internal governance control.

Figure 4.3 - CCAM internal governance control



The GA is the supreme governing body of cooperatives, reflecting its democratic character and the guardian role of the CCAM co-operative identity. Members exercise control over CCAM activities participating and voting in GA meetings. This control is mainly done ex-post and can be damaged by members' low level of participation and the predominance of members-employees in the GA meetings.

The Audit Board and Statutory Auditor duo is the pillar of the CCAM internal control systems as it monitors, on a regular basis, its performance and activities, in accordance with the law, GA and Central CCAM deliberations, CCAM conduct code and Bank of Portugal regulations. The Audit Board supervision (or control) function is performed

ex-ante. Historically, Audit Board role was neglected as its members often lack the skills and will to perform their role. The adoption of the corporations' law empowered the monitoring function of the Audit Board, since one of the audit board members must have the skills required for the task (at least one of the members must hold an undergraduate degree suitable for the exercise of his/her functions and be knowledgeable in auditing and accountancy) and the Statutory Auditor is a qualified and certified auditor (ROC- *Revisor Oficial de Contas*).

The Portuguese Co-operative Code does not establish a separation between BoD and Management, being the CCAM direct administration made by its own members, elected by the GA. In this circumstances, the supervising function stays on the non-executive directors' role [who should participate in strategic decisions and have the "challenger" function (CMVM, 2006)] and on the Audit Board and Statutory Auditor.

The discussion on BoD efficiency highlights issues related with its size (by law an odd number), composition, meetings frequency, term of office and body working rules. In general, the BoD is composed by three members. However, CCAM BoD post-merger (or incorporation) can have five or seven members, in order to include utmost of the BoD members of the former CCAM. Since 2009, with the adoption of the corporations rules, that practice was almost discarded (extra BoD members are now part of the Advisory Board or non-existent).

Traditionally, the CCAM directors are members of the co-operative, but it is allowed, under CCAM bylaws, for non-members to be elected directors if the members lack the necessary banking expertises to perform their duties. Still, in a considerable number of CCAM, BoD members are former CCAM employees with management and banking skills and a deep knowledge of the co-operative operations, thus, having the right profile to appraise BoD operations and decisions. On the other hand, a great number of CCAM still depend on part-time directors to carry on their day-to-day activities, with the inherent negative impact of it on CCAM performance.

In CCAM there is no limit to the number of mandates and most of CCAM directors are in office for decades, until death surrenders them!

Concerning working rules, often, the BoD president (chairman) has a qualitative vote and is the one who has the functions of CEO in the Portuguese co-operatives, including

personal liability. Clearly when the CEO is also the BoD president, as happens in many CCAM, that person occupies a very powerful position³². The flow of information between board and management is crucial to an efficient boarding working, in this way CMVM (2007:31) recommends that *“When Directors that carry out executive duties are requested by other Board Members to supply information, the former shall do so in a timely manner and the information supplied shall adequately suffice the request made... The Chair of the Executive Committee shall send the convening notices and minutes of the meetings to the Chair of the Board of Directors and, when applicable, to the Chair of the Supervisory Board and the Audit Committee...”*

The double role of CEO and BoD chairman of most of the CCAM presidents puts them in a position to choose how closely the (non-executive) Board is kept informed of the state of the business. By rule, CCAM management reports to the boards on a monthly basis, BoDs meet on a weekly basis³³ and the Audit Board on a quarterly basis. In these circumstances, BoD is dominated by executive directors, whom often have access to better information than non-executive directors. Audit Board can consider this reporting practice adequate to its needs.

4.2.4 - External monitoring

Since co-operatives do not have access to publicly raised capital, in order to increase their capital base, they can normally only ask their members to increase their capital input, or increase the number of members. Furthermore, in addition to equity and retained net benefit, co-operatives can finance their operations by borrowing. The importance of debt financing, as a management control mechanism, has been emphasised as the burden of debt ties managers' hands and forces them to work efficiently in order to maintain the debt in regular intervals (Pellervo, 2000). In this

³² This circumstance where a chief executive has the dual role of being the (supervised) chief executive and the (supervising) chairman of the board is hardly conducive to being critical. [A board of directors should be able to dismiss, when necessary, the chief executive – how can this succeed if he is also the president of the board? (Pellervo, 2000)]. The most prevalent argument against this CEO duality arises from agency theory which concludes that an independent board structure improves the board's control over the management. On the other hand, stewardship theory supports CEO duality. It argues that the separation of the Chairman and CEO roles may be the cause of conflict situations (Kan and Omari, 2009).

³³ On average, CCAM BoD meets 80 times per year, between, 52 weekly ordinary meetings, 12 monthly coordination meetings, 4 quarterly general meetings, 4 quarterly of auditing report meetings, 1 annual assessment meeting and 7 extraordinary meetings (the Audit Board meets 5 times and the GA meets 2 times year)

way, Jensen (1986) argues that increases in firm leverage helps reducing the inefficiencies resulting from the separation of ownership and control.

In the CCAM case, the Insurance Fund of Agricultural Co-operative Credit (FGCAM) is an important creditor of financial distressed CCAM and it actively controls their performance. Besides securing the CCAM customer deposits, FGCAM supports SICAM solvency and liquidity. FGCAM subordinated loans are conditioned to an economic and financial restructuring process, monitored closely by FGCAM, which can interfere in the CCAM management.

Central, multi-tier structures play a special role in the supervision of co-operatives. A central co-operative is often given the power to monitor and even directly intervene in the affairs of the co-operative members (Pellervo, 2000). Within SICAM, management controls are often exercised by Central CCAM which has the function of supervising the members and consequently is usually the first to find out managerial failures.

Although Bank of Portugal is responsible for the banking sector supervision, regarding SICAM associates the law delegates great part of these functions in the Central CCAM which, in turn, is under Bank of Portugal supervision. Hence, without damaging Bank of Portugal competences, Central CCAM is empowered to control their associated CCAM administrative, technical and financing aspects and their organization and management. In cases of gross mismanagement Central CCAM can intervene in the associates, by the assignment of a representative to track CCAM management or the nomination of interim directors. Moreover, when the associated is in (risk of) financial imbalance and un-follow Central CCAM guidelines, Central CCAM can assign interim directors to them and even dismiss total or partly of the members management and supervision boards. This control function of the Central CCAM is mainly done ex-ante.

During the 1995-2010 periods Central CCAM intervened in 62 CCAM, in 11 of them the BoD was suspended and in 4 of them both the BoD and the Audit Board were suspended. Interventions have up to one year of lifetime, after which it can be renewed. In two of the biggest CCAM, it was settled a Management Board formed by Central CCAM workers (under the assistance agreements) and the intervention continues for more than a decade.

4.2.5 - “Market” for corporate control

The traditional co-operatives are not under the effect of takeover corporate control mechanisms. Since they do not have publicly quoted shares, they cannot be taken over by acquiring a majority shareholding on the stock market and then replacing the management. However, regarding CCAM, merger activity is a very important corporate control mechanism. Long term inefficiencies are usually solved through *forced* incorporations into (or mergers with) a more efficient CCAM. CCAM mergers act as an external control mechanism because, although mergers are friendly (they must be approved by the GA), the influence of Central CCAM is considerable, as the trigger and even the one that chooses the merger partners (Cabo, 2003).

Historically, CCAM mergers activity was part of an entrepreneurial restructuring strategy in order to solve CCAM inefficiency. Indeed, a 1992 SICAM study (see Cabo, 2003) refers that, to generate consistent returns, a typical CCAM must have a volume of deposits up to 70 million euro, a value not achieved by 96.6% of the CCAM at that time. Under Central CCAM lead, inefficient CCAM were incorporated or merged with more efficient CCAM, often after a Central CCAM intervention or lobbying action, and as a result, since the creation of SICAM the number of CCAM decreased to 2/5 of them.

Nowadays, the restrictions to internal growth imposed by the CCAM territorial feature³⁴ make smaller CCAM potential targets for bigger CCAM directors eager to continue their CCAM expansion plans. Hence, smaller CCAM directors are pressured to present high results in order to avoid incorporation.

4.2.6 - Executive compensation

Management (and staff) remuneration schemes have become an important instrument of corporate governance. This is not just a desire to motivate managers to work harder or guarantee them a competitive salary (thereby obtaining the best people), but a way of getting them to work in the interests of the owners. Owners and managers should have

³⁴ CCAM activity is restricted to their headquarter municipality. CCAM can expand to an adjacent region if there is no other CCAM operating there, or when that results from CCAM merger.

parallel objectives and these should be reflected in the governance and remuneration mechanisms (Pellervo, 2000).

Following CMVM (2007) recommendations, the remuneration of the members of the CCAM supervising bodies consists exclusively of a fixed amount, in order to secure its objectivity and fairness. Regarding the management, CMVM (2007) recommends that the remuneration of the members of the BoD shall be aligned with the interests of the shareholders. Thus the remuneration of Directors carrying out executive duties shall be based on performance. However, the majority of CCAM does not do so and Directors remunerations are fixed. The specific nature of CCAM determines the inexistence of any type of attribution of shares or stock options for the BoD. The exceptions set a mix of fixed plus variable remuneration, usually a percentage of CCAM profits to distribute among their executive Directors limited to a given amount. One of the CCAM, for example, applies “*a variable remuneration equivalent to 2.5% of the positive net profits, with an annual overall limit of 50,000€*”, to give out to three executive directors.

The fixed remuneration usually consists of a voucher of around 250€ per each meeting attended. Some CCAM differentiate between BoD and other boards meetings, remunerating the first ones with higher amounts. Others stipulate an upper limit to the number of meetings remunerated per month, independently of the actual number of meetings realized.

Besides the remunerations referred, CCAM directors can obtain other compensations by participating in the governance bodies of other Crédito Agrícola Group companies. When CCAM BoD members are (former) CCAM employees, they maintain the salary and other benefits as long as they are in the Office, although the law stipulates that the contractual labour relationship is suspended.

Contractual remuneration chart schemes aside, a look into CCAM annual proposals for profits allocation indicates that CCAM reward BoD and staff in accordance with the profits. This practice can be assumed as *covered* variable remuneration, intending to boost up BoD and staff performance.

Considering that CCAM face survival challenges related to financial issues linked with equity capital deficiencies and that its capital base growth is supported by retained

profits, understanding how CCAM governance can be used to correct low economic performance is of crucial importance.

4.3 - Model, data and results

Assuming that legislation and ownership structure affect equally all the CCAM and that Central CCAM intervention, merger activity or BoD and executive compensation have different impact on individual CCAM, this section is dedicated to assess the efficiency of the different control mechanisms available to discipline CCAM management, i.e., to test if there is any relation between CCAM performance and those mechanisms. The focus is on the mechanisms that reflect direct monitoring inside SICAM;³⁵ the supervision function exercised by Central CCAM; the members control in GA, reflected in BoD turnover and peers' control by CCAM merger/incorporation activity.

4.3.1 - Model

To analyse the determinant factors of CCAM governance control mechanisms the multinomial *logit* model is used, in line of others studies on banking (Prowse, 1997; Barro and Barro, 1990; Blackwell *et al.*, 1994; Anderson and Campbell, 2000; Crespi *et al.*, 2004).

The multinomial *logit* is used, reflecting the values of the dependent variable, seven different situations (0, 1, 2, 3, 4, 5 or 6)³⁶, as shown in Table 4.1. The value of each event in the *t* period will be determined according to the behaviour of the CCAM in the *t*+1 period. Multiple equations are estimated jointly in order to make efficient use of the available information (Greene, 2000), and the coefficients for each possible outcome are to be interpreted with respect to a reference group. In our case, the reference group represents the CCAM that did not experience any governance intervention in any particular year (value 0 of the dependent variable).

³⁵ Executive compensation and debt-holder FGCAM monitoring mechanisms were not considered. The first because data was only available to the 2010 year, and the second because, FGCAM debt-holder monitoring function was not, a priori, "present" to all CCAM.

³⁶ The values assigned to every governance intervention only reflect different categories, and the ordinal value has no further meaning.

Table 4.1 - Values assumed by the dependent variable in the MNL models

Model	Dependent variable
Model 1- Aggregated Model	0 – No intervention 1 – BoD turnover 2 – Central CCAM intervention and merger/incorporation
Model 2 – Extended Model	0 – No intervention 1 – BoD partial turnover 2 – Chairman turnover 3 – BoD total turnover 4 – Central CCAM intervention by nomination of an Agent 5 – Central CCAM intervention by nomination of interim Directors 6 – Merger/incorporation

In the case of the merger operation it can adopt the form of a merger or incorporation. In the last one, only the CCAM merger target (incorporated) was considered in the analysis.

Central CCAM intervention can take the form of the nomination of an agent, usually to decide on and manage credit risks, or taking a safeguard, strong and deeper decision, by the nomination of interim directors and eventual replacement of the full body.

BoD turnover can assume the form of a partial turnover or a total board turnover. The first alternative is the most usual in our sample, since there are only 27 cases of total board turnover. Furthermore, only the cases for which there is evidence that the board and chairman changes are not due to retirement or death are considered. Moreover, given that mergers are often followed by changes in the BoD, for those CCAM that continue, changes in their management are not considered.

Concerning internal control, the role of co-operative member and their responsibility for the success of the enterprise is in actual fact greater than in publicly quoted companies as the market continuously monitors the company and distributes information via the media (Pellervo, 2000). It is expected that CCAM performance and management turnover should be negatively related.

