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Governance in Estonian Agricultural Cooperatives: Structures and Processes

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Abstract: Little is known about the board structures and processes adopted by agricultural cooperatives, particularly in Eastern European countries. We address this substantial knowledge gap by focusing on Estonian agricultural cooperatives. Using survey results from a sample of 23 Estonian agricultural cooperatives, we identify board structures and processes, measure organizational health, and compare our findings to similar studies in other countries. We find both similarities and differences between sample cooperatives and their counterparts in other countries. Estonian agricultural cooperatives tend to perform better than those without a board. However, more research at the member level is needed in order to draw definite conclusions. Member preference heterogeneity emerges as a potential future threat to organizational health and, thus, demands the attention of cooperative leaders in Estonia. We conclude that there exists considerable room for improvement through the introduction of a more flexible legal framework and the adoption of professional board governance processes, which includes director orientation training, inclusion of additional financial expertise and board evaluation routines.

Keywords: board of directors; cooperatives; Eastern Europe; governance

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1. Introduction

Agricultural cooperatives play an indispensable role in the efficient and smooth governance of the global agri-food system [1,2]. Despite this substantial contribution, very little research has focused on the governance of agricultural cooperatives, particularly at the board level (e.g., [3]). This might be partially explained by the until recently common, implicit scholarly assumption that the recommendations of corporate governance research on investor-oriented firms (IOFs) were also applicable to cooperatives (e.g., [4–6]). However, recent empirical research on both sides of the Atlantic questions the relevance of IOF-derived recommendations for cooperative governance (e.g., [3,7,8]).

The poverty of research on cooperative governance is more noticeable with respect to cooperatives in Eastern European countries where only a few studies have been published (e.g., [9,10]). However, even these studies focus solely on the overall governance mechanisms, including the definition and allocation of residual control rights among cooperative stakeholders. Yet, governance is not only about representation systems and implementation of cooperative principles, topics that seem to have dominated the extant literature on cooperative governance (e.g., [1,11,12]). Board-level studies are rare or nonexistent, due to which we know very little about how agricultural cooperatives in these countries organize their governance structures and processes.

Similarly, to the best of our knowledge, little research has been conducted on how agricultural cooperatives in Eastern European countries measure their organizational health (e.g., [10]). The latter concept has emerged in recent years as an alternative to simple financial performance measures that tend to ignore the non-negligible differences between

cooperatives and IOFs and, as a result, present a non-realistic view of cooperative performance (e.g., [13,14]). Cooperative health is defined as a combination of (a) private goods (prices received or paid, services, feeling of community, social capital, and contributed collective good) received by the member-patron and (b) the perceived probability of cooperative survivability [13]. Recent research also highlights the links between board governance and performance, even if measured solely with respect to financial efficiency (e.g., [15,16]).

Estonian agricultural cooperatives are worthy of scholarly inquiry due to a combination of characteristics that include: (1) their small but growing size and complexity, (2) the reported need to experiment with alternative organizational designs (e.g., [10]), and (3) path dependencies due to the Soviet legacy of the country.

The paper addresses the above-described knowledge gaps by focusing on the governance of Estonian agricultural cooperatives. What makes Estonian agricultural cooperatives and their boards a fascinating research subject is their institutional context. Estonian cooperatives are regulated by the Commercial Associations Act, which states that the "provisions of the Commercial Code concerning private limited companies apply to associations, unless otherwise provided for in this Act" [17]. Among other nuances, inner workings of the board of directors is also regulated by the Commercial Code that applies to all undertakings. Thus, agricultural cooperatives in Estonia are not regulated too heavily, or as one could argue, lack specific legislative focus when it comes to internal governance.

The research question motivating the study is threefold: (1) what are the board structures and processes adopted by Estonian agricultural cooperatives, (2) how do these cooperatives score in terms of organizational health, and (3) how do both compare to similar findings in other countries. Therefore, our objective is to identify board structures and processes adopted by Estonian agricultural cooperatives, measure the health of these organizations, and compare our findings to those of similar studies in selected other countries. We contribute to the scholarly literature on the governance of agricultural cooperatives by emphasizing sound governance structures and processes. To achieve the objective, we review the relevant literature in order to place our research in context, and derive concepts, constructs and measurable variables to use in our empirical investigation. Following that, we focus on structures and processes adopted by the boards of agricultural cooperatives in Estonia.

We collected data from 23 Estonian agricultural cooperatives through a purposefully designed survey of cooperative leaders. Our data enables us to identify key board structures and processes adopted by Estonian agricultural cooperatives and compare them to their counterparts in other countries in order to draw conclusions and make relevant recommendations. Our findings suggest that, at least within certain limits, neither the size of a cooperative organization nor whether or not it has instituted a board of directors affect its financial performance in a statistically significant manner.

Compared to their counterparts in European countries and the United States, Estonian agricultural cooperatives perform satisfactorily. However, we conclude that there exists considerable room for improvement in board processes through introduction of a more flexible legal framework and the adoption of professional board governance processes, introducing director orientation training, inclusion of additional financial expertise, and board evaluation routines. Our results also identify an emerging issue with member preference heterogeneity, which deserves attention from cooperative leaders in the short to medium run.

The paper is organized into six sections. Following this introduction, the second section sets the overall theoretical background of our research by reviewing the corporate governance literature on board structures and processes in both IOFs and cooperatives. We also focus on the governance of agricultural cooperatives and review relevant empirical research in order to inform our empirical research and place it in context. The third section presents the empirical methodology adopted and the sample selected, while the fourth section presents our findings. The fifth section discusses the results, while the last section

concludes the paper by drawing implications, and proposing potentially fruitful avenues for future research.

2. Board Governance: Literature Review

2.1. Corporate Governance Theories

Corporate governance has been studied mainly through the lens of agency, stewardship, resource dependence, and stakeholder theories. Agency theory focuses on the control of managers, assuming that managers and owners have diverging interests [18–20]. Conversely, stewardship theory assumes that managers, owners, and stakeholders have the same interests and, thus, the board undertakes a joint endeavor with management [21,22]. Resource dependence theory emphasizes the role of the external environment and views corporate governance as the main means to leveraging external expertise and influence because organization success depends on its fit with the external environment (e.g., [23]). Stakeholder theory suggests that the main role of the board is to mirror community and society to ensure that the organization serves its mission and purpose (e.g., [24,25]). Table 1 summarizes the main theories and links them to governance practices.

Table 1. Summary of principal corporate governance theories and corresponding practices [26] (p. 31).

