THE RESIDUAL CONTROL ROLES OF COOPERATIVE BOARDS OF DIRECTORS: A PRELIMINARY COMPARATIVE ANALYSIS

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The work conducted in this dissertation is dedicated to three people all of whom were instrumental in the completion of this work. My parents, Evan and Marilyn Matthews and the love of my life, my wife, Dr. Hildegarde Heymann Ph.D.

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TABLE OF CONTENT

LIST OF ILLUSTRATIONS

Table **Page**

Figure **Page**

CHAPTER 1

INTRODUCTION

The research questions and hypotheses addressed in this dissertation are the result of a linking of two independent areas of study: organizational governance and the cooperative form of economic organization.

Organizational governance has been investigated extensively by scholars from business, economics, and other areas of social science for close to 80 years. Since the landmark work of Berle and Means (1932), who first identified the misgivings of separating ownership from control in an organization, the evolution of governance theory and institutional mechanisms has been steady in flow and broad in scope. The leading result of this work is a realization that governance is complex and multidimensional. This complexity of governance parallels the fact that organizational effectiveness depends on a combination of sometimes paradoxical factors. As such, the evolutionary debate on the theoretical underpinnings of good governance has led to a general consensus that no one theory is ubiquitous in its efficacy. Instead, each of the leading governance theories, which include agency theory, stewardship theory, resource dependence theory, and stakeholder theory, provides a partial view of the link between organizational effectiveness and governance. The first part of this dissertation discusses each of the leading theories that have evolved over the years. I identify the operational activities and roles of various governance mechanisms with a specific focus on the internal mechanism of the governing board of directors and provide a framework for examining the perceptions and activities of members of board of directors for a cooperative.

Another area of study that has received extensive attention is the structure and unique characteristics of a cooperative organization. Using the three core principles that identify a cooperative organization—user ownership, user control, and user benefit—chapter 3 describes the type of cooperative organization that has dominated the agricultural landscape in the state of Missouri for the better part of the last century. This includes an examination of the defensive philosophy behind traditional farmer-owned cooperatives, the history of this philosophy, and subsequent challenges faced by this cooperative structure as a result of shifts in the agriculture industry. The discussion then moves to recent innovations in the structure of cooperatives as a result of changes in agriculture, changes that represent a shift in philosophy from defense to offense via a reinterpretation of the user-own and user-benefit principles. Finally, the cooperative chapter focuses on the user-control principle, which represents the link between cooperative structure and organizational governance. Interestingly, this principle is the one that has remained intact during emergence of the modern offensive-oriented new-generation cooperative form. Primarily, the user-control principle is manifested in the democratic election of cooperative members to serve on the governing board of directors, a means of selection that is unique to cooperatives. This unique characteristic of cooperative boards provides the impetus for the first part of the research question this dissertation addresses: How do cooperative board members govern their organizations? This question, in essence, examines the attitudes and actions of cooperative board members relative to traditional board roles of monitor, strategic visionary, resource provider, and member

representative. Furthermore, I examine variations in structure between a traditional, defensive cooperative with that of an offensive, new-generation cooperative to determine whether different cooperative structures generate different board member roles and activities. Ultimately, this third chapter states the hypotheses that will be tested and provides an empirical description of the governing practices of cooperative board of directors.

Chapter 4 provides an overview of the methodology used to test the hypotheses. Included is a description of how the sample population of cooperative boards of directors in Missouri was targeted for recruitment to participate in this study, Identification of specific variables of interest, and development of the final survey instrument. Closing the chapter is a discussion of the analytical methods used. Chapter 5 presents the results of the data analysis and is organized in three parts that represent the different forms of analysis used to address specific hypotheses. The final chapter offers a conclusive description based on the empirical findings, discusses limitations in this research, and suggests avenues for further research.

CHAPTER 2

ORGANIZATIONAL GOVERNANCE AND THE BOARD OF DIRECTORS

GENERAL OVERVIEW OF GOVERNANCE SYSTEMS

Corporate governance is complex. The study of how individual human beings, each with a unique socio-economic background and endowment of skills and resources, come together to make collective decisions has produced a broad base of academic literature. Within this corporate governance literature a dizzying array of perspectives has emerged. As a means of simplifying each perspective, this presentation focuses on how various researchers address the following questions: What is corporate governance? Who does it serve? What is the end goal? How does it function in achieving its goal? (Table 2A)

Table 2A: Variations in Corporate Governance

Author(s)	What is corporate governance?	Who does it serve?	What is the end goal?	How does it function?
Denis and McConnell 2003	**A system comprised of a set of individual mechanisms.**	**Owners** **Suppliers of capital**	**Maximize value to owners.**	**Induces self-interested controllers of organizations.**
Denis and Denis 1995	**A set of institutional and market mechanisms.**	**Shareholders (owners)**	**Maximize value of residual cash flow.**	**Induces self-interested managers.**
Locke and Scrimgeour 1999	**The board of directors.**	**?**	**?**	**Oversees functioning of corporate executives.**
Shleifer and Vishny 1997	**?**	**Suppliers of Finance**	**Assure owner's return on investment.**	**?**
Sternberg 1998	**?**	**Corporate Shareholders**	**Achieve corporate objectives.**	**?**
Tricker 1993	**A process of exercising power over a modern corporation.**	**?**	**?**	**?**
Monks and Minnow (1995)	**A relationship.**	**Various participants.**	**?**	**Determines direction and performance of corporation.**

As Table 2A demonstrates, there is a lack of consensus among corporate governance scholars regarding dimensions that should be included in the concept of corporate governance, who corporate governance serves, what the end goal is, and proper means of achieving the end goal. This lack of consensus results from the inherent challenge associated with the academic goal of simplifying an extremely complex concept of how, why, and for whom corporations and organizations in general are governed.

Mancur Olson stated that the universal purpose for the existence of groups is furtherance of the homogeneous common interest of the salient members of the group (1965). It is this common interest of the principal members of an organization that is the source of group action. Therefore, it should be accurate to state that the existence of any organization's governance system is born of the need to protect and promote the health and stability of the universally present common interest regardless of the essence or motivation behind this commonality of interest. This research relies on the following working definition, which is applicable to all forms of organization**.**

> **Organizational Governance System:** The set of mechanisms having the combined purposes of recognizing and institutionalizing the commonality of interests expressed by the salient stakeholders of the organization into the formal vision, mission, and goals of the organization; setting the organization's strategic direction, operational policies, and performance measures to complement organizational goals; locating and hiring appropriate human resources necessary to achieve organizational goals; facilitating communication between stakeholders; and overseeing functioning of the organization to ensure that the salient stakeholders' interests are protected.

The governance system of an organization, therefore, consists of a set of mechanisms that enable the organization to achieve the common goals of its members/owners. Since organizations vary in terms of structure and the institutional environment in which they operate, the set of governance mechanisms available and the intensity of their use may differ from one organization to another. Generally, governance mechanisms fall into one of three categories—regulatory, external, and internal governance mechanisms—that, when combined, provide a system of checks and balances (Weimer and Pape 1999).

Regulatory Governance Mechanisms

Conceptually, one can view corporate governance mechanisms as a series of institutional arrangements that act to control the behavior of an organization's management. From this perspective, the ultimate controling mechanisms available to owners are the formal institutions and property rights established and enforced by the state. As with most institutional structures, the development of ownership control rights and the boundaries of permissible management conduct vary from state to state. This variation led to the evolution of additional distinct mechanisms that combine to form unique systems of corporate governance among nations. The literature identifies various forms of governance structure around the world based on certain systematic characteristics (Table 2B) (Charkham 1995; Moerland 1995; Weimer and Pape 1999).

The primary distinction in governance systems lies between countries that foster a market-oriented system of governance and those that have a network-oriented system. The salient difference between these two classifications involves the inclusion or level of activity of an external market for corporate control, which serves as a mechanism by which independent shareholders influence management. This feature has a strong presence in market-oriented systems and is noticeably absent from network-based or relations-based systems (Vives 2000). Under these two broad classifications, four distinct systems of corporate governance have been identified on a global level: Anglo-Saxon, Germanic, Latin, and Japanese systems (Weimer and Pape 1999).