However, several factors, as the increasing complexity of banking activity and the decline in member participation in GA affect the efficiency of internal control

governance mechanisms. Thus, is expected that CCAM external corporate governance mechanisms to be more efficient than the internal ones.

Based on the values assumed by the dependent variable two different models (Table 4.1) are estimated to analyse the efficiency of the different control mechanisms. Model 1 is similar to an “internal *versus* external” governance control mechanisms model and Model 2 considers the different mechanisms individually.

When different mechanisms are simultaneously present we consider the one that takes deeper effects. Exemplifying, to the model 2, in a decreasing way, from the whole data sample, the CCAM-year observations for which a merger has occurred are first identified and a value of 6 is assigned to these observations. The checking process continues assigning the value correspondent to the observed situation (2nd column of Table 4.1).

As explanatory variables (Table 4.2) are used some CCAM performance measures that are independent of the business strategy implemented. Thus, indicators related to business strategy as the transformation ratio were left out.

Credit overdue is an indicator of the CCAM credit risk management and is expected to have a positive influence on CCAM governance intervention probability. Customer resources growth ratio is a measure of CCAM competitive strength and market share and should present a negative influence. Expenses ratio, Staff and Structural Costs ratios are measures of the CCAM cost efficiency, and should positively influence the probability of a CCAM governance intervention. Finally, Indebtedness measures CCAM level of capitalization and ROCS³⁷ the return on the members’ investment in CCAM equity. Indebtedness should exercise a positive influence over the probability of CCAM governance intervention, and ROCS a negative one.

³⁷ CCAM goal is not maximizing profit but, as mentioned earlier, the key-issue for CCAM is the lack of equity. Therefore, as the growth in equity is fuelled completely by net benefits retained, Return on Equity (ROE) is the correct variable to express the “profitability”. The option for Shareholders Capital instead of Equity is justified by the existence of CCAM with lower equity resulting from previous years accumulated losses that can jeopardise the study results.

Table 4.2 - Explanatory variables and expected coefficients signals

Group 1 – Operational Efficiency and Growth	Expected signal
$\text{Credit Overdue} = \frac{\text{Credit Overdue}}{\text{Gross Credit}}$	+
$\text{Customer Resources Growth} = \frac{\text{Customer Deposits in time } t}{\text{Customer Deposits in time } t-1} - 1$	-
Group 2 – Cost Efficiency	
$\text{Structural Costs} = \frac{\text{Administrative and Staff Expenses}^*}{\text{Financial Margin}}$	+
$\text{Staff Costs} = \frac{\text{Salary and Benefits Expenses}}{\text{Financial Margin}}$	+
$\text{Expenses ratio} = \frac{\text{Total Expenses}}{\text{Total Revenue}}$	+
Group 3 – Capitalization and Profitability	
$\text{Indebtedness} = \frac{\text{Total Debt}}{\text{Total Assets}}$	+
$\text{ROSC} = \frac{\text{Net Profit}}{\text{Shareholders Capital}}$	-

Note: * Costs of general services incurred in controlling and directing an organization, such as accounting, energy and water supply, advertising, office resources expenses, etc.

Two control variables are used: the size of the CCAM expressed by the Total Assets at the end of the year and a temporal trend (Year). The total asset is often correlated with other unobserved variables such as asset diversification and managerial skills (Crespi *et al.*, 2004). The trend tries to catch control shocks, like technological changes, common to all CCAM in a given year.

Hence, the multinomial logit estimated is:

$$\text{prob}(y_i = j) = \frac{\exp^{xi\beta_j}}{1 + \sum_{k=1}^j \exp^{xi\beta_k}} \quad (4.1)$$

where: Y - dependent variable, assuming the value of j = 0, 1, 2 for model 1, and j = 0, 1, 2, ..., 6 for model 2; X - column vector of p+1 dimension, where p is the number of independent variables; and β - unknown parametric vector to be estimated.

4.3.2 - Data

The analysis addresses the 1995-2009 period. Data refers to the end of the year and are all expressed in 1995 prices. The financial data was obtained from CCAM annual accounting reports. Non-financial data (CCAM mergers and incorporations, board or chairman change and Central CCAM interventions) was obtained from the “Diário da República³⁸”, Ministry of Justice website, CCAM Annual Reports and other SICAM official statements released during the study period. We excluded from the data sample 25 CCAM from 1998, because of data missing from their annual financial reports, plus 21 observations corresponding to different CCAM-years, as we were not able to obtain their BoD configuration.

At the end of this process we had a pool of 1,806 observations from 15 years of unbalanced allocation: a) 1352 observations corresponding to CCAM not experiencing any governance intervention; b) 101 corresponding to CCAM with BoD partial turnover; c) 66 chairman turnover; d) 18 corresponding to BoD total turnover; e) 62 CCAM with Central CCAM intervention by an agent; f) 104 CCAM Central CCAM intervention by the nomination of interim directors; and g) 99 CCAM participating in a merger/incorporation. Summary statistics for the sample are presented in Table 4.3, with the data grouped according to the governance mechanisms.

³⁸ Official Portuguese legislative journal.

Table 4.3 - Group summary statistics

	Variables	Max	Mean	Median	Min	Std. Dev.
No Intervention	Total Assets*	352.466,002	44.877,260	32.404,210	726,085	44.659,690
	Customers' resources growth	3,6115	0,1017	0,0855	-0,4048	0,1286
	Credit Overdue	0,7043	0,0820	0,0629	0,0000	0,0686
	Staff Costs	3,0879	0,3420	0,3302	-2,7670	0,2021
	Structural Costs	1,8038	0,2318	0,2295	-1,5653	0,1234
	Expenses Ratio	2,4544	0,8599	0,8566	0,3739	0,1348
	ROSC	5,4384	0,2261	0,1735	-11,8300	0,5958
	Indebtedness	4,3984	0,9230	0,9087	0,2025	0,1819
BoD Partial Turnover	Total Assets*	239.772,378	49.381,660	32.723,530	839,919	49.921,510
	Customers' resources growth	0,4720	0,1334	0,1055	0,0090	0,0963
	Credit Overdue	0,3495	0,0861	0,0713	0,0024	0,0647
	Staff Costs	0,6952	0,3366	0,3237	0,1625	0,0890
	Structural Costs	0,5119	0,2317	0,2235	0,0824	0,0758
	Expenses Ratio	1,3484	0,8550	0,8663	0,4216	0,1076
	ROSC	7,7375	0,3966	0,2334	-0,9495	0,9180
	Indebtedness	1,0689	0,9123	0,9211	0,4801	0,0717
Chairman Turnover	Total Assets*	223.352,011	37.985,120	27.298,970	753,808	38.438,230
	Customers' resources growth	0,3108	0,0822	0,0772	-0,1757	0,0824
	Credit Overdue	0,3282	0,0853	0,0761	0,0069	0,0625
	Staff Costs	0,7616	0,3575	0,3415	0,1749	0,1039
	Structural Costs	0,4717	0,2434	0,2405	0,0616	0,0775
	Expenses Ratio	1,2753	0,8778	0,8647	0,6483	0,0999
	ROSC	1,3429	0,2529	0,1751	-0,8632	0,3359
	Indebtedness	1,1676	0,9130	0,9191	0,6931	0,0634
BoD Total Turnover	Total Assets*	117.756,340	31.475,490	21.456,010	3.275,865	27.662,950
	Customers' resources growth	0,1976	0,0891	0,0880	-0,0330	0,0824
	Credit Overdue	0,5806	0,1233	0,0838	0,0208	0,1489
	Staff Costs	0,6473	0,3205	0,3703	-0,6186	0,2659
	Structural Costs	0,5438	0,2057	0,2190	-0,2841	0,15961
	Expenses Ratio	1,4206	0,9343	0,8937	0,6828	0,1767
	ROSC	0,6248	-0,1006	0,1117	-3,4418	0,9385
	Indebtedness	4,1053	1,0859	0,8969	0,8006	0,7566
Central CCAM Agent	Total Assets*	75.394,431	27.025,530	25.619,350	3.053,662	17.879,980
	Customers' resources growth	0,8374	0,0683	0,0597	-0,1206	0,1250
	Credit Overdue	0,5790	0,1839	0,1659	0,0040	0,1086
	Staff Costs	1,1478	0,4099	0,3873	-0,2427	0,2131
	Structural Costs	0,7712	0,3018	0,3010	-0,1219	0,1236
	Expenses Ratio	4,1421	1,15786	0,9887	0,4327	0,5347
	ROSC	0,9433	-0,6344	-0,0520	-7,0617	1,5299
	Indebtedness	4,3030	1,0473	0,9767	0,8180	0,4311

Notes: * Thousands euro; Std. Dev. : Standard Deviation

(Continues next page)

Table 4.3 – Group summary statistics

(Conclusion)

	Variables	Max	Mean	Median	Min	Std. Dev.
Interim Directors	Total Assets*	312.620,604	70.037,540	33.199,860	5.137,3510	81.927,560
	Customers' resources growth	0,2686	0,0345	0,0364	-0,1802	0,0710
	Credit Overdue	0,6683	0,1879	0,1331	0,0147	0,1457
	Staff Costs	5,4095	0,2665	0,3878	-22,3365	2,3512
	Structural Costs	3,5156	0,2673	0,2836	-6,7920	0,8114
	Expenses Ratio	3,1628	1,0212	0,8965	0,2688	0,4486
	ROSC	9,3133	-0,2105	0,1321	-13,2999	2,6080
	Indebtedness	4,9566	1,1710	1,0255	0,8166	0,6130
Merger or Incorporation	Total Assets*	111.289,268	19.165,410	12.559,780	1.218,769	19.292,83
	Customers' resources growth	0,4453	0,0596	0,0682	-0,7874	0,1307
	Credit Overdue	0,7254	0,2021	0,1732	0,0119	0,1538
	Staff Costs	13,4681	0,6692	0,4020	-1,3229	1,5750
	Structural Costs	8,0206	0,4390	0,2893	-0,6081	0,9209
	Expenses Ratio	4,5101	1,1759	0,9768	0,6239	0,6098
	ROSC	5,3851	-0,6103	0,0544	-12,2339	2,7510
	Indebtedness	2,1132	1,0701	0,9867	0,7570	0,2462

Notes:* Thousands euro; Std. Dev. : Standard Deviation

4.3.3 - Results

To determine which of the 7 performance indicators represent the probability of a governance intervention, a stepwise procedure combining forward and backward elimination is applied. The model starts as a baseline model without any variable on it. Then the 7 indicators are considered one at each time and added to the model if succeeding in the selection criterion based on a p-value of 5%. When a new variable is added to the model, the variables previously included are evaluated for exclusion, at 10% significance level. The ones that fail are excluded. When no more variables can be added or removed, the algorithm stops.

The application of this approach, using Likelihood ratio statistics, excludes the control variable Total Assets and the Indebtedness indicator from Model 1, and ROCS indicator from both models.

Table 4.4 reports the results of the MNL models estimation. For each event, the coefficients measure the impact of each variable on the probability of each event with respect to the baseline case (no governance interventions in the following year), being to be interpreted as affecting the odds ratio.

Table 4.4 - MNL model results

Mechanisms Performance Indicators	Model 1		Model 2					
	Internal	External	Internal			External		
	Board of Directors Turnover	Central CCAM intervention & Merger or incorporation	Board of Directors Turnover			Central CCAM intervention		Merger or incorporation
			Partial	Chairman	Total	Agent	Interim Directors	
Constant	-2,027* (0,499)	-5,108* (0,439)	-1,005 (1,140)	-1,091 (1,391)	-5,823* (1,243)	-6,374 (0,718)	-7,132* (0,668)	-5,769* (0,672)
Customers' resources growth	0,067 (0,658)	-5,451* (1,074)	0,819 (0,507)	-4,901* (1,747)	-2,961 (2,805)	-4,530*** (1,641)	-8,161* (1,498)	-4,747* (1,420)
Credit overdue	-0,388 (1,315)	9,167* (1,031)	-0,294 (1,848)	-2,016 (2,274)	3,084 (3,238)	7,647* (1,574)	10,101* (1,426)	8,169* (1,358)
Structural costs	1,692 (1,096)	4,913* (0,910)	2,804*** (1,623)	3,471*** (1,864)	0,150 (3,103)	4,914* (1,142)	4,849* (1,018)	5,972* (1,035)
Staff costs	-0,600 (0,433)	-1,515* (0,360)	-1,083 (0,738)	-1,030 (1,018)	0,286 (1,628)	-1,453* (0,489)	-1,407* (0,412)	-1,754* (0,453)
Expenses ratio	0,450 (0,560)	2,052* (0,428)	0,172 (0,835)	0,980 (0,945)	0,842 (1,249)	2,051* (0,517)	1,227** (0,524)	2,074* (0,485)
Indebtedness	—	—	-1,709 (1,170)	-1,872 (1,460)	0,997*** (0,601)	0,445 (0,534)	1,208* (0,407)	0,337 (0,504)
Total assets	—	—	0,000* (0,000)	0,000 (0,000)	0,000 (0,000)	0,000** (0,000)	0,000* (0,000)	0,000* (0,000)
Year	-0,080* (0,025)	0,027 (0,024)	-0,124* (0,036)	-0,137* (0,045)	-0,013 (0,082)	0,036 (0,044)	0,032 (0,036)	0,092** (0,039)
Chi-squared (degrees of freedom)	395,272 (12)		552,843 (48)					
Significance level	0,000		0,000					

Notes: 1. Standard deviation in parenthesis

2. *, **, ***: Significance level of 1%, 5% and 10% respectively.