Theory	Practices		
	Composition	Focus	Dynamics
Agency: control of management; managers and owners have different interests	• Representatives of owners • Tendency to homogeneity • Tendency to small boards	• Supervision of management • More focus on compliance • Monitoring and performance against targets and objectives • Conformance as board task [27] • Type 1 fiduciary governance [28]	• High challenge • Controlling • Critical style to achieve goals
Stewardship: joint endeavor with management; managers and owners/stakeholders have same interests	• Unitary, tendency to homogeneity • Tendency to smaller boards	• Strategic thinking as board task [27] • Type 2 strategic governance [28] • More focus on improvements in performance • Use of resources	• Appreciative style to achieve goals • Collaborative • Well-functioning board committees
Resource dependency: leveraging of external expertise and influence as organization success dependent on fit with external environment	• Experts, boundary spanners, balance between homo- and heterogeneity • Board size varies	• Policy formulation as board task [27] • Type 3 generative governance [28]	• Predominantly external focus
Stakeholder: mirroring community and society to ensure that organization serves its mission and purpose	• Representatives • Tendency to heterogeneity • Tendency to large boards	• Supervision of management • Focus on compliance • Monitoring of performance against targets and objectives • Conformance as board task [27] • Type 1 fiduciary governance [28]	• Predominantly external focus • Tendency to be active in relation to sectional or political interests

The above theories have received considerable criticism from governance scholars and practitioners alike. For example, Nicholson and Kiel [29] as well as Carver [30] argue that each theory can explain a particular case but none provides an overall theory of governance applicable to all cases. The former adopt a contextual approach and suggest that the ability of a board to improve corporate performance substantially is likely to depend on context-specific factors, including sector regulation, industry organization, and the current phase of the organizational lifecycle [29]. Carver [30] argues that without a strong theory to identify and implement the core practices of board governance, the most possible outcome will be intrusive micromanagement. He further suggests that "because governance is a social construct rather than a natural phenomenon, theory must be driven by and anchored in the purpose of boards rather than derived from analyses of current practices" [30] (p. 150).

Hermalin and Weisbach [31] adopt an evolutionary approach to board governance, which suggests that the development of boards and the adoption of different behaviors is a function of the phase of the organizational lifecycle. Shen [32] argues that outside director-dominated boards are best in the first phases of organizational lifecycle, but Combs et al. [33] indicate that such boards can be harmful in the intermediate years of growth, but become necessary later as a management-disciplining device. However, Carver's criticism remains valid as we still lack a comprehensive theory of board governance general enough to be applied to all possible contexts, with adaptions. We now turn to a brief review of the literature on board structures and processes.

2.2. Board Structures

Research on board structures focuses primarily on five dimensions: (1) independence, (2) board size, (3) board equity ownership, (4) diversity, and (5) CEO tenure [5,34].

Board director independence has been studied extensively (e.g., [5]). The issue of whether including outside directors improves performance has attracted most scholarly attention [6]. Those adopting the lens of agency theory suggest that the board's primary role is to choose, monitor and replace the CEO, if necessary [35,36]. Inside directors may not be appropriate in this role as they are influenced by management's promotion and tenure decisions. On the other hand, outside directors are better positioned to serve this monitoring role. This argument is further supported by the strong incentive of outside directors to signal their status in the market for corporate directors [19].

The optimal board size is also an extensively studied research issue (e.g., [37]). One of the most consistent empirical relationships in the governance literature is that board size is negatively related to firm profitability [6]. Such evidence supports agency theorists' hypothesis that smaller boards enhance performance because they are more effective as manager monitors [38,39]. Other issues that affect negatively a large board's performance include the little time available to each board member to voice opinions, increased transaction costs of communication and coordination, and the classic second-order free rider problem of large groups that may lead to diffusion of responsibility [40–42].

Having invested substantial equity in a firm provides a director with strong incentives to perform its duties optimally. Such directors are more likely to monitor management actively, seek to improve their knowledge of firm operation, be prepared for board meetings, and participate in decision-making (e.g., [43–45]. Conversely, diffused ownership may lead to weak incentive to monitor management and be active in the governance of the firm [43]. Theoretical models have also resulted in the hypothesis that directors perform better the greater their ownership stake (e.g., [20]).

The impact of director gender diversity on firm performance has been a controversial topic. Proponents of board diversity suggest that it promotes understanding diversity in customer markets, increases healthy debate leading to creative problem-solving, and decreases turnover and absenteeism among employees by signaling advancement opportunities [46–49]. However, some research supports the hypothesis that diversity has a positive impact on performance, while other studies reject it.

For example, based on a large data set from Spain, Fernández-Temprano and Tejerina-Gaite [50] find differences between inside and outside board members in terms of the performance impact of board diversity. While age diversity has a positive effect on firm performance in both insider and outsider directors, nationality mix is associated with higher performance levels just in the case of insiders. Educational diversity seems to have a negative effect on performance for supervisory directors. The authors also do not find any evidence about a possible influence of gender diversity on performance. In a study of British small and medium-sized enterprises (SMEs), Shehata et al. [51] examine the relationship between board diversity and firm performance. In particular, they investigate the role of gender and age as two dimensions of diversity. Their results show significant negative association between gender diversity, age diversity, and firm performance.

CEO tenure as a determinant of firm performance has been studied extensively (e.g., [34,52,53]). Corporate governance research suggests that as control of the firm passes more and more from principals to agents, CEO tenure tends to increase. The more a CEO stays with the firm, the easier it is for them to negotiate less board oversight [54]. According to another approach, CEOs may achieve less oversight through a decrease in board independence. According to agency theory scholars, CEOs that stay too long in their position may become engrained because: (1) they have a higher chance to impact board composition; (2) in case of good track record board members would not want to replace them; and (3) the more they stay, the more they tend to control procedure and internal information systems and, as a result, they may withhold information or influence the board's agenda [32,54,55]. On the other hand, more moderate board control may lead to more innovation and entrepreneurial development of the firm [56].

2.3. Board Processes

Board processes include all decision-making activities of the board of directors [57]. Board processes have been primarily studied as an intervening variable between the board structure and company performance (e.g., [58]). The academic literature on corporate board processes focuses on seven dimensions of board processes: (1) effort norms, (2) cognitive conflict, (3) knowledge skills, (4) cohesiveness, (5) communication, (6) affective conflict, and (7) trust [38].

Effort norms refer to the shared beliefs of the board as a group regarding the level of effort each board member is expected to put towards a task [59]. Extant literature suggests that board effectiveness is improved by boards promoting high-effort behaviors [60–62]. For example, director engagement, measured by the frequency of board meetings, tends to increase performance, enable board members to monitor managers more effectively, and promote adherence to shareholder interests in decision-making [63–65].

Cognitive conflicts are task-oriented differences in reasoning between board members, often exhibited in "disagreements about the content of the tasks being performed, including differences in viewpoints, ideas and opinions" [66] (p. 258). Available empirical evidence is inconclusive regarding the impact of cognitive conflict on board performance (e.g., [60,62]).

The capacity of a board to use the knowledge and skills available within it and apply them to board tasks substantially increases board effectiveness (e.g., [60,67]). Director orientation and development programs may improve governance and performance by both increasing the pool of available knowledge and skills among board members [68–72].

Board cohesiveness is "the degree to which board members are attracted to one another and are motivated to stay on the board" [59] (p. 496). Group pride, interpersonal attraction and task commitment represent identified dimensions of board cohesiveness that have a strong positive influence on board performance (e.g., [73]).

High-quality communication helps organizations achieve diminished uncertainty, better coordination of activities, and efficient analyses of information [38]. Research has shown that communication quality is an indicator of performance [74].

Affective conflict is the result of problematic relationships between board members and the resulting behavioral conflicts [38]. Unlike cognitive conflict, affective conflict

has a negative impact on performance, as it tends to destroy personal relationships and negatively affect the information processing capabilities and decision-making skills of teams [75].

The positive impact of trust on the effectiveness of any team, including a board of directors, is indisputable and a common topic of academic discourse (e.g., [76,77]).