Table 2B. A Taxonomy of Global Systems of Corporate Governance

Market/Network Oriented System of Governance	Market -oriented	Network-oriented		
Country Class	Anglo-Saxon	Germanic	Latin	Japanese
Countries	United States United Kingdom Canada Australia	Germany The Netherlands Switzerland Sweden Austria Denmark Norway Finland	France Italy Spain Belgium	Japan
Concept of Firm	Instrumental, shareholder-oriented	Institutional	Institutional	Institutional
Board System	One-tier (executive and nonexecutive board)	Two-tier (executive and supervisory board)	Optional (France); in general, one-tier	Board of directors; office of representative directors; office of auditors; de facto one-tier
Salient Stakeholder	Shareholders	Industrial banks (Germany); employees; in general, oligarchic group	Financial holdings, the government, and families in general oligarchic group	City banks, other financial institutions, and employees in general oligarchic group
Importance of Stock Market in National Economy	High	Moderate/High	Moderate	High
Active External Market for Corporate Control	Yes	No	No	No
Ownership Concentration	Low	Moderate/High	High	Low/Moderate
Performance-dependent Executive Compensation	High	Low	Moderate	Low
Time Horizon of Economic Relationships	Short term	Long term	Long term	Long term

(Weimer and Pape 1999)

Variation in the governance of economic organizations around the world stems from differences in the existence and influence of various mechanisms within a system of corporate governance—in the nature of management's legal obligations with respect to financial owners and other stakeholders, for example (Shleifer and Vishny 1997). Strong enforcement of legal obligations via the recognized duty of loyalty is a part of the formal institutions of OECD

(Organization for Economic Cooperation and Development) countries (Bebchuk 1985; Brudney and Chirelstein 1974). For countries outside the OECD, on the other hand, duty of loyalty is not strongly enforced due to formal state institutions' inability or lack of desire to interfere with business issues. In addition, the degree of representation that financial owners receive from their boards of directors also varies across governance systems. Representation by the governing board ranges from two-tier supervisory and management boards in Germany to insider-dominated boards in Japan to mixed boards in the United States (Charkham 1994).

The presence and strength of influence of nonregulatory mechanisms of governance reflect the variable degree of protection of financial owners via formal state institutions at a global level. A form of corporate governance that is successful in one institutional environment is not necessarily the efficient choice in another. Evidence suggests that governance systems continually evolve along with changing institutional environments. Furthermore, firms can gain a competitive advantage by revising their governance systems to become more efficient (Rubach and Sebora 1998).

External Governance Mechanisms

To the extent that formal institutions of the state and internal control mechanisms used by the organization do not entice management to act in a value-maximizing manner, the market for corporate control provides an additional means by which to reduce the costs associated with separation of ownership and control. If an individual or group of individuals perceives that the firm's market

value can be increased by improving operations, it may be profitable to acquire a controlling interest in the firm and replace management. Generally this is accomplished by offering current shareholders a premium for their shares. Thus, the market for corporate control provides shareholders a means by which to realize additional value that current management has not created (Mitchell and Mulherin 1994).

The presence of a market for corporate control is widely accepted as benefiting the efficiency of firms (Holmstrom and Kaplan 2001). Methods used in the acquisition of corporate control can represent a shift from relatively weak governance to more strict safeguards. Explicitly, takeovers are associated with three major shifts in corporate governance: (1) a change in ownership structure that better aligns ownership with control; (2) an increased degree of financial discipline in which management cannot view capital as costless; (3) closer monitoring of management by investors involved in the buyout. Empirical evidence supports the claim that changes in corporate control via market activity improve the efficiency of firms (Kaplan and Stein 1993; Andrade and Kaplan 1998).

Jensen (1986, 1988, 1989, 1993) argues that inefficiencies caused by failures in internal corporate governance mechanisms act as the driving force behind increased activity in the market for corporate control. When a governing board evolves into an ineffective pawn for management, ignoring its role as a monitor for the firm owners, the market for corporate control will react and investors will seize opportunities for large increases in wealth.

Internal Governance Mechanisms

Acting in conjunction with legal institutions and enforcement provided by the state, organizations advance the collective interest of ownership through internal governance mechanisms. The primary mechanisms used are the structure of organizational ownership, use of debt instruments, and the governing board of directors.

When rights of ownership are not securely protected by formal laws of the state, one way that investors can insure their investments is to make large ones (Shleifer and Vishny 1997). The most economically efficient form of ownership occurs when rights to residual cash flow are aligned with residual control rights (Milgrom and Roberts 1990). For outside investors the most direct way to align these two sets of rights is to concentrate shareholdings. Shareholders who acquire a substantial portion of ownership of a firm have an incentive to assume the costs associated with collecting information and providing more personal monitoring of management. This theory closely follows the model of collective action proposed by Mancur Olsen (1965). If one individual deems that the benefit of providing the collective good is greater than the personal cost of providing it, the individual will provide the collective good. In the case of a shareholder, ownership of a large portion of the stock motivates the shareholder to address agency problems directly by playing an active role in making sure that organizational assets are allocated to maximize profits. Such a shareholder thereby assumes the additional personal cost of being an active monitor and, in return, reaps a significant share of the benefits.

Ownership concentration and the presence of large shareholders vary from country to country. In the United States and United Kingdom, concentrated ownership is relatively uncommon but not unheard of (Demsetz 1983; Holderness and Sheehan 1988a, 1988b; Shleifer and Vishny 1986b). In contrast, concentration of ownership in countries such as Germany, Italy, and Sweden and in regions of Latin America and East Asia is relatively high. It is common in some areas of the world for large commercial banks to control 25 percent or more of the voting shares (Gorton and Schmid 1996). The practice of cross-shareholding accompanied by the presence of major banks as substantial shareholders is also a common means of ownership concentration (Prowse 1992; Berglof and Perotti 1994).

The effectiveness of large shareholders as a mechanism of corporate governance has been an active area of empirical study. In general, the findings from this body of research indicate that large shareholders have a positive impact on the performance of firms (Franks and Mayer 1998; Gorton and Schmid 1996; Kang and Shivdasani 1995; Kaplan and Minton 1994). Such shareholders also have been shown to reduce discretionary spending by management (Yafeh and Yosha 2003; Shivdasani 1993; Shleifer and Vishny 1986b).

Ownership concentration as a governance mechanism is a reaction to the degree of investor protection offered by the formal institutions of the state. In countries where the legal system is relatively more sophisticated and investor rights have better protection, the necessity of ownership concentration as a governing mechanism is less. The weaker the legal protection of investors, the

greater the value of large minority shareholders and, in extreme cases, majority shareholders (Shleifer and Vishny 1997).

The presence of large investors comes with some costs. Large investors will monitor management and enforce their ownership rights to benefit their private wealth streams. By using their substantial control rights to maximize their own wealth, large investors have the ability to redistribute organizational value in a disproportionate and inefficient manner. (Shleifer and Vishny 1997). Expropriation of value from other investors may occur if large shareholders are able to manipulate voting rights away from a one-share/one-vote allocation and has created firm inefficiency (Morck et al. 1996; Grossman and Hart 1988; Harris and Raviv 1988; Dann and DeAngelo 1983; Shleifer and Vishny 1988b).

Financing an economic organization using debt contracts is another option for reducing agency costs and enticing more efficient management decision-making. Specifically, the debt contract includes a multiple of covenants to which the borrower must adhere. If the covenants are not followed or future debt payments are not met, the lender acquires a specified portion of control rights over organizational assets via repossession or can declare the organization bankrupt. The behavioral control mechanism of the contract lies in the threat of asset control rights being transferred to the lender in the event the contract is not fulfilled and explicit identification of the cost of capital (Hart and Moore 1998, 1994a). The main cost of debt contracting arises from missed opportunities, a lack of investment by the firm in potentially profitable ventures due to increased

risk aversion, or premature liquidation of value-producing assets (Stulz 1990; Diamond 1991; Harris and Raviv 1990; Hart and Moore 1995).

THE BOARD OF DIRECTORS

The final mechanism classified as an internal governance mechanism is the governing board of directors, which is the focus of this research. In the following section I examine more closely various theories of corporate governance within the context of the governing board of directors. My primary goal is identification of contrasting elements within each of the theories and consequent operational expectations of the governing board of directors. Ultimately, this provides the theoretical basis for examining board member perspectives relative to their governing roles and testing the hypothesis that changes in organizational structure influence the perspective of and engagement in these specified roles.

Theories of Board Governance

Each theory discussed emerged under the presumption that it was the correct perspective from which to observe and study the actions and effectiveness of governing boards of directors. As outlined in Table 2C, there are fundamental differences between the four theories based on how board-level effectiveness is determined, the role that each theory assigns to the board, and the relationship between the governing board and the organization's management team.