The results of **Model 1** show that the performance variables are not statistically significant for the group of internal governance mechanisms, i.e., they do not exercise any influence over the probability of BoD turnover. Thus, these governance mechanisms are not linked to the CCAM performance, confirming the weakness of CCAM internal control mechanisms. On the other side, most of the performance indicators (except ROSC and Indebtedness) are statistically significant for the group of external governance mechanisms, i.e., they proved to have influence on the probability of a Central CCAM intervention and of a merger or incorporation. This outcome demonstrates that external governance mechanisms present greater efficiency in disciplining CCAM management than internal control mechanism.

Overall the signals presented by the variables coefficients correspond to the expected, except for the Staff Costs variable which surprisingly present a negative signal meaning that it negatively influences the probability of an external governance mechanism act. The smaller a value for Staff Costs the greater is the probability of a Central CCAM intervention and of a merger or incorporation, which can be understood in the context of an option for the qualification/training of the human resources and maybe as consequence of members-employees dominance of GA meetings.

The results achieved can be compared with those of other researchers. Blackwell *et al.* (1994) find a negative relation between accounting profitability and management turnover in the subsidiaries of Texas' multibank holdings. Prowse (1997) found some substitution between regulation and other governance mechanisms in banks. Gorton and Schmid (1999) argue that only mergers and proxy contests are feasible for co-operative banks as control changes. Anderson and Campbell (2000) explain the lack of a relationship between executive change and the performance of Japanese banks as evidence of the banking sector's inefficiencies. Crespi *et al.* (2004), for the Spanish banks, only observe a negative association between governance activity and economic performance in saving banks that merge, evidence of their weak internal governance mechanism.

The **Model 2** allows us to check for the influence of each mechanism individually. Regarding the probability of a BoD turnover, the Structural Costs has statistically positive influence over the probabilities of a partial turnover and chairman turnover. This last one is also (statistically) negatively influenced by Customers' Resources Growth indicator. Total turnover is only negatively influenced by Indebtedness. Looking at these results we first note the real and perceived importance of Indebtedness indicator for CCAM survival, and of the BoD chairman role in detriment of other directors' role.

The probability of a Central CCAM intervention by the nomination of an agent or interim directors and the probability of a merger or incorporation are (statistically) negatively influenced by Customers' Resources Growth and Staff Costs indicators and positively influenced by Credit Overdue, Structural Costs and Expenses Ratio indicators. Moreover, the probability of a Central CCAM intervention by the nomination of interim directors is also negatively influenced by Indebtedness. The

results highlight the importance of the Central CCAM supervision task in monitoring their associates, and of the merging activity on SICAM overall performance. More specifically:

- Customers' Resources Growth is a measure of the CCAM competitive strength and in a certain way of the members' commitment. "Voting with their feet" is not usual (or easy) for CCAM members as it is for IOFs shareholders. The closing of the CCAM membership status is a delayed, often financially harmful operation that needs BoD previous approval. "Voting with their deposits" is the CCAM version of it! It is the first sign of the members' disapproval of CCAM management. On the other hand, giving the saver profile of CCAM, Customers' Resources Growth is also a measure of their market share and competitive strength. This is illustrated by the statistically significance and negative sign associated to the variable coefficient.
- The positive, statistically significant, sign of the Credit Overdue coefficient is at harmony with the importance of the management of credit risks for banks and particularly for CCAM, given that its net worth is highly dependent from financial margin results. CCAM double specialization (in customer served and products offered) reinforces this situation and strengthens the importance of an efficient (and prudential) risk management lending policy.
- Regarding operational costs, the negative, statistically significant, sign of the Staff Costs coefficient is somewhat surprising. Small CCAM have limited ability to recruit highly qualified management and to train their staff (Cabo, 2003) and usually the need of investment in qualified labour is the justification for CCAM mergers and incorporations. Labour market rigidity, CCAM policy of "no firings" (Cabo, 2003) and SICAM bet in the qualification/training of human resources can enlighten this outcome. Indeed, looking into SICAM social reports we observe positive values for job creation, with CCAM presenting, in the last decade, an annual average increase of 2%. Moreover, Crédito Agrícola puts money on internal and external training programmes for CCAM employees, providing internally more than 100,000 annual teaching hours, for 8,000 trainees, adding up to 5,000 hours of external training. This bet in the qualification is reflected in the system of promotions, being most of it based on merit. On the other hand, most of the CCAM employees are also members of it. Ordinary members invest modestly and (consequently) had moderate interest

in the development of CCAM. Members-employees have a big stake on CCAM (their job for start), thus, they are deeply involved in CCAM life, actively participating in the GA, and influencing CCAM strategies and policies.

- Structural Costs and Expenses ratio present, as expected, a positive, statistically significant, sign, thus, proving to affect the probability of an external governance intervention. This is coherent to the fact that the small size of the CCAM limits the rationalization of administrative costs (Cabo, 2003) and, according to Cabo and Rebelo (2005), cuts-off in administrative costs is a determining factor leading to merger operations. Banking is a highly demanding activity, where cost efficiency is crucial for success. Literature suggests that banking industry competition is mostly based in cost efficiency neglecting revenue efficiency. Moreover, CCAM low income customers prevent CCAM from pursuing a revenue efficiency strategy, attaining high profit margins by applying superior prices in their operations. This strengthens the need for cost efficiency, justifying their positive influence over CCAM probability of governance intervention.
- Indebtedness negative, statically significant, sign for BoD total turnover and Central CCAM intervention by the nomination of interim directors' mechanisms illustrates the importance of strong capitalization for CCAM success. The importance of banking system capitalization was evident in the 2008 crisis and recently in the European sovereign debt crisis. CCAM co-operative nature makes it arduous for them to boost equity. Considering that capitalization upgrading is expected to occur due to the increase of equity via better net benefits, profitability improvements are decisive. Thus, BoD turnover or the nominations of interim directors are entirely justifiable when a CCAM suffers capitalization problems. Furthermore, considering the solidarity mechanism acting in the SICAM is understandable this Central CCAM concern with the individual CCAM indebtedness.

4.4 - Conclusions

Legislation, ownership structure (control and residual claims), “market” for corporate control, board of directors, debt-holders and central organizations and executive

compensation, were identified as the major CCAM governance mechanisms operating in the CCAM associated from SICAM.

The results of the MNL models to assess the efficiency of different control mechanisms in discipline CCAM management show that overall internal governance mechanisms (BoD turnover) are not related to the CCAM performance, which indicates potential weakness of the CCAM internal control mechanisms. On the other hand, external governance mechanisms are related to CCAM operational and cost efficiency indicators, demonstrating the importance of these mechanisms in disciplining CCAM management. Moreover, the results highlight the value of the supervision task of Central CCAM in the performance of the associates.

Comparing the CCAM experiencing governance intervention with those that did not witness it, the main conclusions are: (1) Merged CCAM and those target of a Central CCAM intervention present weaker operational efficiency, either in credit management, with higher bad loans, or in customer resources management, with minor deposits growth. Moreover they experience cost efficiency deficiency, particularly, they hold heavy structural costs. Unexpectedly, the costs with human resources are smaller for these CCAM. (2) The choice among a Central intervention by the nomination of an agent or interim directors is mainly due to the performance of indebtedness indicator. A bad score in this indicator motivates a deeper interference from the central organisation, even with potential replacement of CCAM governing bodies, attesting for the crucial role of indebtedness for CCAM survival. (3) Both CCAM with BoD partial turnover and chairman turnover hold heavier structural costs and CCAM with chairman turnover present minor customer resources growth. (4) Indebtedness is the only trigger for total BoD turnover.

These remarks confirm the decision-related incentive problems of co-operatives, which create a potentially weak internal system of corporate governance (Crespi *et al.*, 2004; Gorton and Schmid; 1999; Prowse, 1997). The robustness of the results will be improved if the effects of CCAM management and governing bodies' remuneration and of debt-holder FGCAM monitoring in CCAM performance were analysed, which is a topic for further research.

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Chapter 5 - The Determinants of CCAM Failure

5.1 - Introduction

The 2008 financial crisis and the European sovereign crisis that follow it left no doubt that if big banks get into troubles taxpayers end up bailing out them, showing that banks which are global and private in life are national and public in death. This is one reason because the robustness of the European banking system is a current concern and a policy priority to national authorities.

The recent financial crisis and subsequent economic recession highlight both the strengths and weaknesses of co-operative banks (The Economist, January, 23th 2010: 66). In the Portuguese case, there is no doubt that the improvement of co-operative banking performance is a strategic and operational necessity to ensure the economic and financial survival of Agricultural Credit Co-operatives (CCAM - Caixas de Crédito Agrícola Mútuo). The co-operative nature and unique business approach makes the CCAM a powerful force for Portuguese economic recovery, working as a stabilizing factor in the banking industry and a booster of local development, particularly in regions which economy is supported by agriculture. Indeed, CCAM have tried to encourage modernisation in the agricultural sector, through training and measures to combat depopulation, along with financial options that make it possible to develop new techniques and technologies, new forms of organisation and the potential for start-ups, for instance in bio-fuel or in agro-industry (Crédito Agrícola, 2011).

Although Crédito Agrícola performance, as a group, compares favourably with that investor owned banks, individual CCAM occasionally do enter in distress, as illustrated by past events. The increasingly large size of the CCAM raises concerns regarding the resolution of potential distress situations, given some of the rules governing co-operatives.

In the past, resolution of CCAM drawbacks typically involved merger or incorporation of the weak CCAM by the stronger CCAM (Cabo and Rebelo, 2005). However, this strategy is more difficult to apply to a large systemic CCAM and CCAM regional orientation can be a constraint to find an adequate merger partner, without losing the individual territorial identity.

As a system, in the process of strategic planning, more specifically, in the phase of diagnosis and subsequent adoption of plausible prescriptions by the main stakeholders [members, customers, staff and others partners working for the Group, local communities, suppliers and the State (as a fiscal and regulatory body)], it is important to know something about the survival of the units that integrate the system. In other words, it is relevant to estimate the probability that a CCAM with a given set of characteristics will survive longer than some specified length of time into the future, and identify the characteristics that most contributed to the CCAM insolvency. The achievement of this objective requires the use of some sort of statistical model to translate CCAM characteristics into estimates of risk.

The issue of insolvency and causes of its possible occurrence has been studied by several authors, in order to anticipate the restructuring processes and to reduce the probability of bankruptcy. The first study on insolvency prediction was published in 1932 (Patrick, 1932 *apud* Kanitz, 1978). However, the topic only flourished in the 1970s with the use of statistical and econometric approaches. In the last four decades several studies have addressed this matter, especially regarding bank failure, but co-operative banks³⁹ have been neglected (Wilcox, 2010).

This chapter main purpose is to determine the explanatory factors of Portuguese co-operative bank failures, by identifying “problematic” CCAM and evaluating their risk of insolvency as a function of financial indicators, providing regulators and other stakeholders with a set of tools that would be predictive of future insolvency and perhaps bankruptcy.

To accomplish this purpose, the study analyzes CCAM failures in the period between 1995 and 2009, using a logistic regression analysis (LRA) and a multiple discriminant

³⁹ In this thesis, the term “co-operative bank” includes also saving and credit co-operatives and credit unions.

analysis (MDA) for assessing the potential failure of CCAM as a function of financial/economical indicators.

The structure of the rest of this chapter is as follows. Section 2 frameworks the role of the agricultural credit co-operatives in agricultural development. Section 3 discusses the corporate failure (insolvency) event and offers a brief literature review on failure prediction models and the empirical findings on the failure of financial institutions. Section 4 explains the sample-selection method and describes the data. Section 5 discusses the variables of the model, sample and data used to analyse CCAM failures. Section 6 reports the empirical results and, finally, section 7 presents the conclusions.

5.2 - Agriculture, co-operatives and agricultural credit in Portugal

The agricultural sector is situated within the framework of the rural economy and the financial markets. Agricultural credit can play a critical role in agricultural development, especially if it is part of a set of tools to promote this development. The provision of this input is important because credit or loan able funding (capital) is viewed as more than just another resource such as labour, land, equipment and raw materials. It determines access to all of the resources on which farmers depend (Shephard, 1979).

The farm family is typically located in an environment characterized by a number of market failures. A frequent market failure is limited access to credit, a consequence of imperfect and costly information problems found in the financial markets. Such problems are known to be particularly important in agriculture (Stiglitz, 1993). Banks perceive agricultural credit as risky, and seek to channel credit to less risky sectors. This behaviour may be due to rational and efficient responses by the lenders to information and contractual problems inherent in agricultural credit markets. As a result of the informational imperfections between the lenders and the borrowers, rationing of credit demand becomes necessary for financial institutions (Stiglitz, 1994).

Credit rationing can be a problem for small farmers and, consequently, a serious constraint to economic growth and social development of poor regions where the agriculture is the main activity. When credit is rationed, some borrowers cannot obtain

the amount of credit they desire at the prevailing interest rate, nor can they secure more credit by offering to pay a higher interest rate. In such circumstances, liquidity can become a binding constraint on farmers' operations.

