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Forthcoming in Managerial and Decision Economics

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JEL classification: Q13, L2

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1. Introduction

The allocation of decision right between the board of directors and the professional management is one of the classic issues in the debate on corporate governance of cooperatives (Cornforth, 2004). Over the last decade, directors of agricultural cooperatives have increasingly questioned the appropriateness of their corporate governance structure. This debate has been fuelled by three developments. One is the more general trend among businesses to strengthen their accountability and transparency towards shareholders and other stakeholders. Responding to cases of fraud among stock-listed companies (such as Enron and WorldCom in the USA, and Parmalat and Ahold in Europe), regulatory agencies have developed new corporate governance rules and business associations have introduced stricter codes of conduct. This development has also encouraged directors of cooperatives to start discussing good corporate governance.

The second development that triggered the debate on cooperative governance were the changes in the agrifood markets and the necessary responses from cooperatives (Bijman and Hendrikse, 2003). Over the last decades, the market for agrifood products has become more competitive due to reduced market protection in the countries of the EU as well as in transition countries. Cooperatives are no longer sheltered from competitive pressures and respond with new strategies for growth, diversification and innovation (Kyriakopoulos *et al*., 2004; Harte and O'Connell, 2007). Here the discussion has been focussed on whether traditional governance structures enable strategic reorientation, in particular whether traditional decision-making structures allow the cooperative to become more market oriented. As a cooperative is a user-oriented organisation (Barton, 1989), the question has been raised whether a shift in corporate governance structure is a prerequisite for the organisation be become truly customer-oriented (Beverland and Lindgreen, 2007).

One of the main topics in this academic debate on the relationship between governance structure and strategy focussed on the difficulty for agricultural cooperatives to find additional equity capital needed for the new growth strategies. Due to the so-called vaguely defined property rights (Cook, 1995) and the resulting negative effect on member incentives to invest in the cooperative, cooperatives are assumed to encounter difficulties in attracting more equity capital from their members. As a solution, cooperatives have developed innovative ownership structures, including inviting non-members to invest in the cooperative or its subsidiaries (Nilsson, 1999; Chaddad and Cook, 2004).

The third development that promoted a discussion among cooperative scholars and practitioners about good cooperative governance relates to the impact of growth strategies on the effectiveness of board control over the management. According to agency theory (Jensen and Meckling, 1976), one of the main functions of the board (as principal) is to make sure the management (as agent) takes decisions that are in the interest of the owners of the company. Insufficient monitoring and control provides room for decisions by managers that are not in the interest of the owners or, in the case of a cooperative, not in the interest of the members. Bijman (2005) has shown that the combination of high complexity in the cooperative firm with a heterogeneous membership leads to paralysis in the board and thus to a de facto shift of decision-making power from the board to the managers. However, where agency theory starts from the premise of conflicting interests and seeks solutions in designing mechanisms that align interests, stewardship theory (Muth and Donaldson, 1989) emphasizes the shared interests between board and management in promoting organisational performance. Thus, from a practical point of view the discussion is not just about organizing effective control, but in obtaining a good balance between control on the one hand and empowerment of the managers on the other hand.

Boards of cooperatives may respond to the need for strategic reorientation by delegating more decision rights to the managers, either within existing governance structures or within formally changed governance structures (Hendrikse, 2005; Kalogeras *et al*., 2007). These new structures entail a transfer of decision rights from the board to the professional management. Accommodating the world of farmers and the world of professional managers in one corporate governance structure is the challenging task of the board of directors.

Our paper has been motivated both by practical and theoretical considerations. First, while several authors have discussed potential changes in cooperative governance structure, few studies provide empirical evidence. We present and discuss shifts in corporate governance in Dutch agricultural cooperatives. Second, by investigating the causes and effects of the changes in cooperative governance we seek to develop a typology of board structures. Such a typology could be used by cooperative directors that pursue, in the light of enhanced competitive pressure, a new balance between control and support. Third, as cooperatives are organisations with an economic objective, a change in governance structure is expected to eventually lead to improved performance. Our paper presents empirical results regarding the relationship between board model and the product portfolio and performance of agricultural cooperatives.

A fourth motivation of our paper results from organizational change literature, which suggests that a change in formal structure may be needed in order to obtain a necessary change in organisational culture (Zenger *et al*., 2002; Lazzarini, 2004). This issue may be particularly relevant for cooperatives that are changing from a producer-oriented to a customer-oriented strategy. Cook (1994, p. 46) claims that the inherent features of cooperatives 'lay the groundwork for a conservative, defensive, operation-oriented corporate culture, one that is almost anti-offensive.' However, he does realize that some cooperatives have been able to overcome this limitation and 'have been aggressively innovative and expansion oriented.' One way to account for these differences in performance is to consider differences in structure. Strengthening of customer orientation has been claimed to be essential for the success of marketing cooperatives (Bijman, 2010).

We contribute to the literature on cooperative governance in at least three ways. First, we provide empirical evidence of recent changes in corporate governance structures of agricultural cooperatives. Such an overview has not been published before. Second, we provide a typology of board models. This typology can be used to explore changes in cooperative governance in other parts of the world. Third, we contribute to the literature on ownership structure of agricultural cooperatives. Where other authors have mainly focussed on changes in residual income rights, we focus on changes in decision rights.

The paper is structured as follows. In section 2, we present the key characteristics of the governance of cooperatives and compare this with he governance of investor-owned firms. In section 3, we present the results of a qualitative study on new corporate governance models in Dutch agricultural cooperatives. In section 4, we formulate propositions regarding the relationship between board model[1], product diversification, and performance. In section 5, we present the results of a quantitative investigation of cooperative corporate governance models, diversification, and performance of cooperatives. Section 6 concludes with several observations and discussion.

2. Corporate governance in cooperatives

The formal governance of a cooperative reflects its main purpose, i.e. serving member interests. Traditionally, the board of directors of the cooperative, democratically chosen by and from the membership, has been the main body governing the activities and investments of the cooperative firm. In small cooperatives the board of directors also carries out the operational management. However, as the cooperative grows in scale and scope, professionals are hired to manage the cooperative [2]. As a result, cooperatives apply the classical division of labour (Fama and Jensen, 1983) between decision control (i.e., ratification and monitoring) and decision management (such as initiation and implementation). The board of directors takes care of decision control, while decision management is the responsibility of the professional managers.