2.4. Board Governance in Agricultural Cooperatives

2.4.1. Uniqueness of Cooperative Governance

The governance of cooperatives exhibits substantial differences when compared to the governance of investor-oriented firms (IOFs). Most of these differences emanate from cooperative principles embedded in relevant national legislation, and manifested in the ownership, control structures and processes adopted by cooperatives [13]. Unlike the investors-owners of IOFs, members who own the cooperative are primarily patrons that use the organization's services; of course, as owners, they also invest in the cooperative. Further, in agricultural cooperatives, farmer-patrons own their cooperative and control it democratically, based on either a one-member, one-vote or a limited proportional voting system.

Consequently, member-owners control their cooperative more intimately than the owners of IOFs, particularly in companies with highly dispersed ownership (e.g., [78]). However, they may incur higher agency costs than owners of IOFs due to extremely high member preference heterogeneity and the resulting lack of a coherent common intent (e.g., [79]), free rider issues related to governance tasks [80], and the lack of outside monitoring and management-disciplining mechanisms, such as the stock market for listed companies (e.g., [81]).

Further, the long-held assumption "a co-op is a co-op is a co-op" has been repeatedly questioned. While agricultural cooperatives were considered similar to each other in the past, organizational economics research during the last 30 years has shown that this is not the case (e.g., [82]). Based solely on their ownership and governance structures, numerous types and variations of the traditional cooperative model have been identified [83,84].

This wealth of ownership and governance models suggests that agricultural cooperatives constantly adapt to their changing environments by experimenting with non-traditional models through either tinkering or reinvention [13,85]. In addition to the traditional governance model we observe the extended traditional, the managerial, and the corporate governance models, which increasingly pass decision management functions to professional managers instead of member-patrons [84,86]. Whether such intra-organizational changes will help member-patrons-owners to achieve their objectives is a question that remains open. However, emerging empirical research suggests that corporate governance recommendations on board structures and processes for IOFs may not apply to agricultural cooperatives (e.g., [3]).

2.4.2. Board Structures and Processes in Agricultural Cooperatives

Cooperative boards have been studied at either the macro or organizational level (e.g., [87,88]), with very few contributions digging into the micro-micro level of board composition, structure, and processes adopted. Notable exceptions do exist (e.g., [8]), but most research includes empirical studies, to which we now turn our attention. In section five of the paper, we compare our findings on Estonian agricultural cooperatives to those reported in the studies reviewed next.

Bijman et al. [1] identify seven governance innovations adopted by European agricultural cooperatives during recent decades in order to improve their performance. These include: (1) the appointment of a professional manager who becomes responsible for decision management, (2) the introduction of proportional voting, (3) the inclusion of outside board and/or supervisory committee members, (4) the legal separation of the cooperative association and the cooperative firm, (5) the introduction of a member council between the general assembly and the board of directors in cooperatives with large and geographically

dispersed memberships, (6) a shift from representation on the basis of regions to representation on the basis of products or product groups, (7) and the introduction of non-member owners. The authors argue that such changes in cooperative governance are dictated by an increase in the size and scope of European agricultural cooperatives that result in the need to hire highly qualified managers. However, the latter demands more autonomy, which necessitates strengthening supervisory bodies.

Meliá-Marti et al. [89] assess whether the seven governance innovations identified by Bijman et al. [1] have been adopted by Spanish agricultural cooperatives. They also add another one, gender diversity. They analyze data from a survey of 105 (out of a population of 223) Spanish agricultural cooperatives and conclude that, despite the rather flexible legal framework of the country, few cooperatives have adopted most of the studied governance innovations. For example, 8% of the sample cooperatives have outside directors serving on their boards, compared to the European average of 27% [90].

Bond [91] uses a sample of 176 United States' agricultural cooperatives to test the impact of the board size on organizational performance. However, her low response rate (25%) resulted in a limited number of usable observations and reduced explanatory power of the econometric results. Another shortcoming of this research is the use of solely financial measures of cooperative performance. Nevertheless, the author concludes that board size has a net ambiguous impact on cooperative performance.

Berge et al. [92] study the governance of nine food cooperatives from Ontario, Canada. The most pressing governance challenges facing these organizations include board member engagement, succession planning, and defining the roles and responsibilities of board members. They argue that as the role of the board changes during the life cycle of a cooperative, the composition of the board must also change (p. 472). As the boards of cooperative become more professional, adopting the so-called policy or corporate model, the skills required by board members will need to change, although the authors are skeptical about who will initiate such changes. Finally, Berge et al. [92] argue that current governance theories that were deduced by observing IOFs do not suffice to explain governance within a cooperative, particularly the complexities of such patron-owned firms.

Cook and Burress [93] use mail survey data from the same sample of United States' agricultural cooperatives as Burress et al. [94] to address the issue of whether long-tenured CEOs in cooperatives are successful in negotiating less monitoring, resulting in high agency costs. Their analysis shows that this is the case because long-tenured CEOs experience less board monitoring. The authors argue that the primary causes are poor processes rather than inadequate board composition. However, the failure to monitor management satisfactorily does not necessarily stem from a CEO's ability to negotiate less monitoring. It is possible that CEOs with shorter tenures also influence the board, but stricter corporate governance regulations preclude them from having their recommendations influencing board members. The authors conclude that as a cooperative evolves, the monitoring role of the board becomes more relevant than interactions in the day-to-day operations of the cooperative. They propose a special board committee to take over the oversight responsibility, yet active board member engagement is a prerequisite condition for such committees to work in practice.

Burress et al. [94,95] as well as Franken and Cook [3] analyze survey responses and secondary data from an extensive sample of 460 United States' agricultural cooperatives in order to test several hypotheses from the corporate governance literature. These authors focus on the following key attributes of the surveyed cooperatives. In terms of measures of structural attributes, they use the total number of directors, number of outside directors with voting rights, director and chair tenures, average board member age, percent of equity held cumulatively by current directors, and number of female directors. Their measures of procedural attributes include the days spent in board meetings yearly, chair/CEO meetings annually, hours of full board training and director orientation, as well as percentage of eligible membership voting in the last election. Their overall conclusion is that in terms of director development and board-CEO relations, the recommendations of the corporate gov-

ernance literature do not always apply to cooperatives. Among the hypotheses confirmed by these authors are: (1) a smaller board improves performance, (2) including outside directors tends to improve performance, and (3) poor past performance leads to shorter CEO tenure.

Hakelius [7] uses 13 cases of Swedish agricultural cooperatives to address the question whether cooperative performance is related to board composition and interaction patterns. Specifically, she measures board size, the number of external directors, director tenure and attitudes, frequency of board meetings, the educational level of directors, and the degree of consensus between the board and the CEO. The author uses the perception of the chairperson regarding the cooperative's performance as the sole measure of organizational performance. She finds some evidence to support her hypotheses that (1) cooperatives with a large board have better overall performance, (2) cooperatives with well-educated directors have a better overall performance, and (3) cooperatives where there is consensus between the directors and the CEO have better overall performance. However, the author finds no evidence that cooperatives in which the board meets frequently have a better performance or that cooperatives with outside directors outperform those without.

Huhtala et al. [8] use qualitative data from the 16 largest Finnish agricultural cooperatives comprising 32 in-depth chairperson interviews to study the processes and actor roles that play an integral part in the director selection. Their results indicate that chairpersons approach this question through several paradoxes from two dimensions: administrative culture and the roles and authority of important actors. The authors also identify differences in director selection between sample cooperatives and IOFs. For example, unlike IOFs, they did not observe a powerful role of the CEO in cooperatives' director selection. In addition, cooperatives do not attract outside directors to serve on their board, nor do they adopt highly professionalized selection processes, such as appointment through nomination committees. As Finnish agricultural cooperatives have grown in size, complexity, and member preference heterogeneity, the director-selection process has become an increasingly cumbersome process and a trend towards adopting corporate governance processes is documented.