In addition, the literature highlights the potential ability of co-operative banks to facilitate financial development in a rural area. In a competitive market, joint-stock banks may have an extremely small incentive to develop a physical or institutional infrastructure that facilitates the smooth operation of financial intermediation in a rural area (e.g., a branch network), because of the public good nature of information about the quality of potential customers (Hellmann *et al.*, 1997, 2000). That is, if the bank invests, but the quality of the local market is poor, it loses its investment. Even if the quality is high, competitive entry reduces its profit immediately. In contrast, co-operative banks, whose main economic objective is not profit maximization, but the provision of credit services to their members, develop such infrastructures for local financial development at the expense of their own profitability. Moreover, it should also be emphasised that in several countries, including Portugal, the area of operation for co-operative banks is geographically restricted directly/indirectly by the government. In these cases, co-operative banks have no other choice but to take advantage of their own geographically restricted area of operation. For these reasons, it may seem plausible that co-operative banks have potential advantages over their private owned counterparts in promoting local economic growth, by delivering more sophisticated financial services in rural areas. In fact, the literature provides strong evidence that local financial development could promote local economic growth (Guiso *et al.*, 2004).

In Portugal, the use of credit dates back a long time, but its wider use developed notably only in the last century. Portugal was a pioneer in the foundation of agricultural credit by creating, in the 16th century, charitable banks and community barns. However, it was only in the beginning of the 20th century that agricultural credit was established in Portugal on an institutional basis. Until the 1980's agricultural credit was used without any link to other tools which lead to specific goals, because of the lack of consistent policies of agricultural development in Portugal.

The Portuguese agricultural landscape has undergone enormous changes in recent decades following a process of structural adjustment, after the entry into the European Union in 1986. However, Portuguese agriculture is still dominated by small family

farms with high labour intensity and small margins; 80 percent of the amount of work done in the sector continues to depend on family labour (INE, 2010). Data from the Agricultural Census of 2009 (INE, 2010) show that the area occupied by agricultural production in Portugal was about 50 percent of the land area of the country - 4.6 million hectares, distributed over 304,000 farms (about 25 percent less than in the previous agricultural census, in 1999). Based only on two previous factors, it is concluded that the average size of farms increased by 2.5 hectare to 11.9 hectare, which ensures economies of scale and makes production more competitive. Still, three quarters of Portuguese farms have an average size below five hectares and only 6 percent of farmers get their income solely from agriculture and 64 percent are reported to receive retirement and other pensions (INE, 2010).

Access to agricultural credit has particular relevance in the context of agricultural and rural development, especially, given the country's heavy dependence on imported food products and the present Portuguese sovereign debt crisis. Historically, governments have attempted to overcome agricultural credit constraint problems by subsidizing credit, setting up credit guarantee fund schemes and specialized agricultural credit institutions – the CCAM - and stimulating institutional innovations in the financial system (Santos, 1989).

Cooperation as a principle of economic and agricultural development has long been popular in Portugal. Since the inception of agricultural credit co-operatives in 1911, government support has allowed them to play a key role in agricultural development programmes. Public entities saw the co-operative as a means of reducing the influence of usurious village moneylenders, while increasing savings and providing easier credit terms to small farmers (Mansinho, 1989). Agricultural credit co-operatives were originally envisaged as a mechanism for pooling the resources of small producers and providing them with access to different financial services. Democratic in substance, the movement was also an effective instrument of progress in deprived regions, increasing productivity, providing food security and generating employment opportunities in rural areas, thus ensuring social and economic development.

Today, the Crédito Agrícola Group (CA) is a co-operative financial group specialised in agriculture lending and other complementary services, such as insurance, targeting rural and low-income customers, strongly integrated in local communities and playing a

crucial role in the struggle to overcome regional and sector discrimination⁴⁰ in bank lending supporting and fuelling local development. CA is an “*unique institution*” since it has been the mainstay of regional development and has contributed, over the years, to the prevention of the desertification of the countryside”⁴¹.

Recent research questions many of the agricultural credit advantages (Gomes, 2009). The conception of credit as a factor of production instead of the product of financial intermediation ignores an essential property of the financial instrument (is fungible) which allows the separation of the intention of the loan from its effective use. Efficient intermediation reorients evaluation first to the behaviour of savers and investors and last to the performance of the organizations. Nowadays, the subsidized/cheap agricultural credit policy is under question because it favours the farmers who demand bigger loans and has a high default rates (because of adverse selection and moral hazard behaviours) which also debilitates the financial institutions, seriously limiting the contribution of financial markets to agricultural development. Market liberalization and financial politics directed to flexible, more realistic, nominal interest rates seem to be irreversible trends. In this context, the existence of financial institutions, soundly based on their origins, and cultivating “proximity”, appears to be a “pro” for the agricultural development process. Here credit co-operatives have a key role to play.

5.3 - The corporate failure event: modelling and prediction

The prediction of corporate failure is important for the firm stakeholders (shareholders, creditors, staff, managers, regulators, public entities and local community). However a failure of a firm is something that is not easily predicted, though a company does not

⁴⁰ Banks have the important function to collect resources (savings) and later canalize it, through the credit granted, to the different areas of economic activity, regions, companies and individuals, supporting ones (the ones that have access to this credit) and strangling others (the ones that do not obtain credit), and, in such way, conditioning the economic growth and development. Portuguese banking lending practice favours seaboard urban regions and construction, real estate and mortgage credit sectors in detriment of other productive sectors as agriculture and hinterland regions. Indeed, according to Portuguese Central Bank (Banco de Portugal, 2012), in December of 2010, the credit granted to agriculture represented only 2,036 million Euros (less than 1% of total credit); and credit distribution across regions show that less than 10% of the loans go to the hinterland regions; thus aggravating sector and regional inequities. This policy is not followed by CCAM. Indeed, 2010 CA credit portfolio broken down by regions shows that more than 30% of the credit granted goes to hinterland districts and, in terms of distribution per sector, agriculture stake for 11% of it (Crédito Agrícola, 2011).

⁴¹ Dr. João Costa Pinto during the commemorations of 30^o anniversary of FENACAM, 28 of November of 2008.

collapse before the onset of some economic and financial indicative signs. Economic and financial ratios could be used as a means to the early detection of insolvency.

Different economic and financial indicators have been used to analyse the insolvency of firms, though there is no consensus between authors regarding the definition of insolvency and even the appropriate prediction insolvency models. Altman (1968) considers that failure occurs when the shareholders receive profitability lower than alternatives supplied by the market under similar conditions. For Emery and Finnerty (1997), failure occurs when a firm is not able to pay its debts. Matias and Siqueira (1996) classified a bank as insolvent (failed or bankrupted) if it was under intervention or in liquidation by the supervising entity. Similarly, Janot (2001) considers that a firm becomes insolvent when it presents negative equity or if it is impossible to continue operating without incurring losses that would result in negative equity. This author also defines it as insolvent when an institution is placed under evidence by the supervising authorities. He concludes that the identification of a financial institution as a likely candidate for failure by bank regulatory agencies is a signal of insolvency.

The main reason to knowing the sources of corporate failure is to prevent it (Argenti, 1976). However, it is hard to discover the causes except via its symptoms. Thus, the study of corporate failure, addressing its causes, is essentially based on the analysis of visible and detectable symptoms.

The failure process results from the mix of several external and internal factors. Some of these causes are mismanagement, deficiency in the accounting systems, inability to adapt to a changing environment, engaging in over-risky projects, exaggerated leverage, and risk inherent to the firm's activity sector, among many others. Macroeconomic conditions also influence a firm's health (Richardson *et al.*, 1998). Table 5.1 summarizes the main causes of corporate failure. With regard to symptoms, Argenti (1976) points out the deterioration experienced in the financial ratios as the most significant sign of corporate failure.

Table 5.1 - Causes of corporate failure

<u>External causes</u> - From the market	- Huge competition; - Strong fall in demand.
- From the political, economic and social environment	- Regressive phase of the economic cycle; - Crisis (Oil Crisis, Gulf War, Iraq War, local conflicts, etc.); - Government economic policies; - Radical and significant social changes.
<u>Internal causes</u>	- Administrative inefficiency; - Wrong or inadequate strategies; - Inefficient productive system; - Non-profitable investments; - Extreme indebtedness, especially in times of high interest rates; - End of product life-cycle; - Failure of other group companies; - Unresolved internal problems; - Huge delays.
<u>Special causes</u>	- New companies experience a high “mortality” rate in the first years of activity.

Source: Adapted from Gabás (1980)

Relatively to the banking industry, the literature emphasises the influence of macroeconomic variables, frauds, management imprudence and consecutive losses (Fully-Bressan, 2002). Gimenes (1998) highlights external causes, such as a strong fall in demand, economic recession, governmental policies and radical and significant social changes, and internal causes, like management inefficacy, inadequate business strategy, inefficient productive system and huge indebtedness.

The use of failure prediction models started at the ends of the 1960s and continues to nowadays. To study this issue, four different kinds of model have been used: a) statistical models (univariate analysis, multiple discriminate analyses and logit regression analyses), b) gambler’s ruin-mathematical/statistical models, c) survival models (as the Cox proportional hazards model), and d) artificial neural network models.

Univariate analysis assumes that a single variable can be used for predictive purposes (Cook and Nelson, 1998). The univariate model, as proposed by Beaver (1966), achieved a moderate level of predictive accuracy (Sheppard, 1994). Univariate analysis

identifies factors related to financial distress, but does not provide a measure of the relevant risk (Stickney, 1996).

Multiple discriminant analysis (MDA) attempts to overcome the potentially conflicting indications that may result from using single variables (Cook and Nelson, 1998). The best-known and most-widely used MDA method is that proposed by Altman (1968). Despite the positive results of his study, Altman's model has a key weakness: it assumes variables in the sample data as normally distributed. If one variable is not normally distributed, the method employed may result in a biased selection of a set of predictors (Sheppard, 1994).

The Zavgren (1980) model corrected this problem. Her model is considered more robust, due to its use of logit analysis (Lo, 1986). Furthermore, the logit regression analysis (LRA) provides the probability (in percentage terms) of bankruptcy. In addition, the probability calculated might be considered a measure of the effectiveness of management (i.e. effective management will not lead a company to the verge of bankruptcy). During the 1980s and 1990s, LRA was predominantly used at the expense of MDA (Stickney, 1996).

The Cox proportional hazards model (Cox, 1972) has also been used to predict failure events [as in Rocha (1999), Janot (2001), Martins (2003) and Braga *et al.* (2006)]. The Cox model presents three main advantages over other risk modelling techniques, such as discriminant analysis and Logit/Probit model: it can be used to generate the probable time to failure; it does not require to set assumptions about the data's distributional properties, and results from the Cox model are considerably more significant than the ones from alternative models (Whalen, 1991). When compared with logit in their ability to predict the insolvency, hazards models proved to be superior (Lee and Urrutia 1996; Janot, 2001).

More recently, alternative models, as the Gambler's Ruin models, have been used to predict financial distress. Wilcox (1971 and 1976), Santomero (1977), Vinso (1979) and others have adapted a gambler's ruin approach to bankruptcy prediction.

Further, Neural Networks impose less restrictive data requirements than other methods (the requirement for linearity, for example) and are especially useful in recognising and learning complex data relationships. Empirical research has found that the approaches

perform similarly and the robustness of the results is higher if different methods are used (Altman *et al.*, 1994).

To sum up, until the early 1980s, MDA was the primary multivariate methodological approach to ratio-based modelling of corporate failure. However, as new statistical tools became available, researchers started testing them with the objective of deriving models that performed as well as MDA, but which relied on fewer assumptions. Regardless of the method chosen to compute the results, the majority of them compare with MDA. Hossari's (2007) review of corporate failure studies indicates that when MDA is not the main methodology used, it is assumed as a benchmark, highlighting its relevance in empirical applications.

In line with other studies, this work uses LRA and MDA⁴² for assessing potential failure of CCAM as a function of financial/economical indicators.

5.3.1 - Multiple Discriminant Analysis (MDA)

MDA is a statistical technique used to identify the variables which better differentiate (or discriminate) between two or more groups of individuals, structurally, different and mutually exclusive, and employs them to create a *score* (or discriminant function) that parsimoniously represents the differences between groups (Maroco, 2003). It can be used to make predictions in situations where the dependent variable is qualitative (bankrupt or non-bankrupt). In the first step explicit group classifications are established. Next, data are collected, taking into account the internal characteristics of the groups. Then, is derived a linear combination of these characteristics (financial ratios) which “best” discriminates between the groups (Altman, 1968).

If a CCAM has characteristics (financial ratios) which can be quantified for all of the CCAM in the analysis, the MDA determines a set of discriminant coefficients. When these coefficients are applied to the actual CCAM ratios, a basis for classification into one of the mutually exclusive groupings exists. The MDA technique has the advantage

⁴² Despite the general advantages of Cox model the characteristics of the data available proved it was difficult to apply it to predict CCAM failure in similar conditions to LRA and MDA, as the Cox model requires the construction of a specific data base different from the one used in LRA and MDA models (the Cox model uses only data to a specific year in the estimation while the LRA and MDA models use data from a range of years) and consequently the results would not be comparable. Cabo and Rebelo (2010b) apply this approach to analyze the CCAM survival.

of considering an entire profile of characteristics common to the relevant firms, as well as the interaction of these properties (Altman, 1968).

The MDA discriminant function:

$$Z = \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

transform individual variable values to a single discriminant score or **Z** value which is then used to classify the object, where X_1, \dots, X_k are independent variables and $\beta_1, \beta_2, \dots, \beta_k$ the discriminant coefficients.

The MDA computes the discriminant coefficients, β_j , while the independent variables X_j are the actual values, where $j = 1, 2, \dots, k$.