Unlike in the classical stock-listed firm, where the board represents owners which are mainly investors, the board of an agricultural cooperative consists of and represents farmers who are entrepreneurs themselves. The members have their own farming business and evaluate the strategies of the cooperative from the perspective of their individual farming interests. The managers are entrepreneurs who seek the development of the cooperative firm, follow personal career ambitions that include non-cooperative positions, have their own peer group, and compare the performance of 'their' firm with non-cooperative competitors. It is a key task of the board of directors to accommodate these two worlds.

We define a governance structure as an organizational design that incorporates systems of decision making, operational control, and incentives (Yin and Zajac, 2004). In other words, the governance structure of an organization defines who is in control, whose interests are represented, and who receives benefits from the organization. A standard way of defining a governance structure is to distinguish decision rights and income rights (Hansmann, 1996). Decision rights specify who may take decisions on the strategies and policies of the organization, as well as on the use of assets and thereby on the employment of people

[1] The terms 'board model' and 'corporate governance model' are used as synonyms.
[2] This process of replacing board management by professional management as the cooperative grows does not take place in countries where the board has the statutory obligation to manage the cooperative.

working with these assets. Decision rights include the allocation of authority (delegation, centralization), decision control (ratification, monitoring), decision management (initiation, implementation), task design, conflict resolution, and choosing enforcement mechanisms. Income rights are rights to the (monetary) benefits and costs resulting from the activities of the organisation. Income rights are reflected in the composition of cost and payment schemes, thereby creating the incentive system. Examples of income rights in cooperatives are direct and indirect benefits of patronage, cost and benefit allocation schemes like pooling arrangements, and the compensation package of the members of the management team.

The corporate governance structure of cooperatives is often compared to that of investor-owned firms (IOFs) (Hendrikse, 2007). The classical perspective evaluating different corporate governance structures is that of principal-agent theory (Shleifer and Vishny, 1997; Tirole, 2001). Because of a separation of ownership and control, an agency relationship exists between the principal (investor, owner, outsider) and the agent (manager, entrepreneur, insider). The agency relationship is characterized by asymmetric information and potential conflicting interests, which may then lead to the problems of adverse selection and moral hazard. The corporate governance structure should reduce these problems.

Although the agency situation in cooperatives seems similar to the one in IOFs, with the board of directors as principal and the professional manager as agent, there are some fundamental differences. First, members have a double set of income rights in the cooperative: as users they benefit from patronizing the cooperative, as owners they provide equity capital and receive a return on investment. Traditionally, the latter has been subordinated to the former, but with the need of some cooperatives to obtain additional equity capital for strengthening its market orientation, the financial relationship between member and cooperative has been reinforced (Chaddad and Cook 2004).

Second, members formally participate in the decision-making process of the cooperative. As the board of directors consists of members and is elected by the General Assembly of members, the latter have more influence on company strategy than investors in an IOF (Hendrikse, 1998).

Third, where owners of an IOF usually have uniform interests, namely to obtain high return on investment, members of a cooperative may be heterogeneous in their interests. Heterogeneity among (board) members may have serious impact on the efficacy of the cooperative, as it leads to mistrust and deadlocks in decision-making (Hansmann, 1996).

Fourth, cooperatives lack external mechanisms for disciplining the management (Staatz, 1987; Trechter *et al*., 1997). Unlike stock-listed companies that are scrutinized by the financial media (on behalf of current and potential shareholders), there is no external financial assessment of the performance of the cooperative (and therefore of its management). This implies that the task of performance evaluation mainly lies with the members and their representatives in the board of directors.

Agency theory captures prominently the advantages of delegating decision-making by having a principal assigning a task, or multiple tasks, to an agent. However, this delegation is not without problems. The key issue is asymmetric information between principal and agent, in our case between board of directors and professional management. While the board may have formal authority, the real authority lies with the management due to its superior knowledge of both the firm and the competitive environment. When the board does not hold real authority, delegating formal authority may bring economic benefits. Aghion and Tirole (1997) suggest that "the delegation of formal authority to a subordinate will both facilitate the agent's participation in the organization and foster his incentives to acquire relevant information about the corresponding activities". However, delegation involves a costly loss of control for the principal. As a result of this trade-off, formal authority will not be delegated for all decisions. Aghion and Tirole (1997) found that formal authority is more likely to be delegated for decisions that are sufficiently innovative that the principal has not accumulated substantial prior expertise or competencies.

3. Corporate governance models in Dutch agricultural cooperatives

The Netherlands has about 215 agricultural cooperatives, most of them very small or dormant. Some 40 are member of the Netherlands Cooperative Council for Agri- and Horticulture (NCR), representing more than 90% of the 140,000 farmer-members and the € 32 billion turnover of the 215 cooperatives. Of these 40 cooperatives, we were able to collect data for the top 33 (in size). In our sample the differences in size and membership is substantial. In 2006, the largest cooperative had a turnover 4.6 billion euro, while the smallest had a turnover of only 34 million euro (Table 1); membership ranges from 60 to 27,470.

Data on the corporate governance models of Dutch agricultural cooperatives have been collected by several means following to a stepwise approach. In step 1, general information on changes in cooperative corporate governance has been collected through literature study. In step 2, the findings from literature have been discussed in personal interviews with six Dutch experts on cooperatives.[3] Together step 1 and 2 resulted in an overview of the main shifts in corporate governance among Dutch agricultural cooperatives and in the development of a typology of board models. In step 3, semi-structured interviews have been held with the chairman of the board of directors of eight different cooperatives as well as with managers of six different Dutch agricultural cooperatives. The objective of these interviews was to obtain personal experiences with particular (changes in) forms of cooperative corporate governance. All interviews were held in 2006. In step 4, company documents and websites have been studied to find out what corporate governance model the 33 largest agricultural cooperatives in The Netherlands applied in 2006 (Table 1). Finally, in step 5, the results of this 2006 survey were used for a more quantitative analysis of the performance effects (see section 6 for more details on this step).

[3] Two law professors with special expertise on cooperative legislation; one economics professor specialized in financing cooperatives; one consultant who often advices cooperatives in restructuring processes, and one former chairman of a large feed cooperative; and one researcher on international comparisons among cooperatives.