2.4.3. Performance of Agricultural Cooperatives

The measurement of cooperative performance represents a complex issue that has attracted the attention of both scholars and practitioners. Until recent years, cooperative performance was measured using dimensions such as prices paid to farmer-members, technical efficiency, financial performance, growth, market shares, and on-farm services [13,96,97]. In more recent years, however, scholars have introduced composite measures of cooperative performance that are intended to measure additional, also important dimensions of performance, such as relative position in the industry, member satisfaction, vision attainment, etc. [95,98]. The need for the measurement of these dimensions of performance stems from the realization that a cooperative is a member-patron owned and controlled business entity whose objectives are broader and more diffuse than those of IOFs (e.g., [13,14]). Cook introduced "cooperative health" as a composite measure of cooperative health, which combines (a) private goods (prices received or paid, services, feeling of community, social capital, and contributed collective good) received by the member-patron and (b) the perceived probability of cooperative survivability (longevity) [13]. Cooperative longevity is measured through the proxy of relative ownership costs (agency costs, collective decision-making costs, and risk bearing costs). Therefore, cooperative health is an index of the above-mentioned variables, which can be combined as member-patron private and collective goods, and relative ownership costs [13].

This emerging literature on the internal governance of agricultural cooperatives suggests that considerable differences exist with respect to what constitutes good governance practices, between cooperatives and IOFs. Yet, important research questions remain unaddressed. The current research builds on and adds to the abovementioned studies by focusing on agricultural cooperatives in Estonia, a country in a region that so far has

received only scant attention. Therefore, the current study addresses a considerable knowledge gap, namely, it identifies board structures and processes, as well as performance measures adopted by agricultural cooperatives in an Eastern European, former Soviet country. The combination of the topic (board governance), organizational form (agricultural cooperative) and the focal region (Eastern Europe) has not been studied before. The presentation of our sample and methodology follows.

3. Materials and Methods

3.1. Sample

A study conducted in 2018 by the Estonian University of Life Sciences and the Estonian Ministry of Rural Affairs identified the list of 113 economically active Estonian agricultural cooperatives [99]. The sample is constructed from the population of 113 agricultural cooperatives that were economically active in Estonia in 2016 (While the study by Võlli et al. [99] was conducted in 2018, it used data from 2016 due to the unavailability of more recent data.). The criteria employed in selecting the 23 sample cooperatives by purposive sampling included:

1. Turnover and membership—the largest Estonian agricultural cooperatives were selected (in total, they represent more than 95% of sales made by agricultural cooperatives in Estonia).
2. Industry—cooperatives were selected to cover all industries in which Estonian agricultural cooperatives are present (cereals, oil cultures and protein-rich plants; milk and dairy products; live animals and meat; horticulture; and other).
3. Function—all functions (marketing, processing, supply, service provision, multipurpose) are present in the sample [100].
4. Geographic spread—cooperatives from all regions of Estonia were selected (Figure 1).

Figure 1. Sample agricultural cooperatives of the study (The addresses of the agricultural cooperatives originate from the e-Business Register and the data is transposed onto a Google Maps map).

Using purposively sampled 23 cooperatives from the population of 113 economically active agricultural cooperatives ensured a high response rate. This is also the reason why random sampling was not used. All representatives from the 23 sample cooperatives

submitted their filled questionnaires. Given the relatively small size of the population, a low response rate study of the population could have skewed the results.

3.2. Data, Methods, and Measures

Given the dispersed locations and the number of sample cooperatives, the online survey method was chosen to collect quantitative and qualitative data for the analysis. Two questionnaires were sent to each sample cooperative: one for the manager and another for a director or a member (if the cooperative had no board of directors). Questionnaires complemented each other and there were four versions:

- management board member questionnaire (28 questions, for a cooperative with a board of directors);
- management board member questionnaire (24 questions, for a cooperative without a board of directors);
- board of directors member questionnaire (101 questions, for a cooperative with a board of directors);
- member questionnaire (86 questions, for a cooperative without a board of directors).

The data was collected for a study commissioned by the Ministry of Rural Affairs of the Republic of Estonia [100]. The collected data covers the 2016–2018 period because no newer data was available when the study was conducted in 2019–2020. Primary data for the study originates from questionnaires filled in by members of the board of directors or members, in cases the cooperative had not instituted a board of directors, of sample agricultural cooperatives in the third quarter of 2019, while secondary data were provided by the e-Business Register and retrieved in the fourth quarter of 2019 and the first quarter of 2020.

All data were inserted in a specially designed Microsoft Excel file to facilitate processing and analysis, and were subsequently screened for outliers that were omitted for data analysis. Outliers were determined by using interquartile range (IQR) and 139 outliers were removed from a total of 1 840 observations across all used and unused variables. Next, the data were analyzed to generate descriptive statistics and variable correlations.

Following Cook [13] as well as Franken and Cook [3], we understand cooperative health as a multidimensional concept, conceptualized as a (higher order) latent construct reflecting performance not only in financial terms, but also in other areas. Thus, we calculated measures of financial performance, including an extra-value index (EVI (EVI provides an estimate of the opportunity cost of member equity capital deducted from the profitability ratio and was calculated: EVI = Net income after taxes − Total equity × (December average LIBOR 12-month maturity + 2%)Total assets − Current liabilities [3].)), return on assets (ROA), and return on equity (ROE). We also calculated non-financial cooperative health measures based on respondents' rating of their cooperative's overall performance on a scale from one (equals "poor") to ten (equals "excellent"). While financial performance is measured by calculating standard financial ratios used in analyzing cooperatives, measuring the overall performance is based on the subjective evaluation of the overall performance of the cooperative, based on respondents' assessments. By not asking respondents about their perception of the cooperative's financial performance, we partially avoid confusing them with overlapping measures of performance.

Based on the survey responses, we measure constructs about the board of directors and CEO characteristics, which we compare with research findings on agricultural cooperatives of other countries, as well as with statistics on IOFs from the 2019 Nordic Spencer Stuart Board Index [101].

Given the small number of surveyed cooperatives and observations, drawing inferences about hypothesized causal relationships between variables was not feasible. Nevertheless, even descriptive statistics enable us to delve into important governance issues facing Estonian agricultural cooperatives today.

4. Results

4.1. Overall Organization and Functions

Out of 23 responding cooperatives, 11 have instituted a board of directors (47.83%). The Estonian legislation (Commercial Associations Act) stipulates that an "association shall have a supervisory board (Despite being referred to as a supervisory board in legislation, the decision-making body has the responsibilities of a classical board of directors.) if the association has more than 200 members or the share capital is greater than 25,000 euros or if so prescribed by the articles of association" [17]. Only one agricultural cooperative meets the first criterion and five sample agricultural cooperatives meet the second one, yet eleven sample cooperatives do have a board of directors. Their main motivation for instituting a board of directors was provided by their aspiration to expand in the future and become a much larger business than they are today.

Overall, responding cooperatives have a predominantly local membership, serving farmers from one or a few neighboring municipalities. However, more cooperatives with a board of directors have regional (serving one or more geographic regions of the country) or national membership, while the only cooperative that has members in a foreign country, also has a board of directors. Table 2 provides an overview of the key attributes of responding cooperatives with and without a board of directors.