Altman (1968) indicates that a potentially high degree of correlation or collinearity between some ratios, while requiring a careful selection of the predictive variables (ratios), has the advantage of generating a model with a relatively small number of selected measurements with the potential to convey a great deal of information. The main advantage of MDA is its potential to analyse the entire variable profile of the object simultaneously, rather than sequentially examining its individual characteristics. Thus, ratios presenting significant differences between groups, but not of a magnitude to facilitate the development of an accurate prediction model, are excluded.

5.3.2 - Logistic Regression Analysis (LRA)

The Logit model is a model of qualitative response. It analyzes the relationship between dependent (or response) variables and independent (or explanatory) variables. The dependent variable is always categorical, while the independent variables can be numerical or categorical. These models are applicable to a more extensive set of research situations than MDA (Judge *et al.*, 1985).

While MDA requires the assumption of multivariate normality of the independent variables and equal variance-covariance matrices in the two groups to obtain an excellent forecast rule the LRA requires fewer assumptions and, even when the assumptions required by MDA are satisfied, LRA still presents good results (Norusis, 1993). To Lo (1986), MDA and the LRA are equivalent when dealing with models to

predict failure. While, for Laffarga *et al.* (1987) cited by Fully-Bressan (2002) accuracy in predicting a firm's bankruptcy is higher for the LRA model.

MDA specifies a joint distribution of the dependent variable (Y_i) and the independent variables (X_i), not only the conditional distribution of Y_i given X_i . In models of qualitative response, the determination of X_i (in our case characteristics of the CCAM) clearly precedes Y_i (insolvency). Thus, it is important to specify $\Pr(Y_i = 1|X)$ while the specification of the distribution of X can be ignored. On the contrary, in the MDA, Y_i precedes the determination of X .

In brief, MDA is a mere technique of classification, while LRA analyses the causal relation (Janot, 2001). LRA is used for prediction of the probability of occurrence of an event by making use of several predictor (independent) variables. In our case, the predictor variables are financial ratios and the aim is to estimate the probability of a given CCAM being insolvent.

The logit model assumes the logistic function functional form:

$$\text{prob}(y_i = 1) = \frac{1}{1 + \exp^{-x_i\beta}}$$

where: Y = binary variable (assumes the value of 0 or 1); X = column vector of $p+1$ dimension, where p is the number of independent variables; β = unknown parametric vector that we intend to estimate.

The estimated probability always lies between 0 and 1, independently of the value of $X_i\beta$. Essentially, the estimation of the Logit model intends to produce a set of probabilities. The CCAM which declared insolvency have a higher *ex-ante* probability of insolvency compared with the others. A "good adjustment" is a set of coefficients closest to this objective. Logit regression allows testing the significance of individual estimated coefficients, which is not the case with MDA. Additionally, LRA is more flexible and has a higher statistical power (Lo, 1986).

Table 5. 2 summarizes the key characteristics and assumptions of LRA and MDA methods.

Table 5.2 - LRA and MDA key characteristics and assumptions

Method	Assumes normality and equal group covariances matrices	Functional form	Assumes homokedasticity	Distribution of u_{it}
LRA	No	Non linear	Yes	Logistic
MDA	Yes	Non linear	No	Non applicable

Source: Adapted from Lennox (1999)

5.3.3 - Earlier studies of co-operative and non co-operative bank failures

Failures of co-operative and non co-operative (commercial) banks have not been studied to an equal extent in recent decades. Commercial bank failures were the first to be studied using statistically sophisticated methods, and they continue to attract the most scholarly interest. Co-operative bank failures have been studied only sporadically, and these studies have rarely used statistically sophisticated methods (Wilcox, 2010).

The earlier studies focused on small samples of banks over short time spans, but other studies investigated failures over long time spans (Martin, 1977; Harrison and Ragas, 1995; Fuller and Kohers, 1994; Jordan and Rosengren, 2002; Oshinsky and Olin, 2006).

A number of studies document the large differences in failures and insurance losses of commercial banks and variations in the coefficients and statistical significance of explanatory variables over time and under different macroeconomic, regulatory, or industrial conditions (Hanc, 1998; Kaufman; 2004).

Different studies (Fuller and Kohers; 1994; Harrison and Ragas, 1995; Helwege, 1996; King *et al.*, 2006) compare the estimates of models predicting failures across different time periods and find that the variables likely to be significant in explaining failure have been roughly similar but that the values of the coefficients (and thus their economic significance) vary with time. King *et al.* (2006), comparing the characteristics of failing and surviving commercial banks in 1984–1994 and 1995–2003, report that, during their earlier period of study, failing commercial banks are larger than average, held more commercial real estate, and did not experience climbing cash levels before failure. During the later period, each of these warning signs was reversed, or was no longer predictive. Oshinsky and Olin (2006) also find changes in the patterns of bank problems and failures. They report that in the early 1990s, most banks classified as troubled

remained troubled 6 to 24 months later, but in late 1990s most banks classified as “troubled” recovered within 6 to 24 months.

On the other hand, some research examines the “too big to fail” hypothesis, showing that the characteristics and mechanics of failure are different for banks with different sizes. Kaufman (2004) contrasts failures, losses, and loss-to-asset ratios in commercial banks with different asset sizes. King *et al.* (2006) find that, on average, failing banks were larger than surviving ones in 1984–1994 but smaller in 1995–2003. However, the small number of large bank failures has limited the ability to study them separately from failures among smaller banks. Demigurc-Kunt (1989) and Kolari *et al.* (2001) are among the few studies to model the characteristics of failing commercial banks segregated by assets. Even in these studies, the paucity of data forces the time covered to be short (e.g., 1989–1992 in Kolari *et al.* (2001)), limiting their predictive capacity.

Many studies of failures (e.g., Glennon and Golan 2003) have included as explanatory variables different measures of state macroeconomic performance, with mixed results. Nuxoll (2003) reports that models that include macroeconomic variables do not perform significantly better than models that do not include them. Jordan and Rosengren (2002) find that macroeconomic forecasts provide little additional information on bank-specific financial data to predict failures during prosperous times, but that such forecasts are relevant during troubled periods. Similarly, DeYoung (1999) finds that banks are more prone to failure during recession and are very unlikely to fail during expansion times.

The failures of co-operative banks have been described in several studies but without using statistically sophisticated methods (Gordon *et al.*, 1987; Gordon, 1991; Shafroth, 1997). These studies identify a number of variables likely to play a role in credit union failures and losses, some of them akin to those found in studies of commercial bank and thrift failures, namely riskier assets (real estate loans and member business loans) and high non-interest expenses. The authors suggest some additional risk factors of credit unions that are distinctive and particularly to the smallest credit unions: small size, youth, sponsor failures, poor record keeping, weak lending and collection practices, and refinancing delinquent loans.

If compared with commercial banks, the use of statistical methods to study co-operative bank failures is scarce. Exceptions are Kharadia and Collins (1981) that use ordinary

least squares (OLS) to model failures of federal credit unions in 1960–1971 and Kane and Hendershott (1996) using logit to predict failures of federally insured credit unions in 1987–1990. More recently, Maggiolini and Mistrulli's (2005) survival analysis studies the features of the new Co-operative Credit Banks (CCBs) established in Italy during the 1990s. The authors found that duration is positively related to the market share of large banks and is higher when there are no incumbent CCBs in the same market and the survival probability is directly related to the local level of gross domestic product (GDP). Fiordelisi and Mare (2011), using a discrete time survival model, show that efficiency has a positive and statistically significant link with the probability of survival of co-operative banks. Studies conducted by Fully-Bressan (2002), Fully-Bressan *et al.* (2004), Braga *et al.* (2006) and Carvalho *et al.* (2009) focused on Brazilian credit co-operatives. The first two studies employed a logit and Cox proportional hazard model. Their results suggest that the relevant indicators for insolvency prediction are capitalization, volunteer covering and fund-raising growth, and, for relative risk analysis, liquidity, short run disposable resources and labour cost. Braga *et al.* (2006), using a Cox proportional hazard model, indicate that the relevant indicators for insolvency prediction are, in descending order of predictive ability, general liquidity, salary and benefit expenses, and loan/equity ratio. Finally, Carvalho *et al.* (2009), using both logit and Cox proportional hazard models, conclude that credit co-operative mortality depends on their size and operational efficiency.

Some studies investigate the failure of co-operative and non co-operative financial institutions. Schaeck and Wolfe (2005), drawing on an original dataset of distressed co-operative and savings banks, develop early warning indicators for banking difficulties, using a parametric approach. These authors' findings indicate that banks in West Germany are less risky than credit institutions in the Neue Länder and co-operatives are more prone to experience financial difficulties than savings banks. Wilcox (2005) compares the evolution of failures and insurance losses in credit unions and commercial banks and the characteristics of failing and surviving credit unions for banks with different sizes and for different sub periods. This author reports that, between credit unions, smaller asset size, lower capital, higher loan- to-asset ratios, higher non-interest expenses, and more delinquent loans were associated with lower failure rates. Beck *et al.* (2009) assess the stability of German banks using three different measures of bank stability, the *z-score*, a standard measure of distance from insolvency, *non-performing*

loans, and *distress probabilities* derived from hazard models, finding consistent evidence that investor owned banks are less stable than government-owned savings banks and co-operative banks. Furthermore, co-operative banks are farther away from insolvency than government-owned savings banks, but are more likely to become distressed than savings banks. The authors also find evidence for the too-big-to-fail phenomenon, as larger privately-owned banks hold less risk-weighted capital than their smaller peers, thus moving closer to insolvency, but face lower distress probability. Co-operative or savings banks, on the other hand, are more stable if larger.

Wilcox (2010) presents the first large-scale, long-term (1981–2005) econometric analysis (logit and OLS) of individual commercial bank and credit union failures. The author concludes that the behaviours and operating procedures that foretell credit union failures differ from those that foretell bank failures. He found that the variables traditionally used to analyze private bank failures (i.e. smaller asset size, higher ratios of net loans, commercial and industrial loans, provisions for loan losses, delinquent loans, non-interest expenses, higher state unemployment rates, lower ratios of capital and ROA) are useful in analysing credit union failures. However, most individual variables have coefficients that are statistically different for samples of credit unions and commercial banks. The value and significance of coefficients could vary with typology of bank, asset size ranges and time periods. More unsecured loans were associated with increased failures among small credit unions but not among other banks. Failures of medium-sized credit unions were not associated with several variables that affected other banks, such as residential mortgages, non-interest expenses, and the state unemployment rate. Furthermore, the author found that past failure rates and the percentage of banks at a high risk for future failure are generally lower for larger banks, for credit unions, and in later periods. Usually, credit unions have lower failure rates than commercial banks of the same size, but, in recent years, small credit unions have had higher failure rates than small banks.

5.4 - Data and sample

5.4.1 - The CCAM failure event

The agricultural co-operative credit system in Portugal is made up of an integrated system (SICAM) of two types of co-operatives: the central and the individual

(associated) in a regime of co-responsibility. SICAM = Central CCAM + Associated CCAM (85 local CCAM).

Nowadays, celebrating their hundredth anniversary, Portuguese credit co-operatives had a tough birth and a difficult childhood: mismanagement, lack of funds and political control and interference resulted in a fairly inactive life until the eighties of last century. Following the 1974 political changes and the entry of Portugal into the European Union in 1986, CCAM experienced a spectacular growth in their activity, as they were considered an important factor in the framework of a financing strategy for the development of the agricultural sector. But this was a period of euphoric growth and disorganization.

During the 1990s the financial imbalance, that touch most of the 211 CCAM, began to be resolved via a merging process driven by SICAM. The root of this strategy is a report prepared by SICAM, based on 1992 data, which concludes that to generate consistent net benefits a typical CCAM must have deposits up to 70 million euro, a value not achieved by 96.6% of CCAM (Cabo, 2003). Despite these initial circumstances, only few CCAM went bankrupt and nowadays SICAM has a significant position in the Portuguese banking system, especially, regarding employment, branches network and total deposits, being one of the most robust entities operating within it, with an excellent position with regard to efficiency, solvency, liquidity, and customer claims (Cabo and Rebelo, 2010a). These results derive above all from two main factors: the intense restructuring process carried out within SICAM and SICAM governance structure and control mechanisms.

The restrictions on internal growth imposed by the local nature of CCAM⁴³ and the lack of funding and time, led SICAM decision makers to engage in an intense process of merging and restructuring operations, financially supported by the Insurance Fund of Agricultural Co-operative Credit (FGCAM). This process was so intense that, in ten years, CCAM's average assets increased more than fourfold and in 2010 the number of CCAM was reduced to 85. Although this process continues [until it reached the ideal number of 70 CCAM (Portal da Serra: 21st November 2006)] *“the merger process is now fundamentally geared to buttressing operating structures in the Caixas concerned*

⁴³ The CCAM' activity is restricted to the county (“concelho”) where it is located, i.e., the CCAM are regional organizations and their product markets are limited.

and not to solving financial imbalances” (Credito Agricola, 2010: 7). This strategy not only “saved” distressed CCAM from bankruptcy but also provided CCAM with the operational conditions necessary to compete efficiently with other credit institutions in a changing and challenging banking system.

SICAM establishes a regime of co-responsibility between Central CCAM and its members. Central CCAM guarantees its associates without limitations and is also guaranteed by them. SICAM is, in this way, subordinated to a double guardianship. Furthermore, when a CCAM gets into financial distress, the Central CCAM has an incentive to protect this CCAM from default because it is important to maintain the high reputation of the whole CCAM system and the confidence of its different stakeholders (members, depositors, borrowers, Bank of Portugal).