Table 1. Board models of the 33 largest agricultural cooperatives in The Netherlands (2006)

	Name	Main product	Turnover 2006, Euro	Traditional model	Manage-ment model	Corpora-tion model
1	Friesland Foods	dairy	4675	0	0	1
2	Campina	dairy	3624	0	0	1
3	FloraHolland	flowers	2136	1	0	0
4	Aalsmeer	flowers	1756	1	0	0
5	Cosun	sugar	1469	1	0	0
6	The Greenery	vegetables	1448	0	0	1
7	Cehave Landbouwbelang	feed	664	0	1	0
8	AVEBE	potato starch	634	0	1	0
9	Agrifirm	feed	576	0	0	1
10	Cebeco Group	poultry	556	1	0	0
11	DOC Kaas	dairy	358	0	1	0
12	CNB	flower bulbs	327	1	0	0
13	FresQ	vegetables	317	1	0	0
14	FromFarmers	feed	313	0	1	0
15	Fruitmasters	fruit	265	1	0	0
16	ZON	vegetables	237	0	0	1
17	CZAV	inputs for arable farming	214	0	1	0
18	Agrico	seed potatoes	200	0	1	0
19	CNC	mushrooms	186	0	1	0
20	VDT	vegetables	155	1	0	0
21	Rijnvallei	feed	150	0	0	1
22	Horticoop	inputs for horticulture	144	1	0	0
23	CONO	dairy	133	1	0	0
24	CR Delta	cattle breeding	125	0	0	1
25	Boerenbond Deurne	inputs	116	1	0	0
26	BGB	vegetables	99	1	0	0
27	Pigture Group	pig breeding	85	0	0	1
28	Rouveen	dairy	65	1	0	0
29	Nedato	potato	63	0	0	1
30	Boerenbond Ysselsteyn	feed / inputs	59	1	0	0
31	VON	flowers	57	0	0	1
32	Arkervaart-Twente	feed	44	1	0	0
33	AB Limburg	employment	34	0	1	0
	Total			15	8	10

In this section we present our typology of board models. We start with a description of the traditional board model. We then follow with a discussion of the main changes in cooperative governance we have found among Dutch agricultural cooperatives over the last two decades. Finally, we present the two non-traditional board models that can be found in Dutch practice.

The traditional model

The traditional corporate governance model among Dutch agricultural cooperatives has existed for more than a century, ever since enactment of the first law on cooperatives in 1876. Under Dutch cooperative law a cooperative is both an association and a firm. More specifically, in Dutch law, a cooperative is defined as a firm that performs economic functions to the benefit of the members and that has the legal status of an association (Galle, 2010). All requirements as to the governance of associations also apply to cooperatives. All associations have two governing bodies: a General Assembly and a Board of Directors. A third governing body, the Supervisory Committee, is not compulsory for associations, but common among cooperatives and it is even legally required for large cooperatives.[4] Although traditionally the executive function was carried out by the Directors themselves (and still is in small cooperatives), most cooperatives in the Netherlands nowadays have one or more professional managers who are actually managing the daily operations of the cooperative. Thus, most cooperatives have a fourth governing body, the professional board of management. Let us briefly describe the tasks and responsibilities of these four governing bodies as they prevail in Dutch agricultural cooperatives.

The General Assembly (GA) consists of all members of the cooperative. Within the GA each member has at least one vote, but most cooperatives apply some kind of proportional voting rights (Van der Sangen, 2010). Voting in the GA is used to make decisions on the appointment of the members of the Board of Directors, selection of the members of the Supervisory Committee, as well as on major issues like terminating the cooperative, mergers of the cooperative, changing of the by-laws. The GA also has the right to (dis)approve the annual financial report. The control function of the GA is mainly done ex-post.

The Board of Directors (BoD) is the main decision-making body; it initiates, develops and decides upon the strategies and policies of the cooperative. The BoD, as the fiduciary agent of the members, has the formal authority and legal responsibility to act in the best interests of the members. According to Dutch association law, the BoD can consist of one person, but it is more common to have several directors. Traditionally, the BoD consists of members of the cooperative, but it is allowed, under association law, that the BoD partially or fully consists of persons that are not members of the cooperative. The members of the BoD are elected and appointed by the GA, and the BoD has to report back to the GA. The

[4] All around the world, cooperative governance structures consist of a General Assembly and a Board of Directors, while most cooperatives also have some kind of Supervisory Committee (Henrij, 2005).

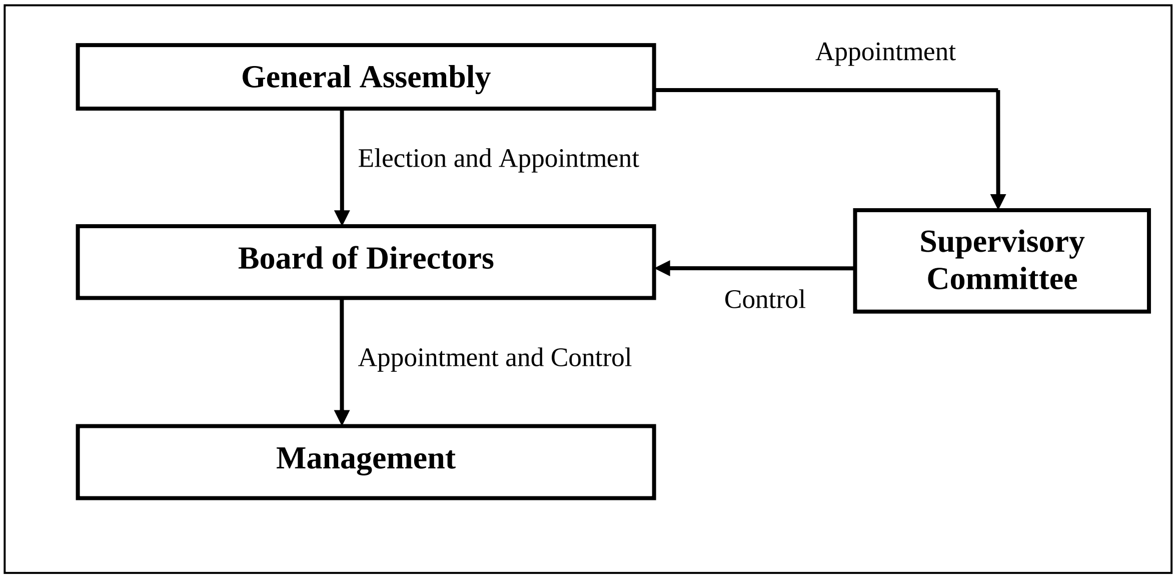
BoD appoints the professional managers of the cooperative. An important function of the BoD is control of the management. Even in the situation where the cooperative has a professional management board, the BoD continues to be, according to the law, the main governing body. Decisions of the BoD are taken collectively, and responsibilities and liabilities are borne collectively.