Table 2C: Comparison of Board Governance Theories

THEORY	ORGANIZATION ISSUE	BOARD ROLE	BOARD MANAGEMENT RELATIONSHIP	PURPOSE OF BOARD ROLE RELATIVE TO THEORY
AGENCY THEORY	Separation of ownership and control.	**MONITOR**	**PRINCIPAL VERSUS AGENT**	Protect the value of owners' common interest from the self-interested motivation of management through the creation of incentive and monitoring devices.
STEWARDSHIP THEORY	Growth and evolution of the organizational common interest depends on proper nurturing.	**STRATEGIC VISIONARY**	**COLLEAGUES**	Provide expertise and insight in selecting and guiding the common interest down the proper evolutionary path.
STAKEHOLDER THEORY	The common interest of the salient stakeholder-owners is interdependent with the interests of nonsalient organizational stakeholders.	**COORDINATOR or LIAISON**	**COLLEAGUES**	Communicate, promote and coordinate the evolution and growth of the common interest among all stakeholders of the organization.
RESOURCE DEPENDENCE THEORY	Enhancement of the owners' common interest is dependent upon resources located outside the organization.	**RESOURCE PROVIDER**	**COLLEAGUES**	Provide links, through personal contacts, to resources necessary for the survival and growth of the organization.

Agency Theory

The first theory developed, and for many years the dominating theory, is agency theory. Since the seminal work of Berle and Means (1932), who first identified the problems associated with delegation of control rights from owners to management, governance reform and measures of board effectiveness have been largely tied to the ability of the board to act as a monitor and control the behavior of management (Roberts et al. 2005). As such, board effectiveness evolved into a measure of board independence from management with an

emphasis on the presence and proportion of individuals outside the organization's management team that made up the aggregate board. As outlined in Table 2C, this perspective treats the board-management relationship as adversarial and formally discounts trust relations.

Jensen and Meckling (1976) identified the agency relationship as a contract between two actors under which one or more individuals, the principals, engage another individual, the agent, to perform some service on their behalf. The crux of this relationship involves the principal delegating some degree of decision-making authority to the agent with the idea that the agent will exercise that authority in a way that maximizes the objective of the principal. If both parties are utility-maximizers, there is reason to believe that the agent will not always act in the best interest of the principal. Furthermore, information between the principal and agent relative to the relationship is assumed to be asymmetric. The combination of these two characteristics threatens the probability of a value-enhancing relationship. As a result, the principal must establish a system of incentives that motivate the agent to act efficiently and complement this incentive system with a mechanism of monitoring devices. It is also possible that the agent in the relationship will expend resources through bonding costs to guarantee that she will not entertain certain actions that would be suboptimal to the principal.

Although efforts on the part of both actors can curtail the problems of agency, it has been recognized that a complete elimination of agency activities in an organizational relationship is virtually impossible. In most agency relationships the principal and the agent together incur positive monitoring and bonding costs

and, in addition, there remains some divergence between the agent's selected decision and the decision that would be optimal to the principal. Jensen and Meckling, therefore, identified three overarching sources of costs within the principal-agent relationship.

1) Monitoring expenditures by the principal, which include measuring and observing the behavior of the agent, as well as expended effort on the part of the principal to control the agent's behavior through budget restrictions, compensation policies, and establishment of operating rules.
2) Bonding expenditures by the agent.
3) Residual loss that results from undeterred agency activities.

Agency theory, in essence, proclaims that human nature spawns two distinct conditions that impact the existence of an exchange relationship between two actors. First, since individuals are motivated to maximize their own utility, which is idiosyncratic relative to the utility of others, there naturally exists a divergence of interest between principal and agent in a relationship. The conflicting utility functions of the actors result in an inequitable distribution of benefits and costs associated with the relationship. If utility functions did not diverge, both transacting parties would achieve maximum satisfaction from the same behavior and same outcomes and agency costs associated with the relationship would be zero.

The second condition is the presence of asymmetric information between the principal and agent. For the principal, if perfect information regarding the behavior, ability, and utility function of the agent is available, it is possible to construct the perfect agent-controlling incentive mechanism *ex ante*. Similarly, if the agent can know the principal's objectives and desired means by which to

achieve them under all possible contingencies, then agency costs associated with uncommunicated wants and needs would also be zero. For the value of a principal-agent relationship to be realized, the combined negative influence of both of these conditions must be recognized and, agency advocates argue, mechanisms to ameliorate the negative influences must be developed. As such, the primary focus of corporate governance mechanisms and specifically the board of directors is to monitor and control the agent's behavior in an effort to eliminate potential negative influence on the principal-agent relationship.

Stewardship Theory

Recently the dominant view of the relationship between the board of directors and management as adversarial has come under attack. Doubt has been cast on the efficacy of agency theory and its ability to prescribe beneficial solutions to organizational governance problems (Daily, Dalton, and Cannella Jr. 2003; Hermalin and Weisbach 2003; Johnson, Daily, and Ellerstrand 1996). Various reviews of the literature on empirical testing of agency theory and its assumptions have failed to conclusively link board structural characteristics to organizational outcomes such as performance (Hermalin and Weisbach 1991), absence of shareholder suits (Kesner 1990), adoption of poison pills (Davis 1991; Mallette and Fowler 1992), and the commission of illegal acts (Kesner, Victor, and Lamont 1986). Hermalin and Weisbach (2003) surmised that there were few definitive or striking findings linking the independence of boards to board actions, organizational evolution, or organizational performance.

This lack of empirical support for the prescriptive dimensions of agency theory suggests that there are inaccuracies associated with its theoretical assumptions. Subsequent scrutiny and critiques struck directly at the behavioral assumptions that agency theory places on management. Under agency theory, the utility of management is linked solely to self-serving behavior that is, by default, counter to the common interests of the owners. Critics of the agency approach to board governance argue that much of the utility a manager acquires from the position is a product of interests that are complementary to owners' objectives. Specifically, they assume that management receives a large degree of positive utility from the satisfaction that comes from accomplishing organizational goals (Hill 1995).

The assumption of complementary interests between management and owners is formally outlined by stewardship theory (Davis, Schoorman, and Donaldson 1997; Donaldson and Davis 1991). The differences between stewardship and agency theory lie in the factors and activities that make up the nonpecuniary returns to the agent. Stewardship theorists argue that nonpecuniary returns contain not only self-serving elements but also a series of pro-organizational or pro-principal elements. Furthermore, stewardship theorists claim that placing these pro-organizational elements within the agent's personal preference ordering means that the agent gains greater personal utility from choosing to "consume" pro-organizational goods than from consumption of self-serving goods.

Explicit recognition of these pro-organizational elements within the nonpecuniary benefits received by the agent is fundamentally different than a divergence of principal-agent interests. Although one can argue that fulfillment of pro-organizational elements, which may include satisfaction from being part of a successful organization, self-actualization from being the leader of a winning team, or increased prestige in the eyes of colleagues from accomplishing a challenging group-level goal, is self-serving, it is at least complementary to the objectives of the principals.

Agency theory explicitly asserts that positive consumption of self-serving, nonpecuniary goods by the agent is beneficial to the objectives of the principals up to a point. Stewardship theorists do not dismiss the presence or relevance of self-serving nonpecuniary goods; rather, they proclaim that such goods exist in conjunction with pro-organizational nonpecuniary goods. Furthermore, the presence of pro-organizational goods can be viewed as offsetting the cost to the agent of the self-serving goods

Stewardship theory prescribes a more collaborative view of the manager-board relationship. As Table 2C indicates, stewardship theory lends itself to the notion that the board of directors' role is to encourage the pro-organizational actions of management and assist in the accomplishment of objectives by providing advice and vision in developing organizational strategies. The effectiveness of this role, therefore, has been viewed as a measure of the experience and knowledge that each member brings to the board room (Lorsch and MacIver 1989; Demb and Neubauer 1992).

Resource Dependence Theory

The board role of resource provider or networker also prescribes a collaborative relationship in which the board supports management toward achieving the goals of the organization. The primary focus of resource dependence theory is the necessary interaction of the organization with the external environment. Explicitly, resource dependence theory recognizes the organization's need to have access to external resources in order to propagate the common interest of the principal owner stakeholder.

Within the context of this theory, the governing board of directors fulfills a distinct role by providing links to essential resources or securing those resources through personal relationships with external stakeholders (Boyd 1990; Daily and Dalton 1994a, 1994b; Gales and Kesnere 1994; Johnson et al. 1996; Pearce and Zahra 1992; Pfeffer 1972; Pfeffer and Salancik 1978; Zahra and Pearce 1989). The theory of resource dependence postulates that governing boards are a mechanism by which to manage external dependencies (Pfeffer and Salancik 1978), reduce environmental uncertainty (Pfeffer 1972), and diminish the transaction costs associated with environmental interdependency (Williamson 1984). From the perspective of Pfeffer and Salancik (1978), the governing board is a vehicle for coopting important external organizations.