Within SICAM management control is often exercised by Central CCAM whose role is to orientate and supervise, and, consequently is the first to detect managerial failures. In cases of gross mismanagement or fraud, CCAM governing bodies can be formally dismissed by Central CCAM, under its supervision and intervention powers. Indeed, Central CCAM is empowered to intervene in the associates, by the assignment of a representative to monitor CCAM management or by the nomination of interim directors whenever it verifies an imbalance situation which, because of its extension or continuity, can jeopardize the daily running of the CCAM, its solvency is at risk or serious irregularities occur. Moreover, when the associate is in serious financial imbalance, or at risk of being so, and not following Central CCAM guidelines, Central CCAM can dismiss all or part of the associated management and supervision boards and assign interim directors to them. Long-term inefficiencies are often resolved through “forced”⁴⁴ merger with another (more efficient) CCAM. Additionally, the FGCAM, as was as the assuring of CCAM customers’ deposit, promotes SICAM solvency and liquidity and, therefore, performs an active role in the economic and financial restructuring process of SICAM, offering financial support in the form of subordinated loans. Rescuing operations by FGCAM are conditional on an economic and financial restructuring process which often includes the merging with (or incorporation into) more efficient CCAM.

⁴⁴ Although mergers are friendly (they must be approved by the general meeting) the influence of Central CCAM is considerable, being this top institution the trigger and even the one that choose the merger partners (Cabo and Rebelo, 2005).

5.4.2 - Sample

The period under study is 1995-2009 and includes the CCAM associates of SICAM, a pooled of 1,827 observations. The financial data are collected from annual accounting reports and the non-financial data (CCAM mergers and incorporations, Central CCAM interventions, and others) from “Diário da República⁴⁵”, Ministry of Justice website, CCAM annual Reports and other SICAM official statements released during the study period.

The profound SICAM restructuring process reduced the number of CCAM from 190, in 1995, to just 85, in 2009, only 40% of which were initially considered solvent. The 1,827 observations of the sample are divided in two groups: group1 has 1,315 observations and is made up of solvent CCAM, i.e. those that did not become insolvent during the study period; group2, with 512 observations, are CCAM that become insolvent in the study period. Table 5.3 next page provides summary statistics.

Most studies of bankruptcy use matching samples composed of pairs of bankrupt and non-bankrupt firms. This procedure clearly introduces much sample-selection bias (Zavgren, 1980; Lo, 1986) and, therefore, was not followed in this study. The choice of a fifteen-year period is not the best procedure, since average ratios shift over time. Ideally we would prefer to examine a list of ratios in time1 in order to make predictions about other CCAM in the following period, time2. Unfortunately it was not possible to do so because of data limitations. However, the number of insolvencies was more-or-less evenly distributed over the fifteen-year period, thus minimizing its effects on estimations.

⁴⁵ It is the Portuguese government official journal.

Table 5.3 - Summary group statistics

		Max	Median	Mean	Min	Std. Dev.
GROUP 1 – SOLVENT CCAM	Credit Growth	3.1420	0.1003	0.1220	-0.2591	0.1558
	Customers Resources Growth	3.6115	0.0855	0.1040	-0.4048	0.1319
	Transformation Ratio	1.2989	0.6433	0.6388	0.1491	0.1535
	Credit Overdue	0.3785	0.0592	0.0727	0.0000	0.0551
	Intermediation Function Ratio	924.8692	2.9055	4.9202	-42.5351	27.5488
	Labour Costs	1.0649	0.3242	0.3318	0.0663	0.1012
	Structural Costs	1.9817	0.6082	0.6181	0.1881	0.1627
	Expenses Ratio	1.7812	0.8432	0.7937	0.0000	0.2144
	Liquidity	4.1073	0.3936	0.4686	0.0319	0.4246
	Cash Flow	0.2338	0.0192	0.0232	-0.0046	0.0200
	Indebtedness	0.9992	0.9012	0.8876	0.0565	0.0761
	Debt to Equity ratio	1,306.8825	9.1192	12.9563	0.0599	40.5262
	ROA	0.2095	0.0121	0.0149	-0.1526	0.0171
	ROSC	7.7375	0.1721	0.2600	-1.0915	0.4136
	Financial Margin	0.3224	0.0368	0.0444	0.0011	0.0361
Total Assets*	352,466.001	31,205.577	44,072.790	726.085	44,008.339	
GROUP 2 - INSOLVENT CCAM	Credit Growth	1.5464	0.0656	0.0786	-0.7422	0.1631
	Customers Resources Growth	0.8374	0.0685	0.0748	-0.7874	0.0996
	Transformation Ratio	1.0810	0.6254	0.6205	0.1226	0.1564
	Credit Overdue	0.7254	0.1329	0.1674	0.0024	0.1274
	Intermediation Function Ratio	419.1061	2.4129	7.2080	-63.2969	35.3760
	Labour Costs	13.4681	0.3862	0.4270	-22.3365	1.3072
	Structural Costs	23.6262	0.7420	0.8070	-33.5953	2.0992
	Expenses Ratio	4.5101	0.9120	0.9514	0.0000	0.4784
	Liquidity	5.0659	0.3978	0.5941	0.0360	0.6665
	Cash Flow	0.8619	0.0156	0.0084	-1.0558	0.0826
	Indebtedness	4.9566	0.9868	1.1140	0.4801	0.4977
	Debt to Equity ratio	19,147.8248	5.7891	45.6337	-314.8737	848.6963
	ROA	0.8234	0.0070	-0.0079	-0.7060	0.0853
	ROSC	9.3133	0.1443	-0.1928	-13.2999	1.9825
	Financial Margin	0.5402	0.0344	0.0443	-0.3944	0.0581
Total Assets*	312,620.604	24,728.779	40,326.560	848.417	51,791.814	

Notes: *In thousands of Euros, 1995 prices; Std. Dev. : Standard Deviation

5.5 - Model and variables

5.5.1 - Model

A general model of CCAM insolvency is estimated following the failure model:

$$Fail_{it}^* = \beta_i' X_{it} + u_{it}$$

where $Fail_{it} = 1$ if $Fail_{it}^* \geq 0$
 $Fail_{it} = 0$ otherwise

The dependent variable, $Fail_{it}$, takes a value of 1 if the insolvency requirement is met. Otherwise, $Fail_{it}$ takes a value of 0. The X_{it} variables used to predict bankruptcy are financial and operating ratios.

In the iterative way of the modelling process, a core group of predictors was developed to which additional predictors were added individually. The core set of variables expands as additional factors yield a coefficient with the expected sign, statistic significant and improved classification accuracy. This approach concentrates on the explanatory power of variables. The selection of the final set of financial and operating ratios was based on their conformity to a priori sign expectations, the statistical significance of the parameters estimated and on model classification results.

Methodologically we followed a two-step procedure. In the first step, the 1995-2010 data were used to categorize CCAM by status: solvent and insolvent CCAM. CCAM were placed in the insolvent group when they were positive for one of tests for insolvency. In contrast, a CCAM was categorized as solvent otherwise. Then financial ratios were created with the earlier data from 1994⁴⁶-2009. These ratios were used in the second step to predict insolvency among CCAM.

5.5.2 - Variables

It is not usual to see a CCAM bankruptcy. Over the period of our analysis (1995-2009), only 5 CCAM went bankrupt and their assets went transferred to other CCAM. But the

⁴⁶ Data from 1994 were also collected to allow measurement of growth rates from 1994 to 1995.

consulting of the sample financial data for the year 1995 shows that almost 30% of the CCAM present negative equity and, additionally, 20% more are severely financially distressed and restructuring at FGCAM request. Thus, half of the CCAM, although still operating, are insolvent and, without SICAM support, this would certainly be their end. Indeed, only one of the 5 bankrupt CCAM belongs to the above-mentioned insolvent group.

Because of this small number of CCAM which went bankrupt as defined, it was necessary to refine the definition of “insolvent” to better illustrate the CCAM case. Thus, following Cabo and Rebelo (2010b), it was adopted a multidimensional interpretation of insolvency in which a CCAM is categorized as insolvent when it meets at least one of the following criteria in a given year: (a) presents negative equity; (b) is subjected to a Central CCAM intervention or FGCAM⁴⁷ restructuring operation; (c) is incorporated into (or merged with) another CCAM; (d) is bankrupt for any reason.

Using the four insolvency definitions, more CCAM are labelled as insolvent than would be the case with a single screen. That is, it is more likely that a solvent CCAM is labelled as insolvent; though, as a consequence, more insolvent CCAM may be correctly described. This outcome is preferred when the cost of misidentifying a non-insolvent CCAM as insolvent is lower than the alternative misclassification. Insolvent CCAM in period t were defined as those that comply with at least one of the screening criteria in $t+1$ period. In contrast, non-insolvent CCAM does not comply with any of the four screen metrics for $t+1$ period.

As explanatory variables a set of financial ratios is used, created from the balance sheet data of the 1994-2009' period. The choice of variables was based on author previous studies of CCAM and from a review of the literature on insolvency. The financial ratios represent measures of profitability, financial leverage, liquidity, operating efficiency and growth, all of which are factors frequently included in models predicting either financial distress or bankruptcy.

Table 5.4 shows the financial ratios which were tested as independent variables for modelling purposes. (The summary statistical measures of these variables were included in Table 5.3).

⁴⁷ A CCAM is considered potentially insolvent if benefits of FGCAM subordinated loans greater than 50% of equity.

Table 5.4 - Variable definitions and transformations

Group 1 – Operational Efficiency and Growth	Group 3 – Leverage and Liquidity
$\text{Intermediation Function ratio} = \frac{\text{Financial Margin}^*}{\text{Net Profit}}$	$\text{Liquidity} = \frac{\text{Net Cash in Central Banks \& other credit intitutions}}{\text{Total Liabilities}}$
$\text{Transformation ratio} = \frac{\text{Total Loans}}{\text{Customer Deposits}}$	$\text{Cash Flow} = \frac{\text{Net Profit} + \text{Amortisation} + \text{Net Provisions}}{\text{Total Assets}}$
$\text{Credit Overdue} = \frac{\text{Credit Overdue}}{\text{Gross Credit}}$	$\text{Indebtedness} = \frac{\text{Total Debt}}{\text{Total Assets}}$
$\text{Credit Growth} = \frac{\text{Gross Credit in time t}}{\text{Gross Credit in time t - 1}} - 1$	$\text{Debt to Equity ratio} = \frac{\text{Total Liabilities}}{\text{Equity}}$
$\text{Customer Resources Growth} = \frac{\text{Customer Deposits in time t}}{\text{Customer Deposits in time t - 1}} - 1$	
Group 2 – Cost Efficiency	Group 4 – Return ratios
$\text{Expenses ratio} = \frac{\text{Total Expenses}}{\text{Total Revenue}}$	$\text{ROA} = \frac{\text{Net Profit}}{\text{Total Assets}}$
$\text{Labours Costs} = \frac{\text{Salary and Benefit Expenses}}{\text{Financial Margin}}$	$\text{ROSC}^{***} = \frac{\text{Net Profit}}{\text{Shareholders Capital}}$
$\text{Structural Costs} = \frac{\text{Administrative Expenses}^{**}}{\text{Financial Margin}}$	$\text{Financial Margin} = \frac{\text{Financial Margin}}{\text{Total Assets}}$

Notes: * Net Interest and other similar income; **Costs of general services incurred in controlling and directing an organization, such as accounting, energy and water supply, advertising, office resources expenses, etc.; ***The option for Shareholders Capital instead of Equity is justified by the existence of CCAM with lower equity resulting from previous years accumulated losses which can jeopardise the results of the study.

The literature on corporate failure provides an extensive battery of ratios helpful to understand and predict this event. While taking these into consideration, the limitations imposed by the data available and CCAM particularities guided the selection in this study.

CCAM are under a special regime, essentially because of their co-operative form and their priority goal to performing agricultural credit operations in favour of their members. They are specialized credit banks subjected to various restrictions imposed by law, namely, territorial area and authorized operations.

Credit intermediation is the core business of banking activity, and for CCAM this is especially true. Despite CCAM efforts to diversify their net income portfolio, favouring a cross-selling strategy of insurance and investment products, financial margin is still CCAM main source of income. A decade ago financial margin contribution to net income was around 90%, currently it is reduced to 75%, but is still 15 points above that of the overall banking system. This double specialization (in customers served and

products offered) is a serious constraint in modern Portugal, where rural exodus is ongoing, the population is concentrated in coastal urban areas and agriculture is in decline. In face of this, special care was given to the intermediation function and credit management activity. Intermediation function ratio measures the importance of financial margin to CCAM returns; a CCAM less dependent on this source of income lowers its risk by diversifying. Additionally, the decline of spreads is reducing CCAM earnings. Transformation and Credit overdue ratios aim to capture CCAM credit management risk. CCAM are saver, not borrower banks, with a prudential lending policy. This strategy, despite sacrificing short term revenues, has proved to be the correct one in the long term (Cabo and Rebelo, 2010b).