Table 2. Key attributes of responding Estonian cooperatives (2019).

Attribute	Cooperatives with a Board of Directors	Cooperatives without a Board of Directors
Number of cooperatives	11	12
Average year founded	2003	2009
Total number of members *	914	77
Percentage of active members	98.15%	100%

* Includes multiple memberships since the same individual or corporate entity may patronize more than one cooperatives.

Among the sample cooperatives, those with a board of directors tend to have more members and are older, on average. There are also differences in their fields of activity: while the majority of cooperatives with a board operate in the dairy sector, most cooperatives without a board of directors deal with cereals, oilseeds and protein-rich plants. Table 3 summarizes the differences.

Table 3. Distribution of cooperatives with a board of directors and without a board of directors by industry and main function.

Attribute	Cooperatives with a Board of Directors	Cooperatives without a Board of Directors
Industry		
Cereals, oilseeds, and protein-rich plants	18.18%	75.00%
Dairy	45.45%	0.00%
Live animals and meat	27.27%	8.33%
Other	9.09%	0.00%
Potatoes, berries, fruits and vegetables	0.00%	16.67%
Function		
Input supply	45.45%	50.00%
Marketing	100.00%	100.00%
Service provision	45.45%	50.00%

4.2. Governance

4.2.1. Overall Governance Rules

Abiding by the Estonian cooperative law [17], voting in all responding cooperatives follows the one-member, one-vote rule. Of all responding cooperatives, 13.04% declared

that they have copied their governance model from other Estonian or foreign agricultural cooperatives (10.00% of responding cooperatives with a board of directors and 20.00% without a board of directors). About 8.70% of responding cooperatives have sought outside expertise in selecting the ownership and governance models adopted by their organization (20% of responding cooperatives without a board of directors).

In terms of their internal governance model, most responding cooperatives have adopted either the extended traditional model (18 cooperatives, of which seven have no board of directors) or the traditional model (four cooperatives). The highest governance body in all responding cooperatives is the general assembly of members. A board of directors is often called supervisory board in Estonia. However, its functions are those of a typical board of directors and should not be confused with the standard supervisory board found in most other parts of Europe, North America, and Oceania, which has auditing functions.

Due to their small membership and size of the country, only one of the responding cooperatives has instituted a board of representatives. Following national legislation, all sample cooperatives have a management board.

4.2.2. Board Structures

We measured six dimensions of board structures: board size, independence, board equity ownership, director age, diversity, and CEO tenure.

The number of board members varies from three to 15, while the average responding cooperative has a board of directors of six members, with an average age of 49.92 years. Average time served on the board of directors ranges from two to ten years. Only 12.50% of the responding cooperatives have outside, non-member board members, while employees of the cooperative serve on the board of 33.33% of the cooperatives. About 14.29% of responding cooperatives have a board member who is considered a financial expert. On average, board members in the responding cooperatives hold 24.20% of the business's equity.

Board diversity was measured along two dimensions: gender and employee participation in the governance of the cooperative. Employee participation was included because it is viewed in the scholarly literature as a dimension of diversity (e.g., [3]). In 33.33% of the responding cooperatives, females serve on the board with an average of 0.89 female directors. In 33.33% of responding cooperatives, employees participate in the board with full voting rights.

Scholars acknowledge that there exist dimensions of diversity beyond gender. Because dimensions of diversity such as education, expertise, race and religious beliefs were outside the scope of the study commissioned by the Ministry of Rural Affairs of the Republic of Estonia, no such data was collected [100].

Professional management is hired by the board of directors or the general assembly (in case a board of directors is not instituted) in most cooperatives and constitutes the management board. The CEOs of responding cooperatives have held their position for more than two years, while CEOs in cooperatives with a board of directors tend to be employed for shorter periods. This finding may be related to the monitoring role of the board; board members constantly assess managerial performance and may fire a manager with low performance (We thank one anonymous reviewer for suggesting this possibility). This is in line with the main propositions of agency theory highlighted in Section 2.

The experience of respondents as board chairpersons varies from less than a year to over 15 years.

4.2.3. Board Processes

Board processes were identified along four key dimensions: director tenure, engagement (effort norms and communication), director development (knowledge skills), and participation (affective conflict and cohesiveness).

On average, directors serve 5.59 years in the board, while the average chair tenure is 6.50 years. In terms of engagement, the number of days per month in a typical year

that board members spend in board meetings (when there exists a board of directors) or general assembly meetings (for cooperatives without a board of directors) varies from zero to six, while in most of these cooperatives the meetings consume one or two days per month. During the same year, the number of board of directors/general assembly sessions without the CEO varies from zero to two, with zero being the most common answer (64.64% of the cooperatives with a board and 80% of those without one). Furthermore, board of directors' members discuss cooperative matters with the management outside board/general assembly meetings at least two times or more per annum.

The board of directors develops strategy by itself in none of the sample cooperatives. Instead, they ratify strategic proposals developed solely by the management team of the cooperative. However, board members in all responding cooperatives ask probing questions, which lead to revisions of the strategic proposals developed by the managers.

In 22.22% of the responding cooperatives with a board of directors, board members help top managers to develop strategy within board meetings. In 12.34% of the responding cooperatives with a board, this process also continues outside the board room, between board meetings. In 30.00% of the sample cooperatives without a board of directors, the general assembly members help top management to develop strategy during general assembly meetings—in 12.00% of the responding cooperatives without a board member and top management collaboration to develop strategy continues between general assembly meetings.

The board of directors of all responding cooperatives regularly monitors the progress of strategy implementation. The board of directors determines the timing and evaluation criteria, and often requests additional information after receiving progress reports from top management in 44.44% of the cooperatives with a board of directors, while the general assembly performs this function in 11.11% of the cooperatives without a board.

Board members, or members of the general assembly in the case of cooperatives without a board of directors, collect their own information about the progress of strategy implementation, in addition to top management reports, in 33.33% and 44.44% of the responding cooperatives, respectively.

Board members in 45.45% of the cooperatives that have a board of directors are often involved in pricing and cost allocation decisions (18.18% responded very often), while general assembly members in 9.09% of the cooperatives without a board of directors are often involved in such decisions (27.27% answered very often).

In terms of board of directors' evaluation, 20.00% of responding cooperatives conduct evaluations of the full board of directors and 10% evaluate individual board members. To avoid frictions, 36.36% of the cooperatives with a board of directors and 41.67% of those without one have outsourced grading/quality classification of members' produce to an outside, independent party. The degree of trust among members, as assessed by the respondents, is moderately high or very high in most cooperatives, regardless of whether they have a board of directors or not.

The boards of the responding cooperatives invest time in member relations. Almost half of them spend 21–30% of their working time on member relation activities, while more than 9% invest more than half of their working time in such activities.

Only 20% of responding cooperatives with a board conduct full board training, while those implementing such programs devote, on average, 8.36 h per year to training activities.

Participation in the responding cooperatives was also measured along three dimensions. First, 70% of the cooperatives with a board assessed this board as active. Second, on average, 83.48% of the members of responding cooperatives voted in the last election. Finally, in all cooperatives, at least 50% of members participated in the last elections.

The following table summarizes our findings on board structures and processes adopted by Estonian agricultural cooperatives, and compares them to similar findings in other contexts or in different legal forms (Table 4). While Estonian agricultural cooperatives are different from their U.S. counterparts, there still are insights to be generated from such a comparison, particularly when it focuses on percentages rather than absolute values.