The Supervisory Committee (SC) is responsible for controlling the activities and decisions of the BoD. This control function is performed ex-ante. As there is no legal obligation for associations and small cooperatives to have a SC, the exact tasks and responsibilities of the SC are determined in the by-laws of the individual cooperatives. The SC is appointed by the GA. Traditionally, the SC consists of members of the cooperative. Since 1989, when changes in corporation law were introduced, cooperatives that have more than 16 million Euro equity capital, that have a compulsory employee council, and that have more than 100 employees are legally required, just like IOFs that have these size characteristics, to have a Board of Commissioners (BoC) as supervisory body (Galle, 2010). The legal responsibility of the BoC is to look after the interests of the company as a whole, not just the interests of one group of stakeholders (such as the members). Specific BoD decisions require ex ante approval by the BoC, and the employee council has the right to (dis)approve new members of the BoC.

Traditionally the role of the professional managers has been just to carry out what the BoD had decided. However, as cooperatives have grown in size and complexity, the management has taken over some of the decision-making functions of the BoD. Using the terminology of Fama and Jensen (1983), large cooperatives now have a separation of decision management and decision control. Thus, while the BoD continues to be responsible for decision control (i.e., ratification and monitoring), the professional management has acquired the responsibility for decision management (i.e., initiation and implementation). The professional managers (such as CEO and CFO) are appointed by the BoD, often after consultation with the SC.

The combination of these traditional elements of composition and function of the governing bodies of the cooperative leads to our first model of cooperative corporate governance, the traditional model (Figure 1).

Figure 1: The Traditional Model of Cooperative Corporate Governance



Changes in cooperative governance

Over the last 20 years, there have been significant changes in the corporate governance of agricultural cooperatives in the Netherlands. These changes have been described mainly by legal scholars (Galle, 1993; Galle and Van der Sangen, 1999; Van der Sangen, 2001; Galle, 2010). Most of these changes affect the role of the BoD, particularly the relationship between the BoD and the management. Also the role of the SC has been altered. The following organizational changes have been identified. First, all of the large cooperatives now have introduced a legal separation between the cooperative association and the cooperative firm. Assets are placed in the cooperative firm, which has obtained the legal form of BV (similar to Ltd. in the UK) or NV (similar to Plc. in the UK). This change implies that the dual structure of the cooperative – being both an association and the firm – has been formalized by the legal separation. Important reasons for cooperatives to introduce this legal separation are the reduction of the liabilities for the cooperative and the granting of more autonomy to the professional managers (Van der Sangen, 2001).

The second change relates to the composition of the BoD. Should the BoD consist of only members of the cooperative, or can outside experts join the BoD? Outside experts may bring along special knowledge, for instance about finance or marketing, which the farmers in the board may not have. Moreover, outside experts may themselves have experience in leading a large company, thus bringing additional management expertise into the BoD. An issue often discussed within cooperatives is whether the manager(s) should be part of the BoD (which is allowed under Dutch association law). If the answer is yes, the board would resemble the one-tier board model of corporate firms that can be found in many countries but is not common in the Netherlands. The most extreme option is that the BoD consists of only professional managers, which implies there are no longer farmer-members participating in the BoD. In our sample, 12 out of 33 had outside experts in their BoD; 8 of these 12 have a BoD consisting of only professional managers (no members of the cooperative).

The third change relates to the main function of the BoD. While traditionally the BoD is the main decision-making body of the cooperative, with the management mainly for executing the decisions taken by the BoD, nowadays most of the expertise and thus the real authority lies with the professional management. The function of the BoD may shift towards a more supervisory role.

Changes in the role and structure of the BoD often also lead to changes in the function and composition of the Supervisory Committee (Dortmond, 1999). Thus, the fourth change in corporate governance structure of the cooperative deals with the main function of the SC. When cooperatives have reached a particular size (see above), the SC becomes a Board of Commissioners (BoC), with the legal task of controlling the management of the cooperative firm. However, in these large cooperatives the BoD itself has shifted towards a supervisory role. The result is a situation of double control of the management, both by the BoD and by the BoC. Several cooperatives have solved this issue of double supervision by making the BoD and the BoC consisting of the same persons (a so-called personal union). In these cases, the members of the BoD of the cooperative association are also the members of the BoC of the cooperative firm.

The fifth change relates to the composition of the BoC/SC. Similar to the changes in composition of the BoD, a cooperative can also decide to have both members and outside experts in the SC. Van Dijk (2006) found that 26 of the 40 largest cooperatives had outside experts in the BoC/SC. Most of these experts (28%) had themselves experience as manager of a large company; 18% had experience as financial manager. Other fields of expertise were HRM, marketing, retail, academia and politics. Incorporation of external experts in the BoD and the BoC/SC has been considered as a trend towards more professionalism in the governance of the cooperative.