A high transformation ratio maximizes CCAM revenues (and, thus, CCAM net returns) but can also put the CCAM in a vulnerable situation, facing credit overdue and liquidity distress, especially in times of economic recession, when borrowers have more difficulty in recovering their credit, and with interbank competition for funds remaining intense, as in the present economic and financial crisis. Thus, an aggressive lending policy is a high-return, high-risk strategy. A profound knowledge of market conditions and of their customers, based on the concept of proximity, as in the CCAM case, is essential for success when adopting this strategy. Therefore, Transformation ratio influence on CCAM failure is unpredictable. Credit overdue is expected to have a positive influence on CCAM failure probability. Credit and customer resources growth ratios are measures of CCAM competitive strength and market share and should present a negative influence.

Banking is a highly demanding activity, where cost efficiency is crucial for success. Thus, excessive expenditure will certainly result in financial problems. As a rule, the expenditure items must always be under CCAM management control. Expenses ratio, Labour costs and Structural costs ratios are measures of CCAM cost efficiency, expressing their ability to exploit scale economies and to rationalize expenses, particularly, of CCAM management and organizational structures. These ratios are expected to positively influence CCAM probability of failure.

Indebtedness and Debt to Equity ratios are measures of CCAM level of capitalization and leverage. Equity is the cheaper financing source that CCAM disposal, given their

non-profit nature; although it is difficult to CCAM obtain equity since they cannot publicly do so.

Liquidity reflects the means available to CCAM to answer short term debt. A lack of liquidity indicates that CCAM can experience problems in performing their daily operations. A credit institution with “no money” is on track to failure. On the other hand, the CCAM legal regime in practice limits CCAM financial applications to deposits in other banks. Thus, contrary to other entities operating in the Portuguese banking system, CCAM excess of liquidity can be a real problem, particularly at present, as the 2009 accounts show. Indeed, European Central Bank measures to respond to the liquidity shortfalls of a number of banks (starved of funds as the refinancing markets seized up in the crisis) severely affect CCAM operating conditions. *“In fact, the impact of the policy was much more negative for us than the crisis itself.... With euribor rates hitting a very low point, the Group’s operating conditions bore the brunt, both in the local Caixas and at the Caixa Central, since a very large part of the credit portfolio is based on an interest rate structure linked to these market references. Moreover, the profitability of the Group’s liquidity reserves was also stunted by the unnecessarily low interest rate policy.”* (Crédito Agrícola, 2010: 6). For this reason, a positive influence of Liquidity ratio on CCAM failure probability would not be a surprise.

Finally, the ratios in the 4th Group, the profitability ratios, are expected to present a negative influence on CCAM failure probability. For CCAM, profit is not an end but a means for survival. Despite being non-profit banks, CCAM survival depends on their ability to generate net returns to support their capital needs. However, if the insolvent CCAM suffer from a deeper income specialization than the solvent ones (and the authors’ understanding of the CCAM reality suggests this), Financial margin ratio can present a positive influence on CCAM failure probability.

Table 5.5 includes the expected signs of the coefficients of the variables that can influence the probability of CCAM failure.

Table 5.5 - Expects signs of variable coefficients

Group 1 - Operational Efficiency and Growth		Group 2 – Leverage and Liquidity	
1. Intermediation Function ratio	+	1. Liquidity	+/-
2. Transformation ratio	+/-	2. Cash Flow	-
3. Credit Overdue	+	3. Indebtedness	+
4. Credit Growth	-	4. Debt to Equity ratio	+
5. Customer Resources Growth	-		
Group 3- Cost Efficiency		Group 4 – Return ratios	
1. Expenses ratio	+	1. ROA	-
2. Labour costs	+	2. ROSC	-
3. Structural costs	+	3. Financial Margin	+/-

5.6 - Results

To determine which of the 15 explanatory variables is the best predictor of failures and following the same procedure as Janot (2001), a stepwise procedure combining forward and backward elimination is applied. The model starts as a baseline model without any variable on it. The 15 indicators are considered one at a time, and added to the model if succeeding in the selection criterion based on a p-value of 5%. When a new variable is added to the model, the variables previously included are evaluated for exclusion, at 10% significance level. The ones which fail are excluded. When no more variables can be added or removed, the algorithm stops.

The stepwise procedure within the logistic regression and MDA selects among the independent variables the ones that contributed more to the CCAM insolvency in the study periods, and calculates the insolvency probability of each CCAM. If that probability is greater than 0.5 the model classifies the CCAM as insolvent, otherwise, as solvent. When comparing this classification with the observed status of the CCAM two types of error can occur: Type I Error occurs when the model classifies as solvent a CCAM that became insolvent during the period analysed; Type II Error occurs when the model classifies as insolvent a solvent CCAM. The greater the model accuracy, the more efficiency it presents in predicting CCAM failure.

In order to better assess the model accuracy, the sample (1,827 cases) was divided and approximately 70% of the insolvent CCAM were randomly selected⁴⁸ and used to create the logistic regression model. The remaining insolvent CCAM were used to validate the model results.

The variable Total Assets was added to both models to control for CCAM size.

5.6.1 - Logit model

The resultant model of the LRA, using the Forward Stepwise method⁴⁹ with the Likelihood ratio statistics, selected only 6 among the 15 variables used in the estimation as predictors of CCAM failure. Table 5.6 reports the results of the *logit* model.

Table 5.6 - LRA coefficients and significance level

Variable	<i>B</i>	Std. Dev.	Significance Level
Constant	-33.408	2.459	0.000
Customers Resources Growth	-3.976	1.178	0.001
Credit Overdue	4.228	1.471	0.004
Expenses ratio	2.127	0.453	0.000
Structural Costs	1.444	0.591	0.015
Indebtedness	30.536	2.568	0.000
Financial Margin	26.474	3.718	0.000
Total Assets	0,000	0,000	0.020

All coefficients present the expected signs, and the only surprise is the absence of a profitability variable (ROA and ROCS). The model Nagelkerke pseudo r-squared statistic⁵⁰ is 0.626.

⁴⁸ A variable *validate* was created with values of it set in order to be randomly generated Bernoulli variates with probability parameter 0.7.

⁴⁹ The logit model was also estimated with all variables included and tested against the step wise model, using the chi square test [difference between log-likelihood (-2LL)] models. The results of this test show that the step wise model holds statistically at 0.1significance level.

⁵⁰ Pseudo r-squared statistic has similar properties to the true r-squared statistic and measures the variability in the dependent variable. The pseudo r-squared statistics are based on comparing the likelihood of the current model to the

The results show that CCAM failure is more likely when the CCAM presents an increase in Credit Overdue. Similarly, the positive sign on Expenses Ratio and Structural Costs ratio implies that an improvement in cost efficiency is correlated with a fall in the relative probability of failure.

Another important determinant of CCAM failure is Indebtedness. Its positive coefficient confirms the importance of equity funds to CCAM in order to assure their financial autonomy. Finance experts often suggest that a corporation may increase its leverage ratio by borrowing money. As more as it borrows less equity it needs, so any profits or losses are shared among a smaller base and are proportionately larger as a result. Co-operative leaderships facing difficulties in increasing CCAM equity often prefer to deal with an outside creditor instead of implementing strategies to increase members' shareholdings. This policy has higher financial costs, diminishing the co-operative net returns and, in the long run, jeopardizes survival.

Finally, the positive sign of the Financial Margin coefficient confirms the hypothesis that higher concentration in income sources increases the probability of CCAM failure.

The accuracy in classification indicates how well the model performs. A good model should correctly identify a higher percentage of cases. Classifications based upon the cases used to create the model tend to be too "optimistic", in the sense that their classification rate is inflated. Subset validation is obtained by classifying insolvent CCAM that were not used to create the model.

Table 5.7 show the result of applying the model for the prediction of CCAM failure to the sample of CCAM used in the model estimation, and to the unselected ones.

restricted model (one without any predictors). Larger pseudo r-square statistics indicate that more of the variation is explained by the model, from a minimum of 0 to a maximum of 1.

Table 5.7 – LRA classification* of CCAM

Observed		Predicted					
		Selected Cases		Percentage	Unselected Cases		Percentage
		Failure			Failure		
		No	Yes		No	Yes	
Failure	No	912	32	96.6	357	14	96.2
	Yes	125	238	65.6	50	97	66.0
	Overall Percentage			88.0			87.6

Notes: * Cut value is 0.5. Cells on the diagonal are correct predictions. Cells off the diagonal are incorrect predictions.

From the cases used to create the model, 912 of the 944 solvent CCAM are classified correctly and 238 of the 363 insolvent CCAM are classified correctly. Overall, 88% of the cases are classified correctly. The results in the Unselected Cases show that 87.6 percent of these cases were correctly classified by the model, which suggests that, overall, the model is correct about four out of five times.

As mentioned earlier, Type I Error occurs when the model classifies as solvent a CCAM that became insolvent during the period analysed. The Logit model misclassifies approximately $\frac{1}{3}$ of the insolvent CCAM: 34.4% of the selected cases and 34% of the unselected. This is a far worse result, especially because it is a more costly error. The failure to signal a potentially insolvent CCAM leaves it out of vigilance and no correction measures will be adopted to prevent the failure. This is an error that jeopardises the validity of the model as an early system warning.

Type II Error occurs when the model classifies as insolvent a solvent CCAM. This error results in misdirecting resources to assist a CCAM which is not in need of them. The model incurs this fault less than 4%, overall.

Having developed a *logit* model of failure, the analysis turns to consider the results from MDA, so as to evaluate whether there are gains in predictive accuracy from using *logit* rather than MDA.

5.6.2 - Discriminant Analysis model

The MDA model presents quite different results from the Logit model. MDA selects 2 additional variables as predictors of CCAM failure: Transformation ratio and Liquidity. Table 5.8 reports the results for the MDA model.

Table 5.8 - MDA classification coefficients

Variable	Failure	
	No	Yes
Constant	-25.835	-31.421
Customer Resources Growth	8.447	7.016
Transformation Ratio	35.550	33.724
Credit Overdue	-13.881	-2.789
Expenses Ratio	5.787	6.915
Structural Costs	1.120	1.307
Liquidity	4.491	3.594
Indebtedness	19.832	22.902
Financial Margin	47.139	63.077
Total Assets	2.93E-008	3.35E-008

The results of the MDA are similar to the ones obtained by the Logit model for the variables selected by both methods. The coefficient for Customer Resources Growth is smaller for Yes classification function, which means that CCAM with more ability to attract customer resources are less likely to fail. Similarly, CCAM with greater Credit Overdue, Expenses and Structural Costs ratios and Indebtedness are more likely to fail.

The new variables added by MDA, Transformation Ratio and Liquidity, present both a positive influence on the probability of failure. The coefficient for Transformation ratio is smaller for Yes function, which indicates that CCAM with a more aggressive lending policy are less likely to fail. As mentioned earlier this is a less risk-adverse strategy, not usual in co-operative banks and, thus, this result is somewhat surprising. Liquidity coefficient also indicates that CCAM with higher liquidity are less likely to fail. Despite the low return options available to CCAM to apply their liquidity surplus; MDA prove that more is still better in the case of liquidity.

To sum up, insolvent CCAM have high credit overdue scores, and low rates of customers' resources growth and low ability to convert deposits on loans. They are cost inefficient, with a high relation between expenses and revenues generated, and heavy structural costs. Moreover, they experience liquidity pressure; a weighty dependence on outside capital to finance their operations and a low level of revenue diversification.

Consulting the Logit model results, we expect that the new variables selected by MDA can contribute to a better understanding of CCAM failure and, so, the MDA model has better score in the validation phase. Table 5.9 shows the model performance in predicting CCAM failure.

Table 5.9 - CCAM classification* by the MDA model

Observed		Predicted					
		Selected Cases		Percentage	Unselected Cases		Percentage
		Failure			Failure		
		No	Yes	No	Yes		
Failure	No	842	102	89.2	330	41	89.9
	Yes	150	213	58.7	55	92	62.6
	Overall Percentage			80.7			81.5

Notes: * Cut value is 0.5. Cells on the diagonal are correct predictions. Cells off the diagonal are incorrect predictions.

From the cases used to create the model, 842 of the 944 solvent CCAM are classified correctly and 213 of the 363 insolvent CCAM are classified correctly. Overall, 80.7% of the cases are classified correctly. The results in the Unselected Cases show that 81.5 percent of these cases were correctly classified by the model. This is a slightly worse result than the Logit model.

The real problem, Type I Error, is somewhat inflated by this model. MDA model misclassifies almost $\frac{2}{5}$ of the insolvent CCAM: 41.3% of the selected cases and 37.4% of the unselected.

Overall Logit and MDA models excel at identifying solvent CCAM. However, it does a poor job in classifying insolvent CCAM. Further investigation is needed to find another predictor in order to better explain CCAM failure event.

Having developed two models of failure, the analysis turns to consider the results from both to evaluate whether there are gains in predictive accuracy from using *logit* rather than MDA. Despite the contribution of 2 additional variables the MDA model is rejected in favour of the higher accurate Logit model⁵¹.

5.7 - Conclusions

The CCAM failure models presented identified: Customer Resources Growth, Transformation Ratio, Credit Overdue, Expenses Ratio, Structural Costs, Liquidity, Indebtedness and Financial Margin as determinants of CCAM failure. These results require that CCAM take measures geared to boosting business, to shoring up the financial margin and the deposit base, to bolstering the complementary margin and to improving the credit recovery processes. Additionally, it is necessary to increase cost efficiency, by rationalizing structures and procedures consistent with reducing operating costs, without detriment to the quality of service provided.