The resource provider role of governing boards of directors is theoretically distinct from the roles of monitor and strategic visionary, although directors may perform all roles simultaneously (Johnson et al. 1996). To survive, an organization must be able to adapt and cope affectively with an ever changing

external environment (McNulty and Pettigrew 1999). Uncertainty constrains the organization's control of resources and alters the choice set of strategic alternatives, which can impede daily operations. Effectively coping with uncertainty increases the likelihood of survival and power (Singh et al. 1986; Pfeffer and Salancik 1978). Therefore, a governing board that provides strong links to outside networks can reduce uncertainty within the organization.

Effectiveness as a resource provider depends on whether the network provides access to valued resources and information, reduces environmental dependency, or aids in establishing legitimacy (Daily and Dalton 1994a). Empirical findings support the notion that boards are effective in the acquisition of resources, can provide the organization with credibility, and reduce the transaction costs of interacting with regulatory agencies (Hillman et al. 2000; Boeker, Daily, and Schwenk 1996; Hambrick and D'Aveni 1992; Goodstein 1991; Zald 1969).

Stakeholder Theory

Stakeholder theory offers a unique view of an economic organization and the role of board governance. It describes the firm as a constellation of cooperative and competitive interests of various constituencies or stakeholders that possess intrinsic value (Donaldson and Preston 1995; Freeman 1984). As such, stakeholder theory explicitly identifies the need to manage this collection of unique interests and argues that the purpose of an economic organization extends beyond maximizing the owners' wealth. Specifically, stakeholder theory

contends that, in addition to fiduciary requirements with respect to owners, the management and governance mechanisms of an organization have social responsibilities as well. In many ways stakeholder theory resembles resource dependence theory in that it involves the organization's interaction with its contextual environment. The difference lies in the inclusion by stakeholder theory of the interests and well-being of some nonowner groups that do not directly affect the organizational objective of owner wealth maximization. Managing for stakeholders involves paying attention to the interests and fitness of more than simply those who can assist or hinder achievement of the organization's goals (Phillips et al. 2003).

Over the past two decades, the literature on stakeholders has shown considerable interest in the importance of broadening the purview of corporate governance to include other stakeholders, such as employees and representatives of the public (Donaldson and Preston 1995; Evan and Freeman 1993; Freeman 1984; Freeman and Evan 1990; Jones and Goldberg 1982; Preston and Sapienza 1990; Selznick 1992; Worthy and Neuschel 1983). In particular, writers have advanced the importance of stakeholder representation on corporate boards as an important way to uphold and legitimize stakeholder interests within these corporations (Evan and Freeman 1993; Freeman and Evan 1990; Jones and Goldberg 1982; Selznick 1992). The idea of adopting a broad stakeholder orientation to management and governance not only has been reflected in the management literature but also has been institutionalized through legal changes. By 1991, 29 states had adopted nonshareholder stakeholder

statutes, also known as other-constituency statutes (Donaldson and Preston 1995; Hansen 1991), that specify that boards of directors have a right to consider the interests of nonshareholder stakeholders in exercising board actions.

This push to involve the governing board in management of stakeholders is supported by the instrumental approach to stakeholder theory, which focuses primarily on stakeholder orientation as a means of achieving organizational success. Ethical principles and behavior by the board foster trusting and cooperative relationships with stakeholders, which in turn lead to a reduction in opportunism and contracting costs. In the end, there is an improvement in the firm's competitive advantage over firms that do not rely on ethical principles (Gibson 2000; Jones 1995; Jones and Wicks 1999). Empirical work has confirmed the positive relationship between stakeholder satisfaction and economic performance (Berrone et al. 2007).

The distinct role assigned to the board of directors by stakeholder theory is one of coordination. It has been argued that the board of directors should be actively involved in managing stakeholders and enhancing an organization's social performance (Carroll 1979; Freeman 1984). Wang and Dewhirst (1992) specifically studied the effect of a board's composition in terms of the occupations of its members on their stakeholder orientations. They found that a board of directors recognizes multiple stakeholders and that selection of individuals to serve on a board should be based, in part, on an individual's ability to contribute to managing those stakeholders.

Summary of Board Governance Theories

Each theory evolved independently and in some cases was developed to serve as a substitute for perceived inadequacies of rival theories. More recently, the complexity of board governance has led researchers to call for a new conceptual framework (Hung 1998; Tricker 2000). The individual properties of each theory, although powerful, are more and more frequently viewed as too narrow and one-dimensional (Cornforth 2004). To provide a more complete picture of effective board governance and the roles of the board, a combined, integrated framework is needed. This call for a multitheoretic, multidimensional approach to board governance is viewed as essential to recognizing how board effectiveness might be improved (Daily, Dalton, and Cannella 2003). The practical question is whether board members themselves identify with each of the operational roles assigned by these four theories of board governance. This research aims to inform this question.

CHAPTER 3

THE COOPERATIVE ORGANIZATION

COOPERATIVE STRUCTURE

Corporate governance mechanisms are a direct result of separation of ownership and control within an organization (Berle and Means 1932). Most advanced economies of the world are composed of numerous variations of economic organizations: partnerships; not-for-profit organizations; mutuals; labor-managed, limited-liability, and manager-owned firms; and cooperatives are the most prevalent. Entities can be differentiated based on several characteristics: how membership/ownership in the organization is defined, the operational format of the common interest, and how organizational benefits are distributed.

It is implied within the literature on board governance that the role of the board member, and consequently of the collective board, is multidimensional. Furthermore, the evolution of governance theory toward a more integrated perspective of board activity suggests that balance, or the ability of the board member and the collective board to enact each of the four roles identified within the competing values framework, is the mark of effective board governance. The question that this research addresses is how alternative forms of organizational structure influence the ability of a board to perform its multidimensional role in a balanced manner. This chapter examines the structure of ownership and control in a joint-integration, collective-action agricultural cooperative and proposes questions and hypotheses regarding how this alternative structure influences the ability of a cooperative's board of directors to identify and perform its multidimensional role. This discussion begins with a description of the principles of cooperation and their association with cooperative ownership and control

rights. I then develop a description of the cooperative governance environment using previous literature on cooperatives. Finally, I provide justification for the general hypotheses that guide the efforts of this research.

Cooperative Principles

A cooperative is an economic organization that is owned by its patrons and that follows at least a subset of the original 12 Rochdale Principles of Cooperation (Barton 1989, p. 27):

1) Voting is by members on democratic (one-member, one-vote) basis
2) Membership is open
3) Equity is provided by patrons
4) Equity ownership share of individual patrons is limited
5) Net income is distributed to patrons as patronage refunds on a cost basis
6) Dividend on equity capital is limited
7) Exchange of goods and services at market prices
8) Duty to educate
9) Cash trading only
10) No unusual risk assumption
11) Political and religious neutrality
12) Equality of the sexes in membership

It is safe to say that practically no cooperative that exists today follows all of these principles. This presents a challenge in trying to define a cooperative as a business because it is possible for two “cooperatives” to exhibit entirely different sets of principles. Furthermore, while some of the Rochdale principles have withstood the test of time to become fundamental to cooperative structure, others are now obsolete due to technological evolutions in common business practices. For example, conducting business on the basis of cash alone may have been appropriate during the eighteenth century, when banking and credit systems were relatively undeveloped, but in the modern era prohibiting credit

purchases would certainly constrain the competitiveness of a cooperative. It has been argued (Staatz 1987) that farmer cooperatives today fail to follow even some of the more fundamental Rochdale principles. The principle of open membership is practiced only to a limited degree as all farmer cooperatives require that members be farmers, thereby decreasing the “openness” of membership.

Given the variation in cooperative practices and the ambiguity of using the Rochdale principles to define a cooperative organization, it is practically impossible to devise a concise definition of a cooperative that would include all organizations that appear, based on everyday observations, to function as cooperatives (Bateman, Edwards, and LeVay 1979). Consequently, this research defines a cooperative by elaborating on the argument presented by Schaars that there are only three principles that are essential to all cooperatives (cited by Roy (1976, 259)).

1) Service at cost to user-owners;
2) Democratic control by user-owners;
3) Limited return on equity capital.

Incorporating the three Schaars characteristics with their corresponding listings in the original Rochdale principles, three principles common to most farmer cooperatives and used by Staatz (1987) to define a “pure” farmer cooperative can be identified. For the purpose of this research, an agricultural cooperative firm is defined as a business with the following characteristics (Staatz 1987, 35).

1) **User-Owned**: The member-owners, who are farmers, are the major users of the firm's goods and services.

2) **User-Benefited**: The benefits a member receives from committing capital to a cooperative are tied largely to patronage. There are three reasons for this:

   a. The business pays a strictly limited dividend on equity capital invested in the organization.
   b. Net margins are distributed among members in proportion to their patronage with the business rather than in proportion to their equity ownership of the firm.
   c. Stock of cooperative firms does not appreciate because there is a very limited or nonexistent secondary market for it. Therefore, capital gains are not a major benefit of stock ownership in cooperatives.