Table 4. Key board of directors attributes of Estonian agricultural cooperatives compared to selected previous research findings.

Attribute	Construct	Measure	Responding Cooperatives	Franken & Cook [3]	Hakelius [7]	Nordic Board Index [101]	Meliá-Marti et al. [89]	Burress et al. [94]
		Sample	23 Estonian agricultural cooperatives	460 United States' agricultural cooperatives	13 Swedish farmer cooperatives	100 Nordic IOFs	105 Spanish agricultural cooperatives	460 United States' agricultural cooperatives
Structures								
	Independence	Percentage of cooperatives with outside directors with voting rights	0.00	0.04				2.20
	Board size	Number of directors	5.91	9.07	10.40	9.30	10.60	9.00
	Board equity	Percentage of equity held by current directors	24.20	11.27				
	Age	Average age of a director	49.92	51.78		56.70		51.78
	Diversity (gender)	Number of female directors	0.89	0.13		0.36		0.13
	Diversity (gender)	Percentage of cooperatives with at least one female director	33.33	12.00			26.00	11.70
	Diversity (employees)	Percentage of cooperatives with employees serving on the board with full voting rights	33.33					
	CEO Tenure	Average number of years the CEO is in its current position	6.50					
Processes								
	Tenure	Average number of years that a director spends in the board	5.59	10.40	4.95	4.90		9.92
	Tenure	Average tenure of the board chair in years	6.50	16.52		5.45		6.52
	Engagement	Days spent in board meetings per year	10.45					
	Engagement	Number of board chair/CEO meeting per year	30.45					
	Director development	Hours of full board training per year	8.36	7.05	12.42			4.64
	Director development	Percentage of cooperatives that conduct full board training	20.00	71.30				
	Director development	Hours of director orientation	1.45	4.64				
	Participation	Percentage of cooperatives with the board of directors self-assessed as active	70.00	86.30				
	Participation	Percentage of eligible membership voting in last elections	83.48	36.85				36.85
	Participation	Percentage of cooperatives in which at least 50% of the members voted in last elections	100.00	32.00				32.00

4.3. Cooperative Health

The health of responding cooperatives is evaluated based on both standard financial measures of performance and self-reported assessments provided by respondents [3,13]. Financial measures of performance are summarized in Tables 5 and 6.

Table 5. Summary statistics, financial performance of responding Estonian cooperatives compared to the findings of a United States' study [93].

	Responding Cooperatives		United States' Cooperatives	
Performance measure	Mean (%)	SD (%)	Mean (%)	SD (%)
EVI, 3-year average	4.69	3.78	10.00	14.00
ROA, 3-year average	1.98	2.90	8.00	6.00
ROE, 3-year average	18.40	17.28	19.00	25.00

Table 6. Average financial measures of performance of responding Estonian cooperatives (2016–2018).

Variable	Cooperatives with a Board of Directors	Cooperatives without a Board of Directors	*t*-Test ($p = 0.05$)
Current assets, EUR	5,067,554.42	332,352.14	0.033
Total assets, EUR	9,915,193.12	1,089,587.44	0.047
Current liabilities, EUR	5,049,425.15	353,416.03	0.043
Total liabilities, EUR	6,970,751.21	897,937.78	0.073
Retained profit, EUR	1,910,993.30	159,182.86	0.055
Profit before income tax, EUR	176,784.21	21,210.97	0.032
Net profit for financial year, EUR	175,711.03	21,210.97	0.028
Equity capital, EUR	287,269.97	191,649.69	0.044
Total liabilities and equity capital, EUR	10,435,795.73	1,323,166.11	0.047
Sales revenue, EUR	20,058,759.70	1,078,978.19	0.002
Average number of employees converted to full time employment	44.39	2.61	0.084
EVI	0.03	0.02	0.605
ROA	0.02	0.02	0.240
ROE	0.06	0.11	0.419
Debt-to-Equity Ratio	2.43	4.69	0.239
Current Ratio	1.00	0.94	0.594

A summary of the financial performance of responding cooperatives is shown in Table 6. Separate calculations have been conducted for cooperatives with and without a board of directors.

From the *t*-test reported above on the significance of the differences between cooperatives with and without a board, we observe that cooperatives with a board of directors perform similarly with those that do not have a board of directors with respect to eight out of sixteen financial indexes.

We also used survey responses to quantify non-financial measures of cooperative health [3,94,95]. Respondents were asked to evaluate cooperative performance on a 10-point Likert scale, by indicating the cooperative's level of member satisfaction, competitive position in the industry, profitability, ability to achieve vision, and overall performance [102]. Given high levels of correlation among those organizational health performance measures, we calculate a performance factor as the average of the five measures. Table 7 provides the means and standard deviations of cooperative health performance measures, as well *t*-tests for testing the statistical difference between cooperatives with and without a board of directors.

The *t*-tests conducted indicate that cooperatives with a board of directors and those without one have no significant difference, in terms of all non-financial measures of performance used in the study. Yet, cooperatives without a BoD score higher on all measures of non-financial performance. The respondents also assessed the performance of their cooperative against their expectations. Those from cooperatives with a board of directors perceive the performance of their cooperative as being slightly worse than expected (55.56%) or slightly better than expected (44.44%). The respondents from cooperatives without a board of directors perceive the performance of their cooperative as being slightly better than

expected (45.45%), slightly worse than expected (36.36%), far worse than expected (9.09%), and far better than expected (9.09%).

Table 7. Summary statistics, self-reported cooperative health performance measures of responding Estonian cooperatives compared to the findings of a United States' study [93].

	Responding Cooperatives		**Responding Cooperatives with a Board of Directors**		**Responding Cooperatives without a Board of Directors**		***t*-Test ($p = 0.05$)**	**United States' Cooperatives**	
Variable	Mean	SD	Mean	SD	Mean	SD	*p*-value	Mean	SD
Performance factor	7.07	0.99	6.96	0.99	7.19	1.03	0.62	8.01	1.34
Member satisfaction	7.80	0.68	7.56	0.53	8.17	0.75	0.09	7.83	1.48
Competitive position in industry	7.18	1.07	6.89	1.17	7.50	0.93	0.25	8.16	1.57
Overall profitability	6.20	2.12	6.00	2.24	6.44	2.07	0.65	8.00	1.78
Ability to achieve mission	7.00	1.49	6.82	1.72	7.22	1.20	0.56	7.58	1.48
Overall performance	7.21	1.08	7.20	1.03	7.22	1.20	0.97	8.18	1.39

In both cooperatives with and without a board of directors, the members, on average, are equally satisfied with their cooperative (approximately 7 points on a 1–10 scale, where 1 corresponds to "not at all satisfied" and 10 to "fully satisfied"). The satisfaction of respondents with the current state of their cooperative along several dimensions is shown in Figure 2.