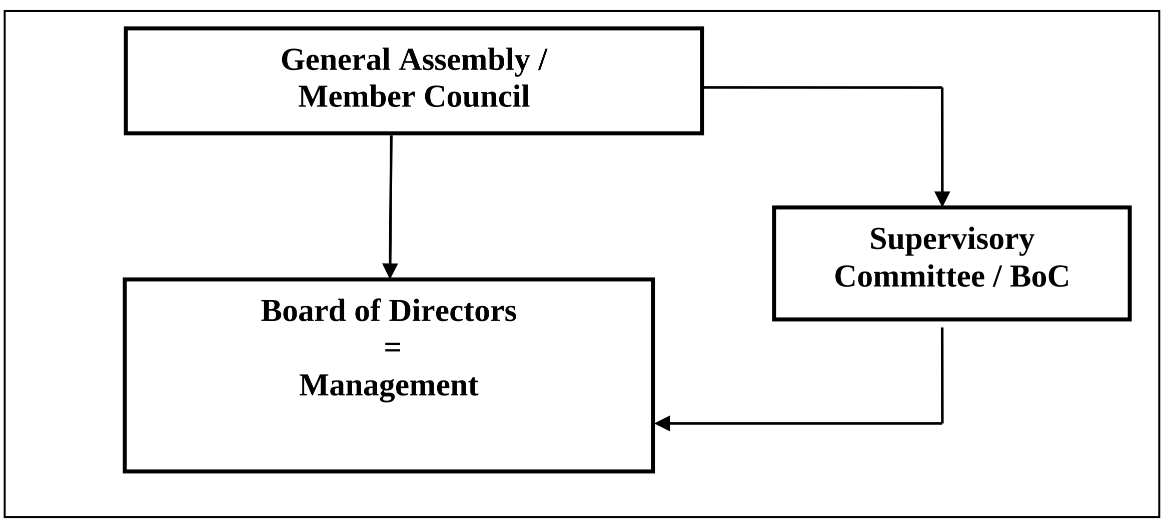
The sixth change relates to the implementation of a Member Council (MC). Such council has taken over most of the legal obligations of the GA. The MC consists of members of the cooperative and is appointed by the GA. In large cooperatives, members are usually organized in geographical districts. The chairman of the district board, who is elected by all members of the district, becomes a member of the member council. Reasons for establishing an MC are the need felt by the BoD to bridge the gap between BoD and the membership and to have a group of committed members from which future board members can be selected. Although this may not imply a change in the relationship between board and management – the key issue of corporate governance – it may affect the influence and thereby the commitment of individual members.

All of these changes among Dutch agricultural cooperatives have led to the rise of two new cooperative governance models (or board models): the management model and the corporation model. Of the 33 cooperatives, 15 still adhere to the traditional model, 8 apply the management model, and 10 have chosen to apply the corporation model. We will now describe the features of these new models, particularly those characteristics that distinguish them from the traditional model.

The management model

Figure 2 presents the management model of cooperative corporate governance. The main characteristic of this model is that the management board (consisting of professional managers) is also the BoD of the cooperative. This model implies that the BoD no longer consists of members of the cooperative. In the professional literature as well as in the interviews with directors and managers at least three advantages of this model have been frequently mentioned: there is no longer a problem of double supervision (by both the BoD and the SC) over the management; the BoD has become professional and is fully devoted to directing the firm; and the management board has obtained more autonomy, which provides an opportunity for strengthening managerial entrepreneurship in the cooperative firm. The disadvantages mentioned were the lack of a structure for ex ante evaluation of management decisions on member interests; the lack of a clear distinction between the responsibilities of the BoD and the management; and a lack of member influence on the decisions of directors/managers.[5]

Figure 2: The Management Model of Cooperative Corporate Governance



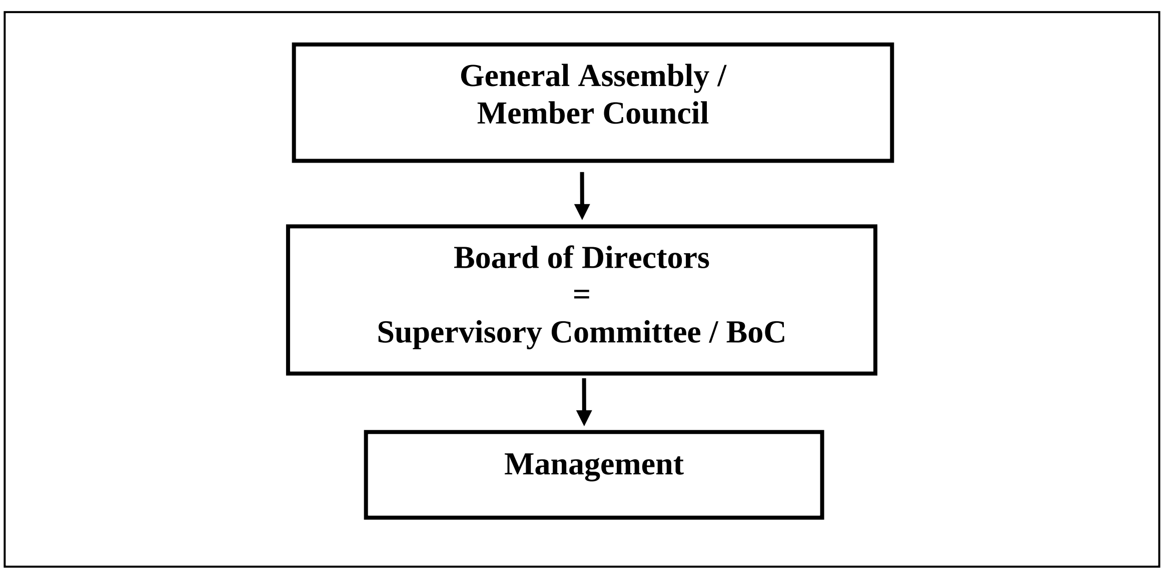
[5] In the management model, the SC/BoC has less authority than the BoD has in the traditional model.

The corporation model

Figure 3 presents the corporation model of cooperative corporate governance. This model can only be applied by cooperatives that have a legal separation between the cooperative association and the cooperative firm, where the association is the full owner of the firm. The main characteristic of the corporation model is that the directors of the association are also members of the SC/BoC of the firm (i.e., there is a personal union between these to governing bodies). Often, the BoD consists of only members of the cooperative, while the SC/BoC also consists of a number of outside experts. This model implies that there is not a separate supervisory committee at the level of the association.

The following advantages of this model were mentioned in the interviews with board members and managers: no double supervision of the management; more autonomy for the management; one body that attends to the interests of members and firm; and a SC that directly controls the management of the firm. One disadvantage mentioned is that, while the personal union between BoD and BoC combines several responsibilities and therefore has to find a compromise between various interests, in practice the members of these boards may clearly favour one interest above the other (e.g., they may favour firm interests over member interests). Another disadvantage is the absence of a supervisory committee at the association level. This problem can be partly solved by establishing a member council, which then can perform the function of controlling the BoD/BoC.

Figure 3: The Corporation Model of Cooperative Corporate Governance



4. Propositions on the impact of corporate governance model

Having identified the different cooperative governance models, we are interested in studying the impact of these different models on the product diversification and the performance of the cooperative. For this task, we have formulated three propositions.