3) **User-Controlled**: The formal governance of the firm by the member-owners is structured democratically.

   a. Voting power is not proportional to equity investment nor, in most cases, based on level of patronage. Voting is limited to a one-member/one-vote rule. In some cases voting may be proportional to patronage but is subject to some limit, such as restricting any one member from having more than 5 percent of the total votes.
   b. There are strict limitations on the number of nonmembers who may serve on the governing board of directors.

These three principles have such a tradition within the U.S. cooperative movement that they have been formally recognized by cooperative policy legislation, including provisions of subchapter T of the Internal Revenue Service code, the federal tax provision of Section 521, the Capper-Volstead Act for antitrust exemption, and the Security Act of 1993, which describes a cooperative's obligations in regards to the initial offer and sale of securities (Iliopolis 1998). All of these legislative acts and respective federal agencies are explicit that a cooperative, in order to be recognized as such, must "operate on a

cooperative basis," which has always been interpreted to mean user owned, user controlled, and user benefited.

Historically, agriculture cooperatives in the United States have identified themselves based on the presence of these three principles, in addition to the principle of open membership for all producers of the agriculture commodity involved. These principles represent a philosophy of ownership based on use of organizational assets rather than ownership based on equity capital investment that is the case in an investor-owned firm (IOF). This fundamental difference in ownership philosophy creates a unique and challenging organizational environment within which the governance mechanisms of the cooperative must operate. Specifically, the three principles of cooperation provide a basis for defining the property rights associated with being an individual owner in a user-owned organization. As will be explained in the following sections, it is, in fact, the presence of ill-defined ownership property rights in traditional cooperative organizations that has led to governing and operational challenges.

Property Rights of Cooperative Ownership

Studies of economic organizations have recognized that the most important rights associated with organizational ownership are the ones that identify the residual claimant and how residual rights of control are allocated and delegated (Milgrom and Roberts 1992).

Residual claimant rights are associated with claims to the remaining gross cash flow generated by the organization after all fixed claims have been settled (Fama and Jensen 1985). The literature on the property rights structure of

organizations has identified four characteristics of ownership that are present in some form or another in every organization: 1) ownership of residual claims and the alignment of residual control rights with residual claimant rights, 2) the ability to transfer rights of residual claims to others, 3) the ability to redeem the value of residual claim rights, and 4) the ownership horizon of residual claims (Condon 1990).

The manner in which residual claim ownership is defined has important implications for an organization. The size of the owner pool is an example. As the number of individual owners increases, the amount of risk assumed by each individual decreases (Jensen and Meckling 1976). Similarly, residual control rights over a firm's assets affect the net income generated by that asset and alter the value of holding the organization's residual claim.

Ownership is affected by the degree of alignment between residual control rights and residual claimant rights. The most popular view of what constitutes effective ownership follows the thinking of Milgrom and Roberts (1992), who argue that ownership should involve the equal distribution of residual claimant rights and rights of residual control. It is hypothesized that economic decisions by the organization's stakeholders tend to be inefficient when residual control rights and residual claimant rights are not aligned. This is, in essence, the argument that supports the agency theory's perspective of governance, although in agency theory the misalignment is due to a delegation of control rights to a management stakeholder with little or no residual claimant rights.

Transferability and redeemability refer to the ease with which an individual can dispense of property rights associated with the organization. Transferability identifies the simplicity with which a current owner can transfer all or a portion of his ownership rights to another individual. Redeemability defines the ease with which a current owner can cash in her existing ownership rights by selling them back to the organization. The ownership horizon pertains to the length of time an individual's ownership rights remain valid. For example, workers in a production cooperative hold residual claims only as long as they work for the organization (Jensen and Meckling 1979).

Residual Claimant Rights

The most fundamental difference between a cooperative member-owner and the equity shareholder in an IOF is in the concept and derivation of their respective organization's residual returns or wealth streams. This difference is born of the user-benefited principle, which ties owner benefits to patronage. In an IOF, wealth for the shareholder is created via two general streams: 1) capital gains, or the rise and fall of the share price, which depends on the expected future value of the profit stream generated by the firm's assets; and 2) the share of current profits in the form of dividend payments. Although each of these streams represents a separate form by which the investor can benefit from ownership in the firm, the underlying objective of maximizing firm profit remains the same. In a cooperative, ownership wealth is derived from the perspective of a user and is based on the level of patronage or usage of cooperative assets.

Again, there are two distinct wealth streams for the cooperative member-owner: 1) the wealth that is created through improvements in the individual member's on-farm performance as a function of cooperative patronage, and 2) the direct share of cooperative-level net earnings, which is allocated in proportion to patronage. As Staatz (1987) hypothesized, the binding of wealth to cooperative patronage expands the scope of the cooperative's objective function and makes the derivation of wealth by its members much more ambiguous compared to an equity shareholder in an IOF.

Tying benefits to the level of patronage leads cooperative members to adopt a joint profit-optimization objective, which, in an agriculture cooperative, involves optimization of a combined profit function that represents both the cooperative and the individual member's farms. Rather than viewing the cooperative and the farm as separate profit centers, as an investor-owner who possesses a diversified stock portfolio might do, the farmer-member of the cooperative integrates the farm and cooperative into one profit center. This type of optimization environment increases the complexity of the cooperative's performance measures since each individual member, with unique resource endowments and efficiency levels, operates on a unique cost function, which affects the clarity of the objective.

In addition to the uniqueness associated with the user-benefited principle, there are specific property right characteristics with regards to the acquisition and divestiture of cooperative ownership. These rights stem from the user-owner principle. For one, the population of potential cooperative members is restricted

to individuals who will be patrons or customers of the firm, which in an agriculture cooperative typically include producers of raw agriculture products. In contrast, ownership rights in an IOF are available to anyone who has the desire to invest equity capital in the organization, regardless of whether she plans to consume the goods or services of the firm. In addition, current user-owners of traditional cooperatives are not allowed to transfer ownership or redeem the equity value of that ownership. This arrangement creates a barrier that constrains the individual user-owner's option to exit the organization easily even though it may be in an individual's best interest and in the interest of the collective membership.

Residual Rights of Control

Two elements are fundamental to any organization's control structure. The first element may be described as the formal distribution of the endowment of control rights to the owners of the organization or the alignment of residual control rights with rights to residual returns. The second element involves subsequent, formally recognized channels by which the original endowment of control rights is delegated to various stakeholders within the organization. One may consider the second element as the institutionalized means by which the separation of ownership and control is realized. Traditional cooperatives are differentiated via both the allocation of control rights and subsequent delegation of those rights via selection of a governing board of directors.

Oliver Hart (1995) claimed that ownership of an asset is defined by possession of the residual right of control over that asset. That is, the owner of

an asset has the right to decide how to use it in any way not inconsistent with previous contract, custom, or law. When an asset has a large dispersed ownership, how should residual control rights be allocated among the owners? It has been argued that the efficient allocation is to tie the level of an owner's control rights to the degree of claim that owner has on the residual returns of the organization. In an IOF, this is accomplished by allocating control based on a one-share/one-vote mechanism (Hart 1995). With the purchase of one share, the owner acquires one share of residual risk, one share of residual control over the asset, and one share of residual income produced by the asset. In a cooperative, the level of residual control per member is predetermined by the democratic principle of one-member/one-vote. Residual control rights are not allocated according to the level of risk nor are they tied to residual returns.

The second element of the control structure that is unique in cooperatives lies in the composition of the board of directors. The cooperative board is constrained more in terms of composition than is the board of any other form of economic organization. In many instances, membership terms and restrictions in state enabling laws and cooperative bylaws explicitly limit who is eligible for election to the cooperative board of directors. In centralized cooperatives, bylaw provisions almost always restrict directors to members who are not employees of the cooperative (Garoyan and Mohn 1976). Bylaws of federated cooperatives are less restrictive and often permit executives from local cooperatives on their boards. In contrast, proprietary corporations select board members without such constraints. The director of an IOF does not have to be affiliated with the firm in

any way. Again, these constraints on who may serve on the board reflect the principle of democratic cooperative control. It is the traditional belief that a board that is supposed to represent the collective will of the membership must consist of member representatives who adequately reflect diverse owner interests. Although this aspect of the cooperative board may assist in identification of the members' collective will, it limits the potential director pool, which constrains the delegation of control rights to fellow cooperative members.