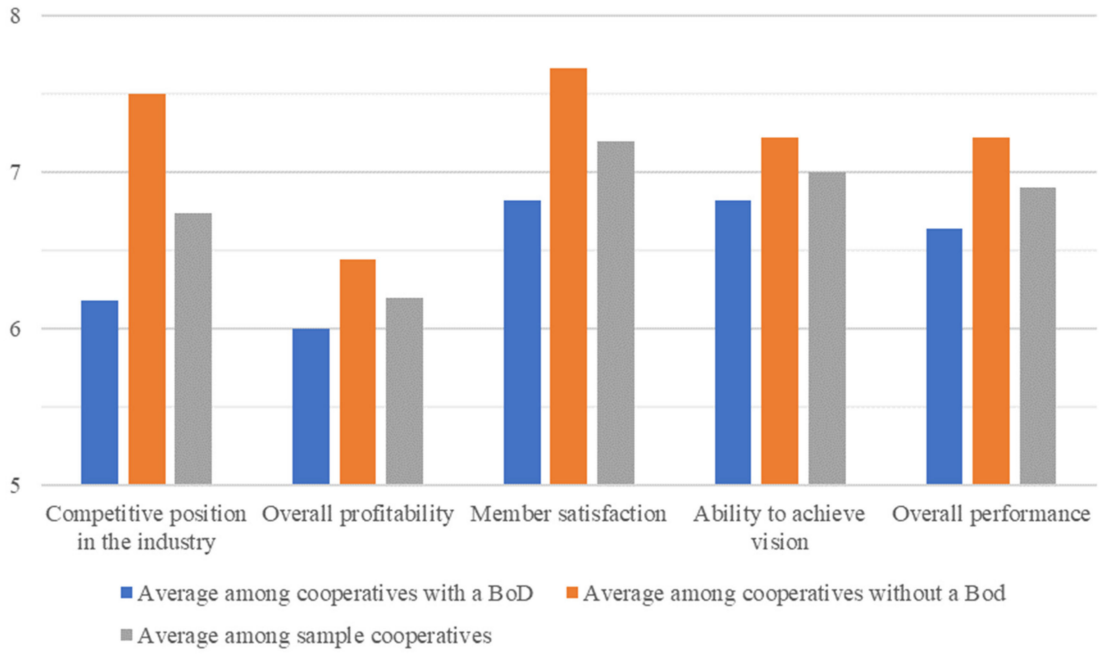

Figure 2. Satisfaction of respondents with their cooperative's current state in sample cooperatives (2019).

Member preferences are more heterogeneous in cooperatives with a board of directors; 81.81% of the respondents from cooperatives that had a board of directors replied that member preferences in their cooperative were somewhat different. However, this tendency may be related to the larger size of the cooperatives with a board, rather than the fact that they have instituted a board. (We thank an anonymous reviewer for bringing this to our attention.) Meanwhile, in cooperatives without a board of directors, member preferences are either somewhat different (41.67% of respondents) or very similar (36.36% of respondents). All respondents from cooperatives that have a board of directors report that there are sometimes serious disagreements about cooperative matters (e.g., a new investment, the site of new plant construction, or the level of patronage refunds) among members, while respondents from cooperatives without a board of directors reported the same in 54.54%

of the cases. Temporary and permanent voting blocs do not seem to be an issue, since all respondents chose either "almost never" or "seldom" in the corresponding question.

5. Discussion

In terms of overall governance model, all responding cooperatives have adopted the traditional or extended traditional governance models identified in the literature (e.g., [84]). Residual control rights are equally distributed among member-owners, as dictated by the Estonian cooperative law (one-member, one-vote). As with Spanish agricultural cooperatives [89], we observe little variation in the governance models adopted by Estonian agricultural cooperatives. This lack of variation may be due to several reasons. First, the Estonian cooperative law is not flexible enough to permit the adaptation of governance models to the needs of each individual cooperative. Second, some cooperative leaders may not perceive a need to modify their governance model and lobby for amendments to the cooperative law that would enable such changes. Third, in most cases, there is simply no need to change anything; these cooperatives perform satisfactorily with their current governance model. Finally, as our results reveal, cooperative leaders do not seem to have access to inexpensive, top-quality expertise on cooperative organizational design. The latter may also explain that none of these cooperatives' leaders has implemented tinkering actions to keep their dissatisfied members happy [85].

Having a board affects neither the financial results of sample cooperatives nor the satisfaction of members with the current performance of their cooperative. The small size of most organizations, particularly those without a board of directors, might reflect a preference for small organizations that score high on social capital and trust, despite their lack of professionalization and failure to capitalize on scale economies (e.g., [103]).

Despite the differences in the organization of agricultural cooperatives in various countries and continents, the comparison of our findings to those of similar studies in other contexts generates useful insights. For example, in terms of board structure, responding cooperatives exhibit both similarities and differences when compared to agricultural cooperatives from other countries and Nordic IOFs. Board size is much smaller than that documented in all other studies, both for IOFs and agricultural cooperatives in Spain, Sweden, and the United States, which seems logical given the smaller size of responding Estonian agricultural cooperatives. No outside director serves on the boards of Estonian agricultural cooperatives, while in their United States' counterparts, 2.20% have outside directors. The lack of financial expertise among board members is also evident in our sample, which, among other things, inhibits effective management monitoring.

On average, directors are slightly younger in responding cooperatives than directors serving in Nordic IOFs or agricultural cooperatives in Spain, Sweden, and the United States. In addition, because of the small size of responding cooperatives, current directors hold a considerably higher percentage of total cooperative equity when compared to their United States' counterparts. This may provide them with additional incentives to monitor management more effectively and be more proactive in decision making, as suggested by agency theory (e.g., [43]).

With respect to gender diversity, responding cooperatives have more women directors than all other organizations compared, both IOFs and cooperatives. Another interesting aspect, which might be related to stricter management monitoring, is that cooperatives with a board tend to change CEOs more often than those without one. This is probably due to more efficient management monitoring exercised by the board relative to the general assembly in cooperatives without a board. Furthermore, the small size of boards may facilitate closer CEO monitoring as suggested in the corporate governance literature (e.g., [38,39]). While a shorter CEO tenure may be associated with more board oversight, it may also stall more innovation and entrepreneurial development (e.g., [56]).

In terms of board processes adopted, director tenure is similar to that in Nordic IOFs and Swedish cooperatives, but shorter than director tenure in United States' cooperatives.

However, board chair tenure is very close to that reported in all other studies used in the analysis.

Board meetings take place less than once a month, but the frequent interaction of the board chair with the CEO may compensate for this rather low engagement. Since similar metrics are not available for other organizations, we cannot infer how close or not to international standards Estonian agricultural cooperatives are. As suggested by corporate governance research, the low frequency of board meetings may be a harbinger of lower performance, loose CEO monitoring, and less adherence to farmer-patrons' interests (e.g., [63]).

A related issue is communication. Interactions between board members and management are rather infrequent, which raises the issue of communication effectiveness. However, as argued by Cook and Burress [93], the monitoring role of the board might become more relevant than board-CEO interactions concerning day-to-day operations as cooperatives evolve.

Overall, board members seem to understand well the importance of establishing and maintaining smooth member relationships. They invest considerable time in doing so. However, adopting good governance practices seems to be constrained by their lack of full professionalization in several ways. This is evident in the fact that only about a half of these cooperatives have implemented a rudimentary training program for board members, let alone members at large, while only one organization has instituted orientation training for new board members. As a result, member relations consume a large part of top management's working time, since these cooperatives do not have the size to justify the creation of a professional member relations department with communication experts.

Further, only two of the boards of directors have implemented a formal or informal process of board evaluation and just one conducts evaluations at the individual board of directors' member level. Additionally, the fact that almost no outside directors or financial experts serve on the board may undermine these cooperatives' governance capability, as only one sample board of directors declared that it had an outside member and another stated that one of its board of directors' members was a financial expert. Lacking financial expertise at the board level raises the issues of effective management monitoring and ability to conduct due diligence.