The first proposition presents a benchmark. Corporate governance structure may not matter at all. For example, LeVay (1985, p. 5) states "(…) whatever the formal basis of association, co-operatives may behave no differently from other types of enterprise." A motivation is provided by the relational contracting line of reasoning (Baker *et al*., 1999; Hendrikse 2007). If the involved parties agree on a certain course of action in an informal, self-enforcing way, then the formal aspect of the relationship does not affect the distribution of bargaining power. The incentive to invest in particular projects is assumed to be identical under every governance structure. This argument results in proposition 0:

P0: Board model has no effect on product portfolio or performance.

The next two propositions specify the impact of the corporate governance model on product portfolio and performance. We have identified three theoretical perspectives that relate to the above description of board models. We distinguish a legal perspective, an agency / managerial power perspective, and an agenda setting perspective.

Cooperatives embody various objectives due to member heterogeneity (Hansmann, 1996; Hart and Moore, 1996). For example, older members who have invested in their cooperative during many years of membership measure good performance by the amount of patronage refunds not retained, while young members may be interested in having the cooperative firm build strong market positions.[6] The idea is that diversification in the cooperative firm can create conflicts of interest between different classes of members because some members benefit from diversification and others do not (or are even harmed by it). An appropriate legal structure can reduce the losses from diversification that some members would otherwise bear, and therefore facilitate diversification in new directions. Another aspect of the legal separation between the association of members and the cooperative firm is that it provides a commitment of the members not to interfere too much with the daily decisions of the management. Finally, it may also facilitate the distribution of rents over the various classes of members.

When companies become large and diversified, good top-managers may be difficult to find. Those that have the capabilities to run a complex company can negotiate low interference from the board of directors (Adams *et al*., 2010). Giving managers more autonomy is in line with standard economic organization theory's prediction that decision-rights should be allocated to those actors that have the knowledge to make those decisions (e.g., Aghion and

[6] In Dutch cooperative there is no periodic return of equity. Traditionally all equity was jointly owned. Over the last decades, most cooperatives have started to individualize a small part of the equity capital. This individual part is returned upon termination of membership.

Tirole, 1997). Having such autonomy is an important element of the intrinsic rewards that top-managers prefer as incentive for their effort. Thus, we may expect that when cooperatives become larger, more international, and more diversified, the main function of the board will shift from directing to supervising. For the corporation model of cooperative corporate governance this means that real authority resides with the managers, while formal authority stays with the members (Baker *et al*., 1999). In other words, members have delegated decision rights to the managers.

Managers have different objective functions, but it is expected that there will be increased attention and sensitivity to final product markets due to the concern of managers for their reputation in the market for managers (Bebchuk and Friend, 2003). Managers may even prefer to diversify into activities for personal motives, such as a reduction of employment risk, that reduce the value of the firm (Montgomery, 1982). Notice that the diversification choices of managers are most likely to be different from those of members. Members have, as owners of the cooperative, a stake in the future profitability of the cooperative, but they are also interested in obtaining a better price for the products they deliver to the cooperative firm. If they have to choose between an investment in expanding an existing plant, thereby increasing economies of scale, and an investment in a new venture, they most likely favour the first option.

One way to distinguish the three board models is with respect to the identity of the party having autonomy over the strategies and policies of the cooperative firm. More decision-making rights are transferred from the BoD to the management when moving from the traditional model, to the corporation model, and to the management model. We expect that a shift in decision rights has implications for diversification because the party determining the agenda of decisions determines to a large extent the outcome of the decision process (McKelvey, 1976). The above arguments lead to proposition 1:

P1a: Cooperatives with a traditional board model are least diversified in their product portfolio.
P1b: Cooperatives with a management board model are most diversified in their product portfolio.

Our final proposition concerns the influence of the board on the financial performance of the firm. Enterprises perform well financially when they are internally coherent, i.e. various organizational attributes of the enterprise are aligned (Holmström and Milgrom, 1994). One of these attributes is the board model. Recall that an investor-owned firm is designed to bring the enterprise to maximum profits, whereas a cooperative is committed to the interests of the members as users of the cooperative firm’s services. Applying this logic to the three board models, it is expected that the traditional board model has the best financial performance due to its strong focus on members. The corporation model is expected to have the worst financial performance because it tries to serve both member (as supplier) interests and customer interests. Because the organizational structure required for the two tasks is different, it is expected that a firm pursuing both supplier and customer interests will experience tensions. We summarize this argument in proposition 2:

P2a: Cooperatives with a traditional board model have the best financial performance.
P2b: Cooperatives with a corporation board model have the worst financial performance.

5. Empirical illustration

In this section, we provide a practical illustration of our propositions. We first describe the companies that we investigated and the information source that we used. Next, we explain the information that we gathered on each company. Finally, we show the main findings of our investigation.

Companies and data collection
In section 3, we explained how we identified the governance models of the largest agricultural cooperatives in the Netherlands. We were able to obtain most of the required information for 33 cooperatives: 15 had a traditional model, 8 had a management model, and the remaining 10 had a corporation model). As information source, we used REACH, which is an electronic database with financial information on over 1.7 million Dutch companies.[7] All information refers to 2006.

Information on the companies
We used two types of information, one involving product diversification and the other financial performance.

To approach product diversification, we applied unweighted product-count measures. Unweighted product-count measures are reliable and easy to compute and they have low information requirements (Lubatkin, 1993; Montgomery, 1982). Weighted measures are more refined, but the breakdown of sales that is necessary to calculate the weights was not available for most of the cooperatives in our sample. Besides, Lubatkin *et al*. (1993) find a strong correspondence between product-count measures and Rumelt's (1974) categorical measures, which supports the validity of product-count measures.

To be more precise, we applied a variant of the entropy measure of diversification, with the sales weights set at one for each activity. One advantage of the entropy measure is that firms that are not diversified receive the score zero, which facilitates the interpretation. Another, more important advantage is that the entropy measure can be broken down into an unrelated and a related component (Palepu, 1985). Accordingly, we made a distinction between total diversification, unrelated diversification, and related diversification. Total diversification refers to the number of different four-digit industry codes of a company. Unrelated diversification is associated with the number of different two-digit industry codes of a company. Related diversification involves four-digit industry codes with identical first two digits, but different final two digits (see, e.g., Palepu, 1985).