THE GOVERNANCE ENVIRONMENT OF COOPERATIVES

In his classic contribution to organizational theory, Mancur Olson (1965) examined individuals' motivation to join a group and become part of a collective action. As a starting point in the development of his theory, Olson identified the common characteristic that is present in all organized groups.

> There are all types and shapes of organizations, and there is then some question whether there is any single purpose that would be characteristic of organizations generally. One purpose that is nonetheless characteristic of most organizations, and surely of practically all organizations with an important economic aspect, is the furtherance of the interests of their members. (1965, 5)

Not only must an organization's purpose be the furtherance of the interests of its members but the nature of the "interests" must be commonly shared by all of the individuals who identify themselves with the organization. Olson is explicit in his proclamation that if the main interests being championed by the organization are not common to all members then there is no rational basis for the existence of group behavior.

The interests that all types of organizations are expected to further are for the most part common interests: a union members' common interest in higher wages, the farmers' common interest in favorable legislation, the cartel members' common interest in higher prices, the stockholders' common interest in higher dividends and stock prices, the citizens' common interest in good government. It is not an accident that the diverse types of organizations are all supposed to work primarily for the common interests of their members. Purely personal or individual interests can be advanced, and usually advanced most efficiently, by individual, unorganized action. There is obviously no purpose in having an organization when individual, unorganized action can serve the interests of the individual as well as or better than an organization. When a number of individuals have a common or collective interest, when they share a single purpose or objective, individual unorganized action will either not be able to advance that common interest at all or will not be able to advance that interest adequately. Organizations can therefore perform a function when there are common or group interests, and though organizations often also serve purely personal, individual interests, their characteristic and primary function is to advance the common interests of groups of individuals." (1965, 7)

This insight provided by Olson, although relatively simple, is extremely powerful. The existence of the common interest is the life source of any organized collective action. In the continued development of his theory, Olson examined individual member's behavior relative to acquisition of the common interest. Using the behavioral axiom of individuals maximizing their own utilities, Olson identified the key challenge to successful group action as classic self-interested utility maximization versus the common interest of the group. As the individual member is motivated to personally "consume" the benefits provided by acquisition of the common interest, he is likewise motivated to "consume" at the lowest personal cost possible. In other words, he wants something for nothing. The remainder of Olson's discussion deals primarily with how organizations confront the detrimental behavior related to an individual's self-interest. Olson notes that organizations must use either enforced coercion or mechanisms of

selective incentives to motivate individual members to adequately contribute to the costs of fulfilling the common interest of the group. Olson's argument is further supported by Miller (1992), who refers to the "social dilemma" of group action and the need for incentive systems to align individual self-interest with the collective good of the group.

Implicit in this discussion is the assumption that the organization's collective interests are well defined and static. Granted, in some organizational forms the operationalized form of the collective interest is fairly clear. For example, in an IOF the salient members, the investor-owners, share a relatively clear common interest—profitability of the organization. Furthermore, one could argue that the nature of firm profitability as the common interest of the investor-owners remains constant over the life of the organization. In contrast, Olson (1965) cites the citizens of a state and their collective interest in "good government" as an example of group action. The question raised is how do we define and operationalize "good government"? Olson fails to address this quandary in the development of his theory. In fact, he explicitly states that an underlying assumption throughout his discussion is that a 100 percent consensus exists among the members of the organization relative to the purpose of the group. He further acknowledges that, although the degree of consensus may not dictate initiation of group action, it is important for the cohesion and health of an existing organization.

> It is often assumed in discussions of organizational or group cohesion that the crucial matter is the degree of consensus; if there are many serious disagreements, there will be no coordinated, voluntary effort, but if there is a high

degree of agreement on what is wanted and how to get it there will almost certainly be effective group action. Consensus is sometimes discussed as though it were the only important determinant of group action or group cohesion. There is no question that a lack of consensus is detrimental to the prospects of group action and group cohesion. But it does not follow that perfect consensus, both about the desire for the collective good and the most efficient means of getting it, will always bring about the achievement of the group goal. (1965, 59)

The collective interest signifies the target objective of any group action. In some cases this target interest is well defined and unaffected by alterations in the organization's external environment, as is the case in an IOF. But for some organizations the collective interest is highly influenced by the dynamics of the external environment. For example, changes in technology that lead to increased specialization in an individual's personal preferences can be viewed as influencing the nature of the collective good. Conceptually, such increased specialization would manifest itself via an increase in heterogeneity among individual members relative to their perceptions of how the common interest of the group should be defined and operationalized. It is this scenario that has been observed in agricultural cooperatives in the United States.

Heterogeneity of Cooperative Members and the Dynamic Collective Good

Most agriculture cooperatives in the United States originated in the late 19th and early 20th century because of an absence of competitive markets, an absence of private goods, and/or asymmetry of information (Nourse 1922). The chaotic agricultural environment of the early 20th century, caused by the end of World War I and a post-war world agricultural depression and aided by the benefit of supportive cooperative anti-trust legislation, led to the slow rise of

agriculture cooperatives as a major player in the food and fiber industry. From the mid-1920s to the mid 1980s, agriculture cooperatives in the United States enjoyed consistent increases in aggregate market shares of farm inputs sold, farm commodity marketing transactions, and services provided (Cook 1995).

Running parallel to the historical advancement of agricultural cooperatives was the path-dependent evolution of traditional policies and practices associated with cooperative's structure, which are grounded in the three "hard core" principles previously discussed. Operations within most of the 12,500 agriculture cooperatives founded in the 1920s centered around the paradigms of open membership, democratic control, capital formation with residual claimant rights restricted to member patrons, redeemable ownership rights, and allocated residual claims going only either to members or back to the organization.

During this evolutionary period between the 1920s and early 1980s, risk capital formulation within traditional cooperatives was done one of two ways: passive member investment or quasi-passive investment (Cook and Plunkett 2006). Passive investment involved holding member-allocated and unallocated residual earnings at the cooperative level to provide working capital. The residual earnings were made from sales of inputs to member-patrons and marketing of member-produced commodities. Member-allocated residuals were then given back to members at book value at some future time period, often years later. Quasi-passive investment for pooled marketing cooperatives with no input-supply activities involved withholding member capital retained from commodity sales for cooperative working capital. Similar to allocated returns, the withheld capital

retains would go back to members at book value but generally after a shorter period of time.

The traditional form of agricultural cooperative in the United States has been identified recently as a defensive model of cooperation (Cook and Plunkett 2006). The title “defensive model” denotes the objective of the joint integration between farmers and the cooperative of defending the economic position of the farmer patron relative to upstream or downstream transactors. The operations of the traditional defensive model focus on patron-oriented incentives designed to increase economic rents at the members’ farm level at the expense of economic performance at the cooperative level. The purpose and objectives of the traditional defensive or patron model for agricultural cooperatives are consistent with the Noursian “competitive yardstick” paradigm, which states that the market-oriented reason for collective action was to enhance competitiveness in markets where Walrasian equilibrium results failed to materialize.

Member benefits at the individual farm level in traditional cooperatives open the organization to the threat of membership heterogeneity. In this operational form of the user-owner core principle, an individual member conceptualizes cooperative performance jointly with on-farm performance. This creates the potential for a situation in which the cooperative cannot manifest the common interest of its members into one clearly defined locus of optimization (Staatz 1987). To conceptualize this notion, it is helpful to view the case in which all members of the cooperative are 100 percent homogeneous relative to on-farm production. In this hypothetical world, each member-owner of the cooperative

would operate with the same level of resources, including identical land area and production capacity. Furthermore, each member would operate using the same quantity and value of nonland assets such as machinery. This homogeneity in farm production resources translates into an identical on-farm profit function for each member. Theoretically in this scenario each member would derive benefits from cooperative usage in precisely the same manner. The general common interest of increasing the wealth of all farmer-members would translate into an easily identifiable operational interpretation. In contrast, a deviation from this perfectly homogeneous setting toward a more realistic situation in which individual farmer-members operate under idiosyncratic conditions, operationalization of the general common interest becomes more complex and less well defined. The situation is further advanced by the evolution of production technologies, which give rise to increasing specialization of farm production. It is logical to assume that adoption of new farm technologies is not uniform across all members, further increasing heterogeneity between agricultural producers.

Economic heterogeneity among members of traditional agricultural cooperatives, although always present, becomes a major threat during what has been described as the internal-conflict portion of the lifecycle of a defensive patron-based cooperative (Cook 1995). The internal-conflict stage represents the third of five stages in the cooperative life cycle—it is preceded by stages of genesis and growth and followed by stages of recognition/analysis and option choices.