Finally, no board of directors uses specialized member committees (e.g., finance, strategy, etc.) to support it in decision-making. Such committees would serve as training schools in governance and would thus facilitate the smooth succession of board members. Few exceptions to these observations exist of course, but overall, the ability of responding cooperatives to implement sound governance practices requires considerable improvement.

Many more United States' cooperatives conduct full board training and devote much more time to director orientation than responding cooperatives. However, responding cooperatives that have instituted board training devote more hours to that training than their United States' counterparts, but less than Swedish agricultural cooperatives. In addition, boards are substantially more active in United States' cooperatives than in the responding ones.

Given the small size of the responding cooperatives, it is noteworthy how many of the respondents stated that disagreements among members or between members and the management are very common. According to recent research on the organization of Estonian agricultural cooperatives, the sources of such frictions vary from cooperative to cooperative and are [10]:

1. Weak economic justification for the cooperative. If members do not feel a strong reason for being members of the cooperative, they have three options: exit, voice, or loyalty [104]. Exit includes leaving the cooperative, but also free riding. Voice is another name for friction, if the cooperative does nothing to address members' concerns.
2. Extremely high member preference heterogeneity that has not been addressed seriously by cooperative leaders. No or very little investment of resources in co-designing an organizational design in phase two of the cooperative's lifecycle may have con-

tributed considerably to high member preference heterogeneity and, consequently, to frictions among members [13,85,105,106].

3. A relatively high percentage of members have contributed more or less equity than their level of patronage demands. As a result, the latter group may press the management board and the board of directors to accelerate equity redemption or may vote down proposed investments in anticipation of higher equity redemption in the near future.
4. The involvement of board or general assembly members in pricing or cost allocation decisions creates potential for influence activities and frictions [107].

The resource dependency approach to corporate governance highlights the need to achieve a delicate balance between homo- and heterogeneity. On the other hand, unlike stakeholder theory's propositions, Estonian agricultural cooperatives tend to have small boards, which may enhance homogeneity.

The current research also focused on measuring the health of Estonian agricultural cooperatives and comparing it to the health of cooperatives in other countries. In terms of financial performance, ROE is very close to that of their United States' counterparts [3,94]. With respect to self-reported cooperative health performance measures, responding cooperatives score slightly lower than the United States' ones, although with a much lower variance. At the same time, the overall health of responding cooperatives, including measures of both financial and non-financial performance is not affected by whether they have instituted a board of directors or not. This result may be attributed to the small size of Estonian agricultural cooperatives, particularly those without a board, which turns the general assembly into a board of directors.

The current evolutionary phase of Estonian agricultural cooperatives justifies most of our findings and agrees with the overall results of the extant literature reviewed in Section 2. The results of this research may inform policymakers and cooperative leaders in their quest to improve the governance of Estonian agricultural cooperatives. The ensuing recommendations are also applicable to other countries in the region and beyond where agricultural cooperatives are at a similar phase of their evolution.

As sample cooperatives grow, expand, and become more complex organizations, their governance needs to be adapted to new situations and will probably change even more in the near future. Well-educated directors, who exchange more information among them and with the CEO will become, more and more, of a necessity. Incorporating additional expertise in the board and experimenting with procedural governance innovations, such as those identified in the literature (e.g., [1,85,108]), will probably become the norm in the years ahead. To this respect, the experience of agricultural cooperatives in other countries, and the establishment of a professional leadership program for cooperatives will prove extremely useful to Estonian cooperative leaders and their organizations.

As agriculture is an important sector of the Estonian economy [109], the organization of sustainable cooperatives and other collective entrepreneurship schemes is a necessity for local farmers [90]. The adoption of sound governance processes by Estonian agricultural cooperatives demands a well-designed mix of public policies and cooperative strategies. Top among the priorities of these public policies should be training and educating current and new generations of cooperative leaders, and increasing the professionalization of Estonian agricultural cooperatives through diverse initiatives and strategies.

For example, the establishment of a high quality, appropriately staffed, organized, and funded research and extension program for agricultural cooperatives, preferably placed within a local university, is a necessity that deserves the attention of policy makers. Similarly important is the establishment of undergraduate and graduate courses in business administration, economics, and law tailored to the needs of cooperatives, from which new generations of cooperative leaders will emerge. Legislation is another area of policy intervention. Amending current laws to enable agricultural cooperatives to adapt their organizational structures to the demands of the 21st century is recommended as a prerequisite for the adoption of sound governance practices.

Cooperative leaders may improve the governance of their organizations by designing and implementing board member orientation and development programs, board evaluation and self-evaluation procedures, and special task committees. An extensive training program for members is also necessary, which will help cooperatives in numerous ways, including, but not limited to, by enhancing member commitment, attracting new members, and ensuring a smooth board succession process.

The emerging issue of member preference heterogeneity and possible resulting frictions need to ring a bell for cooperative leaders, who should seriously consider taking action to address the root causes of such phenomena. Actions to consider might include, among others, the redrawing of cooperative boundaries (e.g., [79]), the establishment of professional member relations programs, and the reinvention of their cooperatives [13,85].

6. Conclusions

The paper set out to identify board structures and processes adopted by Estonian agricultural cooperatives, measure the health of these organizations, and compare the findings to those of similar studies in other countries. Our research contributes to the emerging empirical literature on the governance of agricultural cooperatives. We have focused on Estonia, an Eastern European country that has escaped the attention of cooperative scholars so far.

We find that the Estonian cooperative law is not flexible enough and lacks a specific focus on governance to facilitate the adaptation of governance structures and processes to the needs of the 21st century. Policy makers should consider establishing research and extension programs tailored to the needs of agricultural cooperatives, focusing particularly on leadership governance and management aspects of the cooperative practice.

Our results also suggest that in cooperatives with a low number of members, there is probably no need to institute a board of directors, but this may change as cooperatives evolve and become larger and more complex organizations. Cooperative leaders need to think seriously of designing and implementing several universally accepted board processes in order to improve the governance of their businesses. These include board member orientation and development programs, board evaluation and self-evaluation procedures, the institution of special task committees, additional financial expertise at the board level, and training programs for members at large. In doing so, cooperative leaders need to take into account that corporate governance recommendations may not apply to their organizations and, thus, relevant adaptations might be in order. This implication of our findings is in line with the suggestions of agency and resource dependence theories.

The results reported above should be read with caution, due to the small size of our sample and the lack of panel data that would enable us to study the evolution of cooperative governance in Estonia. Further, due to the small sample, we were not able to perform multivariate analysis techniques, such as a principal component analysis, to calculate more realistic measures of cooperative health. Future research could ameliorate these constraints by targeting the population of cooperatives in the country and collecting panel data from both cooperatives and individual farmer-members. It also needs to focus on identifying the needs of member-patrons through detailed interviews and take them into account when proposing institutional changes to improve governance processes in Estonian agricultural cooperatives. Another research topic should be the emerging member preference heterogeneity issue, which might become even more relevant as Estonian cooperatives expand into other regions and accept members or merge with cooperatives from other countries. Unlike member diversity, which enhances the ability of cooperatives to make highly informed decisions, member preference heterogeneity increases relative maintenance organizational costs, which cooperatives incur throughout their lifecycle. Future research should focus on identifying selective incentive mechanisms to address such costs. Finally, future research should shed additional light on the cognitive conflict and trust dimensions of board processes, which have not been studied in the current research.

Agricultural cooperatives and policy makers would highly benefit from in-depth research studies addressing the aforementioned issues.

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