[7] REACH is published by Bureau Van Dijk (see: http://www.bvdinfo.com)

For financial performance, we adopted accounting-based measures. Market-based measures, like the market-to-book ratio and Tobin's q, are not available for cooperatives. Also, accounting-based measures have a close connection to the decision variables controlled by managers. Our measures can be divided into two categories: return and growth. In the first category, we included return on total assets and return on equity. Return on equity may be a more relevant performance measure for the owners of cooperatives than return on total assets, but it is also influenced to a larger extent by the capital structure of the company than return on total assets (Hill *et al*., 1992). The second category contains asset growth and sales growth. Although not directly related to financial performance, we also added growth of the number of employees.

Findings

Table 2 shows the mean values for each board model. The number of observations varies for the traditional model and for the corporation model, since not all information was available for each cooperative in these cases.

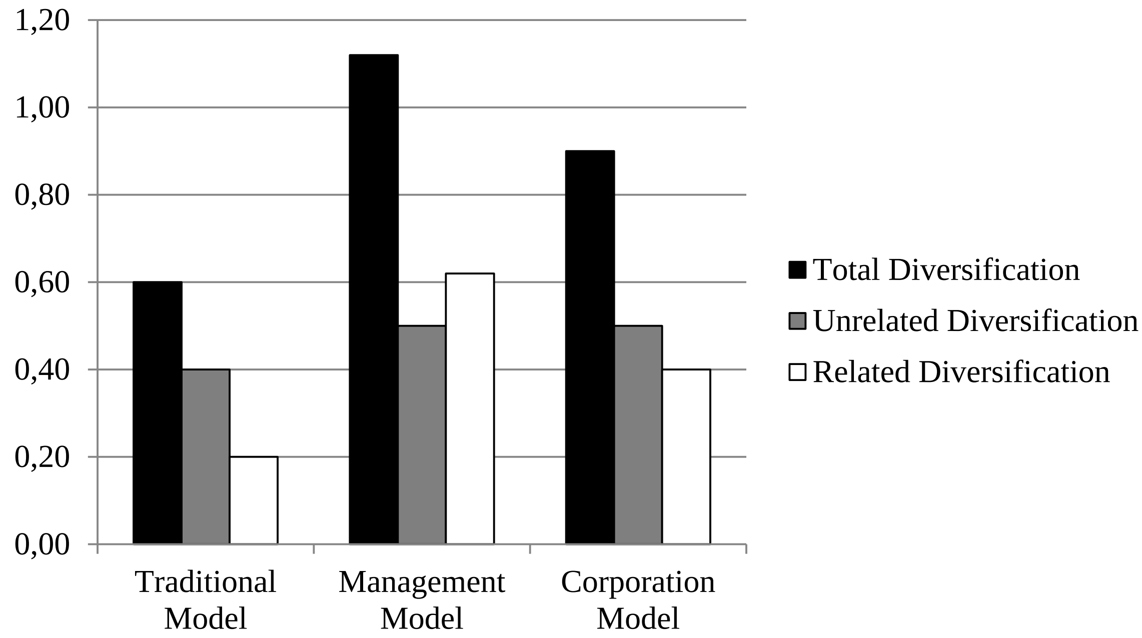
Table 2: Means of the Board Models

	N	Traditional Model	N	Management Model	N	Corporation Model
Total Diversification	15	0.60	8	1.12	10	0.90
Unrelated Diversification	15	0.40	8	0.50	10	0.50
Related Diversification	15	0.20	8	0.62	9	0.40
Return on Total Assets	9	23.98	8	4.47	9	4.43
Return on Equity	9	47.42	8	8.32	10	11.63
Asset Growth	15	2.00	8	-1.75	10	2.61
Sales Growth	12	-0.78	8	2.28	9	9.06
Employee Growth	11	-6.75	8	-6.88	9	-2.35

N varies for the traditional and the management model because not all information was available for these cases.

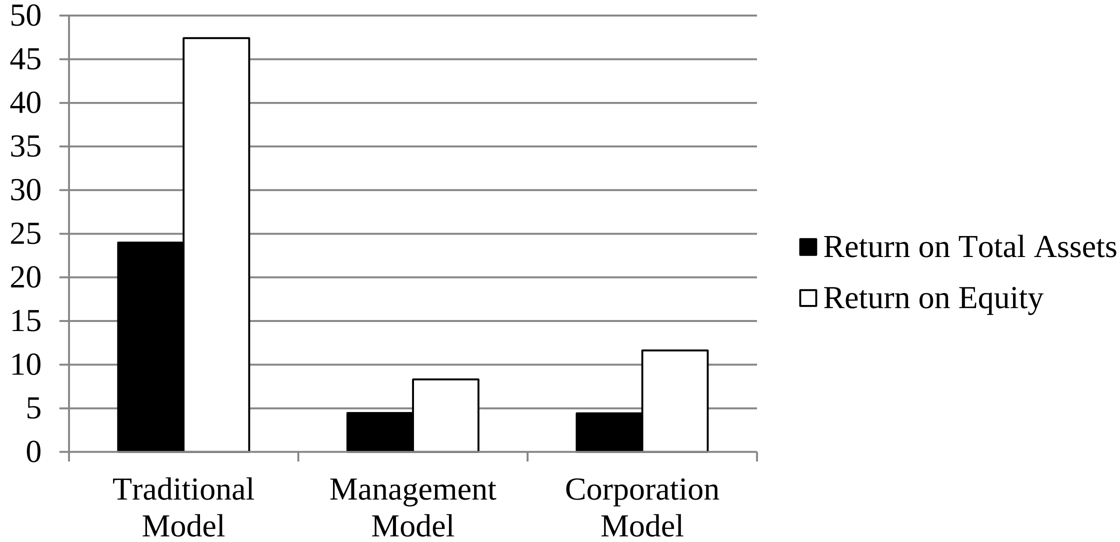
In line with propositions 1a and 1b, on average, cooperatives with a traditional board model seem least diversified, whereas cooperatives with a management board model seem most diversified. These findings are most prominent for total diversification and related diversification. For unrelated diversification, the differences are smaller (between the traditional and the other two models) or even absent (between the management and the corporation model). Figure 4 illustrates these results.