The low performance of the models in the identification of insolvent CCAM, point out to the need for more research to identify other predictor variables that would better to classify these CCAM. Additionally, the adoption of a blind rule in the CCAM classification can lead to potential misclassification and this is a question that deserves further attention. The specificity of SICAM governance and control mechanisms, and the change in CCAM operating conditions, in pursuit of better size and more solid and professional structures, can raise the question of the definition of insolvency used in this study for some specific situations, especially regarding Central CCAM interventions and the merger or incorporation indicators. The sample used in this study contains 115 merged/incorporated CCAM classified as insolvent. It is logical to assume that not all of them were near to a bankruptcy state when engaged in merger activity. A deeper understanding of each merger/incorporation circumstances could help to avoid the risk of misclassification.

⁵¹ The Logit model was re-estimate to include all of the selected DMA variables. Then, a chi square test (difference between -2LL models) was applied to test if the coefficients for the variables added are simultaneously 0. The results of the test show that the null hypothesis cannot be rejected, at 0.1 of significance level, thus, indicating that the model with less variables holds statistically.

Furthermore, the study and testing of another approaches and models to better understand the CCAM failure event is recommended, namely, as stated, recently neural networks have been employed to the construction of prediction models and their ability to learn and self-improve can be useful to the study of CCAM failure. This is a matter for near future research.

5.8 - References

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Chapter 6 - Conclusions

The 2008 global crisis, and the European sovereign debt crisis that follow it, have left no doubt about the relationship between banks and state. If a bank gets into troubles, taxpayers end up bailing it out, showing that banks are global and private in life or profits, and are national and public in death or loss.

With their origins in the 19th century, the co-operative banks have been considered central players in regional economic and social development. However, they have remained notably underexposed both in scientific publications and in the press and technical reports, despite the success of the co-operative business model in the present increasingly competitive environment. Indeed, a large number of co-operative banks remain successful and healthy, gaining market share over the investor owned banks.

In the last two decades, especially following the 2008 financial crisis and subsequent economic recession, co-operative members, staff, regulators and others stakeholders involved in the co-operative banking business became aware of the need to strengthen co-operatives governance, since this is crucial to safeguarding sound management and, ultimately, to the survival and sustainability of these organizations.

In Portugal, the co-operative banks (CCAM) with 90⁵² local banks and a network of 750 branches, spread throughout the country, provide financial services to less privileged customers, mainly to small-and medium-scale savers, farmers, SMEs and traders, located in hinterland regions. Their historical background and importance in boosting local development gives them a key role in regional economic growth.

Taking as a reference the Portuguese agricultural credit co-operatives (CCAM) and their integrated system (SICAM), the main objective of this research was to analyse the governance structure and financial robustness of co-operative banks. Specifically, the thesis is structured in order to answer the following questions:

- What are the economic bases of co-operative banks?

⁵² 85 associated to SICAM + 5 operating outside SICAM

- How does a particular regulatory framework affect co-operative banking activity?
- What is the impact of the different governance mechanisms of co-operative banks on control management?
- What are the explanatory factors of Portuguese co-operative bank failures?

The answer to these four questions is formulated through four essays, each one described in a separate chapter.

Chapter 2 includes a survey of the literature on the economic nature of co-operatives. Traditional explanations for establishing co-operatives have focused on banking market failures, particularly on asymmetric information, an issue well addressed by the co-operative banks governance model, mainly due to its membership concept. The new institutional economics theory, namely, agency, property rights and transaction costs economics theories, is reviewed as a tool to analyse issues related to the governance of co-operative banking.

The agency theory suggests that a co-operative bank experiences lower agency costs mainly due to the “peer-monitoring” mechanism, which reduces asymmetric information and monitoring costs, and to the alignment of members and management risk behaviour, as a consequence of the co-operatives’ mutuality feature. Moreover, a co-operative bank may present lower agency costs consequence of its more efficient internal decision-making process, since the chain of decisions is usually shorter than in investor owned firms (IOFs), reducing the level of separation between ownership and management.

The literature on property rights suggests that the separation between owners and managers in a co-operative may be reduced by appointing only members as managers and fostering members’ participation at the annual general assembly and other business meetings.

Finally, transaction costs economics indicate that the proximity of the bank and the peculiar nature of the customer relationship give the co-operative bank some transaction-cost-specific advantages relative to IOFs.

Like any other firm governance structure model, the co-operative model has advantages and disadvantages. What is specific to the typical co-operative governance model is the presence of informal governance mechanisms, based on peer-monitoring among

members and on the extra-economic sanctions imposed on debtors, which may be weakened by increasing the type of membership and the territorial area where the co-operative bank operates. Indeed, in the last decades, throughout the world, the co-operative banks have been engaged in a process of consolidation, through mergers, strategic alliances and networks with other co-operative banks. In essence, the integrated network, by supporting individual co-operative bank management, activities and organization, allows them to benefit from scale and scope economies. Regarding governance, the existence of a central organization may decrease possible conflicts between management and members but the integrated system also present some specific agency and coordination problems which need to be efficiently addressed in order to ensure the correct running of the integrated co-operative banking system.

Chapter 3 includes the answer to the question: *How does a particular regulatory framework affect co-operative banking activity?* To achieve this aim, the chapter presents a literature review on the regulatory framework and some historic data on the Portuguese co-operative credit system.

The Co-operative Credit System in Portugal comprises only agricultural credit co-operatives. Its present corporate format was created in 1911, but the genesis of Portuguese agricultural credit co-operatives goes back to the XVI century and can be regarded as a typical example of how public policy can influence the development of co-operative credit institutions.

Having been developed in a top-down process, the CCAM depended on public support to carry out their mission and were often used to accomplish political goals. Indeed, CCAM were used to provide a public benefit to the rural economy and rural population. Until the middle of 1970s CCAM played a minor role in the Portuguese banking system. With the democratization of the country and its entry into the European Union in 1986, the CCAM became self-governing and were placed in the framework of a financing strategy for the development of the agricultural sector. So, during the later part of the 1980s CCAM activity showed a spectacular, if uncontrolled growth in terms of loans and customer deposits. In the 1990s, the creation of an integrated system of agricultural co-operative credit (SICAM), coupled with a restructuring and an intense merger process, allowed CCAM to improve their performance, rationalizing costs and

achieving efficiency and return levels similar to and even higher than other domestic banking institutions.

The SICAM is made up of an integrated system of two types of cooperatives: the central and the individual (associated). Central CCAM is the pivotal institution in the Crédito Agrícola Group, with a remit that is the mainstay of the Group strategic global coordination and supervision and guidance of the associated CCAM.

In terms of governance, Central CCAM is responsible for the coordination and control of all the associates' operational processes, i.e., it is the guardian of the system with powers to intervene in the management of the associates and even replace their boards. In cases of gross mismanagement or fraud, the directors can be formally discharged by the Central CCAM.

CCAM are regulated by the Portuguese legislation on cooperatives, and follow the traditional cooperative structure, with open membership, democratic control and restricted residual claims; and in their banking activity they are subject to regulations similar to those applied to the banking system as a whole.

The CCAM increasingly face survival challenges, partly as a consequence of their co-operative nature and regionally defined member-customers and product range restrictions, aggravated by the economic and financial crisis that Portugal is undergoing. Recently some legislative changes have been made in order to overcome some of these restrictions, but still CCAM leaders require for a wider range of CCAM activities, allowing them to compete on equal terms with IOF banks. Despite not having relevant toxic assets in their portfolio, CCAM felt the effects of the crisis, with their returns being downsized mainly due the negative influence of the liquidity booster measures adopted by monetary authorities. CCAM strong customer deposits base and their prudential credit management policy proved to be crucial in confronting these hard times. The CCAM 2011 annual accounts report shows return levels similar to those previous to the crisis, while most of the remaining bigger Portuguese banks show negative net returns, proving that CCAM performed better in confronting the crisis.

Chapter 4 answer the question: *What is the impact of different governance mechanisms of co-operative banks on control management?* Benefiting from concepts provided by the agency theory approach, the chapter includes an analysis of the governance

mechanisms operational in the Portuguese integrated system of agricultural credit co-operatives. Covering the period between 1995 and 2009, the relation between CCAM performance and several control mechanisms operating within SICAM is analysed via two multinomial logit models.

The chapter is divided into two parts. The first identifies and describes CCAM corporate governance mechanisms. The CCAM associated to SICAM present a two-tier system of corporate governance (the individual and the system mechanisms), among which six different control mechanisms have been identified: (a) regulatory framework; (b) ownership structure; (c) internal monitoring, by board of directors and internal control and audit; (d) external monitoring by central organizations, debt-holders, and regulators; (e) “market” for corporate control; and (f) executive compensation.

In the second part of the chapter, two MNL model are used to assess the efficiency of different control mechanisms in disciplining CCAM management. In the definition and variables to include in the models, different CCAM control mechanisms are settled as a function of CCAM performance. Thus, the dependent variable assumes several category values according to different control mechanisms (No intervention; BoD partial turnover; Chairman turnover; BoD total turnover; Central CCAM intervention by nomination of an agent; Central CCAM intervention by nomination of provisory (interim) Directors; Merger/incorporation) while the independent variables were a set of CCAM performance measures regarding operational efficiency and growth, cost efficiency and capitalization and profitability.

The results show that overall internal governance mechanisms (BoD turnover) are not related to the CCAM performance, which indicates a potential weakness of the CCAM internal control mechanisms. In contrast, external governance mechanisms are related to CCAM operational and cost efficiency indicators, highlighting the importance of this mechanism in disciplining CCAM management. Moreover, the results emphasize the value of the supervision task of Central CCAM in the performance of its associates. It is also possible to infer that the robustness of the results could be improved if the effects of CCAM management and governing bodies’ remuneration and of debt-holder FGCAM monitoring in CCAM performance were analysed, which is a topic for further research.

While Chapter 4 focuses on the selection of possible efficient governance mechanisms, **Chapter 5** pays attention to CCAM survival, bearing in mind the answer to the question: *What are the explanatory factors of Portuguese co-operative bank failures?* To assess the potential failure of CCAM as a function of financial/economical indicators, CCAM data from 1995 to 2009, and a logistic regression analysis (LRA) and a multiple discriminant analysis (MDA), are used.

In these models insolvency is interpreted as multidimensional, a CCAM being categorized as insolvent when it meets at least one of the following criteria in a given year: (a) presents negative equity; (b) is subjected to a Central CCAM intervention or FGCAM restructuring operation; (c) is incorporated into (or merged with) another CCAM; and (d) is bankrupt for any reason. The CCAM failure event was translated to the models through the binary nature of the dependent variable. As explanatory variables a set of financial ratios were used, representing measures of profitability, financial leverage, liquidity, operating efficiency and growth, all of them factors frequently included in models predicting either financial distress or bankruptcy.

The statistical CCAM failure models (LRA and MDA) identified: Customer Resources Growth, Transformation Ratio, Credit Overdue, Expenses Ratio, Structural Costs, Liquidity, Indebtedness and Financial Margin as determinants of CCAM failure. These results suggest that CCAM should take decisions geared to boosting business, to shoring up the financial margin and the deposit base, to bolstering the complementary margin and to improving the credit recovery processes. Additionally, it is necessary to increase cost efficiency, by rationalizing structures and procedures consistent with reducing operating costs, without lowering the quality of the service provided. However, the low performance of the models to identify the insolvent CCAM indicates the need for further research to identify other predictor variables that would better classify these CCAM.

To sum up, the CCAM system plays a crucial role in the Portuguese banking system. Its co-operative nature and unique business approach makes the CCAM a powerful force for Portuguese economic recovery, working as a stabilizing factor in the banking industry and a booster to the regional development. As recognized in the literature on the topic, the co-operative governance model presents deficiencies in controlling agency conflicts, mainly resulting from its co-operative nature, which can jeopardize its

survival. Operating in network, the CCAM are able to improve the effectiveness of CCAM governance mechanisms and, consequently, their performance. The results highlight the importance of the supervision role of Central CCAM in the performance of its associates. Moreover, the analysis of CCAM failure emphasizes the importance of the diversifying CCAM income sources and of improving cost efficiency. These results support CCAM lobbying for the removal of product restrictions, in order to achieve better conditions to compete with IOF banks, at a time when these banks are reorienting their activities towards traditional banking activity, i.e., domestic retail banking, the usual business core of CCAM.

Finally, we hope that this thesis contributes to a better understanding of the co-operative structure, behaviour and performance of CCAM, mainly in terms of governance and financial survival. We are aware that, in spite of though with strong interconnections between them, each chapter (essay) includes a partial approach to the theme that can be improved in future research. Thus, in the first place, a deeper study of CCAM internal governance mechanisms is vital to identify the causes of their inefficiency and to take the appropriate business measures to improve it. In this sense, the effectiveness of the board of directors, as one of internal governance mechanisms intended to ensure that the interests of members and managers are closely aligned, and to discipline or to remove ineffective management teams, should be object of the research. Board socio-economic diversity, such as gender and age, educational and professional background, and independence of directors are among the most significant issues relating to future Board research. Moreover, given the role of members both as suppliers of inputs (depositors), credit customers (borrower) and owners (shareholders), it is important to have a profound knowledge of the CCAM membership base, in order to understand its objectives and behaviour. Secondly, it is important to study the impact on the CCAM governance resulting from the application of the new equity requirements imposed on banking by the Basel Accords. Finally, the study and testing of another methodologies and models to better understand the CCAM failure event is recommended, namely, as stated, recently neural networks have been employed to the construction of prediction models, and their ability to learn and self-improve can be useful to the study of CCAM failure.