The presence of economic heterogeneity among members has been empirically examined. In a study of cooperative members in Alberta, Canada, Richards et al. (1998) explicitly modeled the presence of heterogeneity among members. Specifically, they developed an econometric model to test differences between members' expectations and perceptions of managerial objectives and how various socioeconomic variables affect the extent to which the objectives are aligned among members. The study explicitly recognizes that the form by which individuals receive benefits from the cooperative is unique to each member. In other words, the self-interest of the individual member and the common interest of the group diverge.

The authors attempt to model the heterogeneity of the group using a particular, limited set of socioeconomic variables. They state that the variables used imply an important assumption that most of the heterogeneity among cooperative members can be explained by these factors. The more significant finding regarding members is differences associated with their age. Younger members were more concerned with the direct price of transactions relative to management than older members. This reflects the influence of horizon differences on expectations of the cooperative. There also were statistically significant differences between age groups regarding the importance of variety of product available, customer service, managerial expertise in advising, quality of products sold, return on equity, value added, proximity of services, and education and information management. Not surprisingly, younger members placed less importance on items that did not reflect the economic benefits of being a

cooperative member. Rather, younger members responded that the “bottom line” was what really mattered to them.

The negative influence of economic heterogeneity on the cohesion and vitality of the cooperative has been recognized in the literature. Some have observed a need to build stronger group unity as a means to counter the negative influence of heterogeneity of economic interest in the cooperative (Carman 1997; Royer 1992; Gray 1986; Shaars 1957). Carman (1997) described the concept of ideological glue in his empirical inference. Conceptually, ideological glue may be thought of as the power or importance of the common interest. Carman stated emphatically that the common interest among the collective’s members is of paramount importance to the success of the cooperative. One of the tasks of cooperative management, as observed by Carman in his comparative institutional study of four cooperatives, is to constantly strive for membership consensus. Management was concerned about softening of the ideological glue and, as a result, weakening of the cooperative. Cooperative managers were observed spending a great deal of time relative to their IOF counterparts in direct one-on-one communication with member-owners. Carman’s findings are supported by the observations of Cook (1994), who postulated that managers in a cooperative face unique conflicts that fall under the generalized category of stakeholder conflict. These emanate primarily from conflicts over resource allocation among members and are rooted in vaguely defined and poorly communicated property rights of ownership.

Along the lines of Olson's (1965) claim about the importance of consensus to the health of an organized group, one can view the increase in economic heterogeneity between member-owners of an agricultural cooperative as a decaying of the common interest of the group. Furthermore, this decaying is a progressive event and challenges Olson's assumption that the nature of the collective interest in an organization is static. Such an organization's structure must possess the capability to adapt to a changing environment and management willing to redefine the common interest of salient members, two characteristics that are arguably lacking in traditional cooperatives.

Carman (1997) suggested that the inefficiency in cooperatives in coordinating external contingencies results from member-owners resisting change due to their heterogeneity of interests in how benefits are distributed. Carman built on work by Collins and Porras (1994), who evaluated the proposition that collective-interest problems can be overcome if organizational leaders are able to develop a common culture among members that unites individual objectives with organizational objectives. Carmen postulated that the inefficiencies found in cooperatives can be resolved if their leaders foster a sense of unity among member-owners. In his analysis of four cases, Carman found that the heterogeneity of cooperative members relative to the common interest directly hindered the cooperative from being an engine of change. He observed a strong tendency among board members to protect the income-generating capabilities of their personal on-farm assets at the expense of what was good for the cooperative. One potential flaw with Carman's recommendation of promoting

a culture of unity is that it lacks content. Since an agricultural cooperative is organized for economic purposes, the building of organizational unity must be centered on shared, operationally defined economic interests. Attempting to build cooperative unity on noneconomic or poorly defined incentives is far more difficult.

For the traditional patron-based agricultural cooperative, the pressure from members' economic heterogeneity reached a critical point in the mid-1980s when the U.S. agricultural industry was caught up in a significant economic depression that unleashed an attack on an overvalued and undercollateralized agricultural sector. Cooperative market share, which had exceeded 30% on an aggregate level, dropped to approximately 25% in 1986-87 (Cook and Plunkett 2006). This environment of economic crisis placed critical pressure on the balance between the farmer-patron's self-interest and the collective interest of the cooperative and intensified the problems associated with the traditional cooperative structure. The stark reality of this experience was that traditional patron-based cooperatives added little value to members' asset bases and became ineffective at "defending" members' economic position in the market. As a result, some cooperative structures went through a period of great innovation and radical change.

The economic crisis of the U.S. agriculture industry in the mid-1980s was the catalyst behind an innovative revolution in cooperative organizational design. The crisis, along with external influences of increased globalization, industrialization, consolidation, technological advance, and the institutional

uniqueness of different states, led to the 1990s becoming a period of change in cooperative organizational structures around the world.

In the Netherlands, traditional marketing cooperatives were pressured by increased differentiation on both the demand and supply side of the industry. Producers faced increased competitiveness as a result of larger, more demanding, and more segmented consumer markets. From the supply perspective, changes on the demand side forced producers to indicate preferences for how to meet the changing demand scenario. Producers sought greater efficiency in serving new consumer markets, making traditional cooperatives obsolete and creating divisions among cooperative patrons. The "new" group of producers desired an organization that focused more on value-added, vertically integrated, more capital intensive systems while those that favored the traditional role of the organization wanted more focus on the merging of markets and improved price-discovery functions. As a result, between 1995 and 2001 74 new growers' associations were formed in the Netherlands' fruit and vegetable sector (Bijman and Hendrikse 2003).

The experience in the Netherlands is an example of the revolution in producer-owned organizations in the 1990s. The economic pressures experienced in the 1980s exacerbated the heterogeneity of economic interests among cooperative member-patrons and drove the dissolving of cooperative common interests. As a reaction to this weakening of the common interest, new forms of collective action started to emerge that aimed to create a more strategically offensive cooperative. Chaddad and Cook (2004) examined the

fruits of this period of innovation and developed a taxonomy of cooperative organizational models. Differentiation from model to model is embedded in the structural attributes of the ownership structure, membership policy, voting rights, governance structures, residual claim rights, distribution of benefits, and strategy-structure interface. Chaddad and Cook found that there were, in addition to the traditional model, other distinct organizational models, which include (1) proportional investment models: member investment cooperatives, including subgroups that offer participation units, cooperative capital units, and redeemable preference shares: (2) new-generation cooperatives; cooperatives with capital-seeking entities, including equity based strategic alliances, trust companies, and subsidiaries; (3) investor-share companies, including preferred stock cooperatives, nonvoting common-stock organizations, and investor participation share models; and, finally, (4) conversions from a cooperative to an IOF.

The main difference between new and traditional cooperative structures is strategic philosophy. As mentioned previously, traditional cooperative structure was designed to play defense by protecting farmers from opportunistic behavior of input suppliers and commodity marketers. The primary objective of the organization was not return on capital at the cooperative level but rather to safeguard on-farm returns. In modern business thinking, this patron strategy can be thought of as a real option, which is defined in the literature as an option found in real assets that owners or managers can exercise to mitigate potential loss. The true return of organizational assets, therefore, is the discounted cash

flow plus the value of the option embodied in the asset. For member-patrons of a traditional cooperative, the real option lies in the ability of the member to transform a loss due to opportunism into an on-farm investment opportunity. Therefore the value of membership in the cooperative is expected increases in on-farm returns via patronage and not through returns on capital via investment at the cooperative level.

The new breed of agriculture cooperative organizations is structured around a strategic philosophy that focuses more on cooperative-level performance with membership value being a function of cooperative-level investments. The farmer-members of an offensive, patron-investor-oriented cooperative seek to extract Ricardian rents from the market by assembling superior productive factors that are either not expandable or very slow to expand and therefore limited in supply. These production resources are scarce—their quantity is insufficient to satisfy demand. Cooperatives that possess these resources can earn economic profits. To achieve this shift in strategy from a defensive to an offensive orientation, elements of the traditional cooperative structure had to change. This call for change spawned the innovations of the 1990s. Foremost was the development of tools to enhance capital formation, such as upfront equity capital requirements in the form of member-purchased delivery rights and other types of appreciable and tradable assets. Tied to the investment and purchase of equitable assets was the increased ease with which a member could exit the cooperative. With the value of membership now tied to an appreciable and tradable asset, a member could more readily cash out.

Finally, the advancement of closed membership policies became a necessity to maintain the value of membership and of investing in cooperative assets. These innovations created a cooperative structure that assures that farmer-members benefit at the cooperative level as investors while maintaining benefits as a user by continuing to mitigate expected losses on the farm from opportunism.