Figure 4: Diversification Averages of the Board Models



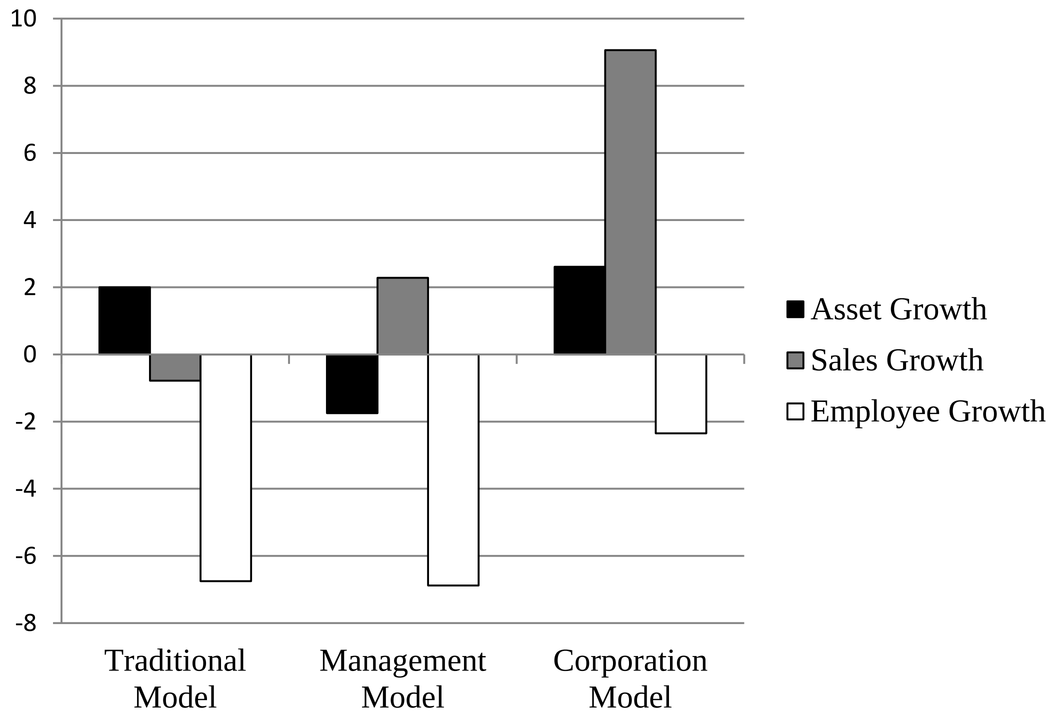
Regarding financial returns, cooperatives with a traditional model clearly outperform all other types of companies. Compared with cooperatives that have a management model, cooperatives with a corporation model only have a marginally lower average return on total assets and a fairly higher return on equity. This is illustrated in Figure 5. The averages are in line with proposition 2a, which predicted superior financial performance for the traditional board model, but are in contrast with proposition 2b, which predicted the lowest financial performance for the corporation board model,

Figure 5: Return Averages of the Board Models



Proposition 2b is also not empirically illustrated by the average growth measures. In contrast with the proposition, cooperatives with a corporation model have the highest asset, sales, and employee growth. Furthermore, in contradiction with proposition 2a, sales growth of the cooperatives with a traditional model is actually the lowest of all models, although asset and employee growth are somewhat higher than those for cooperatives with a management model. Figure 6 graphically illustrates these findings.

Figure 6: Growth Averages of the Board Models



6. Conclusions

Cooperatives are hybrid organizational structures in many ways. Recent economic organisation literature on cooperatives has focused on changes in ownership structure and thereby in income rights. This article looked explicitly at changes in the allocation of decision rights, particularly between the different governing bodies of the cooperative. We asked three questions: (1) what are the changes in cooperative governance? (2) can we develop a typology of corporate governance models? and (3) what impact do changes in corporate governance structure have on the performance and diversification of the cooperative.

We found that over the last 20 years in agricultural cooperatives in the Netherlands a division of labour has appeared between the Board of Directors taking responsibility for decision control (ratification and monitoring) and the professional management being responsible for decision management (initiation and implementation). This division of labour has been institutionalized in new board models. Besides the traditional model, which has been around for more than 100 years, we have found two new corporate governance models: the management model and the corporation model. In the management model, the management of the cooperative firm also forms the Board of Directors (BoD) of the cooperative association. In this model there is no longer a distinction between decision-making on and executing of the strategies and policies of the cooperative. The BoD has been professionalized, and the supervisory committee supervises association and firm at the same time. In the corporation model the BoD of the cooperative association has become the supervisory committee of the cooperative firm. A legal separation between association and firm has been established, turning the cooperative association into a 100% shareholder of the cooperative firm. This structure provides the management with relatively most autonomy.

Cooperatives have shifted to another corporate governance model because of changes in the competitive environment. In order to develop appropriate strategic and tactic responses to competitive pressures, cooperatives felt the need to strengthen the autonomy of the management, to reduce member influence on operational decisions, to find new sources of equity capital, to professionalize the supervisory bodies. In other words, strategic re-orientation towards more customer focus, diversification and innovation, has been accompanied by changes in the decision-making structure.

While we have assumed that cooperatives have adjusted their governance structure to be better equipped for changes in the competitive environment, the debate on the causality between structure and strategy is not fully settled (Galan and Sanchez-Bueno, 2009). Another issue that we have not touched upon in this paper is the power relationship between board of directors and management. In the literature on corporate governance in non-cooperative firms, some authors claim that boards are endogenously determined institutions (Adams *et al.*, 2010). Although board of directors in cooperative are still different than boards in non-cooperative firms, the shift in cooperative corporate governance towards more IOF-like models would justify further research into this direction.

The illustration of the propositions with data from the largest Dutch agricultural cooperatives suggest that we need to reject proposition 0. In other words, there seems to be an association between board model on the one hand and product portfolio and financial performance on the other hand. Our empirical results support the propositions 1a and 1b. Cooperatives with traditional board models are least diversified in their product portfolio, while cooperatives with a management model are most diversified. The assumed relationship between financial performance and board model is only partially supported in our analysis. Traditional models do not necessarily perform better and corporation models do not overall perform worse than other models.

Although we include almost the total population of the large agricultural cooperatives in the Netherlands, the amount of observations is actually too small for meaningful statistical analysis. Thus, we cannot generalized our findings to agricultural cooperatives outside of the Netherlands. Still we think we have provided useful insights in the development of corporate governance models and their implications. Future research, preferably with a larger sample, should provide definite answers and the assumed associations.

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