The required structural changes, including closed membership, upfront equity investment, and the purchase of appreciable and tradable delivery rights, represent a shift in interpretation of two of the three primary principles of cooperative organization: user ownership and user benefit. Within the patron-investor cooperative, these two principles may be better labeled as user/investor owned and user/investor benefit. The one principle that has not seen significant reinterpretation or structural change is the user-control principle. Patron-investor cooperatives, like traditional patron counterparts, still use a one-member/one-vote method of democratic control and select potential members of the board of directors primarily from the membership pool.

Cooperative Governance and the Cooperative Board of Directors

Empirical work on the boards of directors of U.S. agriculture cooperatives has been extremely limited. To date, the primary focus of literature pertaining to the governance of cooperatives has been the interface between management and cooperative members and determinations of management performance. For example, Trecther and King (1995) performed statistical analyses to determine factors that influence cooperative managers' compensation. Specifically, they tested the dependent variable of total compensation against exogenous variables

of profitability or local net margin, size of the organization as measured by total assets and gross sales, and measures of managerial qualifications. The influence of profitability was positively related to compensation levels but was not as significantly positive as the other factors. The authors also found a significant positive relationship between management performance, as measured by returns on assets, and the salary of the manager. They concluded that managerial compensation in cooperatives is more closely related to the size of the organization than to profitability.

A follow-up study conducted in 1998 (King, Trecther, and Cobia 1998) offers a more in-depth analysis of the factors that influence cooperative management compensation. In general, those findings suggest a stronger relationship between the general manager's compensation and the profitability and efficiency of the cooperative.

Other studies of governance have focused on the divergence of expectations between members and management. Richards, Klein, Walburger (1998) in their study of Alberta, Canada, cooperative members analyzed members' expectations of appropriate cooperative objectives against their perceptions of how cooperative managers ranked the same set of objectives. Implied in this study is a lack of clarity in the organization's objective function that leads to costs associated with the agency relationship between members and management. Furthermore, this difference among members permeates through the organization and results in differences of opinion between members and management regarding both the ends and the means by which to meet those

ends. The authors found a significant difference between the objectives of member-owners and managers and that the majority of the difference was a function of the characteristics of the member-owners.

Further research on cooperative governance has focused on the impact of the democratic control principle on the general efficiency and effectiveness of the organization. The principle of democratic control contends that decision-making within an organization (a firm, cooperative, or political state) should be based on sovereignty and equality. Each individual who is affiliated with the organization and so has decision-making rights should have the ability to create and affect decisions—sovereignty—regarding how the organization operates and toward what ends. Furthermore, a democratic decision-making framework requires all sovereign members of the organization to have equal degrees of decision-making ability or authority.

Gray (1986) explored the challenges of democratic control in his examination of representation mechanisms in western European cooperatives. Gray argues that the members' ability—within the defining limits of an organized cooperative—to shape the organization toward the form collectively required by the members should remain constant. Furthermore, Gray contends that the central dilemma for cooperatives is combining advantages of economies of scale with mechanisms that preserve and enhance member sovereignty and equal representation. At a minimum, mechanisms capable of handling large numbers of members who are heterogeneous in their user needs are required. The cooperative's control structure, which represents the member's voice, is

important to maintaining effective and democratic control, which, from Gray's perspective, is vitally important.

Robotka (1947) provided an argument against cooperatives using a pure form of democratic control. He claimed that the democratic principle in early cooperatives developed from the mentality that cooperatives represented organizations of individuals rather than an organization of capital. He further postulated that the democratic principle survived as cooperatives evolved and the homogeneity of the membership declined because of political and psychological concerns, including the fear that unequal voting would result in favoring the interests of the wealthy rather than the interests of all members.

Robotka observed that the ideology of equal voting rights, as opposed to equitable voting rights, among members at times has hindered the potential for collective action. In cases in which a subgroup of member-owners assumes a majority of the risk associated with cooperative assets, that group may feel that its interests are not well protected under the one-member/one-vote principle. Robotka, in viewing the cooperative as purely an economic structure, promoted the idea that voting rights should be proportionate to the degree of risk assumed by the member-patron, a viewpoint that is shared by other cooperative scholars and economists (Phillips 1953; Shaars 1957; Royer 1992; Hart 1995). Royer (1992) expanded on Robotka's argument, stating that the one-member/–one-vote mechanism in cooperatives worked satisfactorily due to the homogeneity of interests shared by the members of most local farm supply, service, and consumer cooperatives. However, as the cooperative movement in the United

States grew, particularly in western states, the size and nature of producer operations became increasingly heterogeneous. Shaars (1957) carried the argument a little further, claiming that the awarding of voting rights on the basis of patronage is still democratic in that it recognizes differences in economic interests of the members and the importance of volume to a cooperative's effectiveness as a player in the market. In other words, proportional voting is a mechanism by which both individual self-interest and the collective interest of the membership is recognized and actively addressed .

Research on cooperative governance has provided insight into the challenges of cooperative decision-making in the context of the principles of user-ownership and democratic control. What is lacking is an examination of how the principles and organizational structure of traditional agricultural cooperatives are translated at the board level. For the most part, the empirical work to date has painted cooperative governance with a broad brush without examining the board of directors internally. One can argue that inconsistencies in previous empirical studies may be linked to their assumptions regarding the board of directors. The effectiveness of organizational governance runs parallel to the effectiveness of the board of directors. As such, effective cooperative governance will remain a mystery until a greater understanding of the behavior and perceptions of the cooperative board of directors is achieved. It is the goal of this research to bring the workings of the cooperative board to light through an empirical description of how the board of directors of a cooperative governs the

organization. The next section offers a more explicit presentation of the research questions and hypotheses to be addressed in this dissertation.

RESEARCH QUESTION AND HYPOTHESES

The member-control principle of cooperative organization is operationalized in the selection of individuals to serve as members of the board of directors. Unlike IOFs in the United States, which possess the freedom to strategically select individuals from any stakeholder group to serve as members of the board of directors, cooperatives must democratically elect their board members from the membership pool. This form of selection, which is unique to the cooperative, impacts three dimensions of the governing board: intellectual and social capital and the board member's relationship with the organization.

Intellectual capital is defined as the wealth of knowledge, skills, and experience provided to the position by the board member. The level of intellectual capital depends on factors that include the amount of formal education completed and the scale and scope of the member's experience in business, leadership roles, and boards.

By limiting the selection of board members to the cooperative's membership pool, the organization creates constraints that can limit the breadth and scope of its board's intellectual capital. Ironically, although members' economic heterogeneity has been identified as an issue for cooperatives, the selection of board members is arguably a problem of excessive homogeneity. The members of a farmer cooperative are still farmers. This fact translates into

board members who represent the same industry link in the food and fiber chain. As a result, the level of intellectual capital relative to the agriculture chain of production is limited in scope.

Social capital is a measure of the quality and quantity of personal relationships that the board member has with individuals and groups outside the organization. The cooperative's selection constraints also influence the quality and quantity of social capital that board members can provide. With the focus limited to the producer level of agriculture production, cooperative board members likely have limited contact outside of their fellow member-owners. Furthermore, since the pool of potential board members comes from a relatively homogeneous background, redundancy in member's social networks is likely.

The fact that board members come from the pool of user-members translates into a unique relationship between the board member and both the cooperative as a collective entity and individual member-owner constituents. With regards to the relationship with fellow user-members, democratic elections from within the membership transforms a board member's role to one of coordinator. The coordinator role in board governance is derived from stakeholder theory: an organization represents a nexus at which individuals from multiple stakeholder groups interact. The coordinator role for board members is one of diplomacy and the board member is selected based on an ability to communicate between with various stakeholder groups and management about organizational issues. Within a cooperative organization, this coordinator role mutates, becoming member representation, requiring most board members to focus solely on the members,

communicate their needs to management, and relay management's actions back to the members. There are two justifications for this transformation. First, each board member is selected from the membership, not from other stakeholder pools, limiting the ability of the board to represent or communicate the needs of nonmember stakeholders. Second, the democratic election of the board by the membership pool dictates the expectation that the primary directive of the board member will be to act as a delegate or trustee and represent the needs and wants of fellow members. This emphasis on the interests of the constituent membership is further enhanced by the multidimensional aspect of members' derivation of benefits. The economic heterogeneity of cooperative members calls for an increase in the degree of diplomacy required by the cooperative board in communicating between members and management.

The user-member relationship with board members and the cooperative business requires board members to confront their conflicts of self-interest versus cooperative common interest while governing the organization. Agency theory suggests that greater self-interest or dependency on the cooperative organization for personal on-farm performance and wealth increases the importance the board member will place on monitoring the organization's daily operations. For the member of a traditional, patron-oriented U.S. agriculture cooperative, the level of self-interest is dictated by a combination of the level of on-farm business conducted through the cooperative as farm input purchases and product marketing and the dependence of the farm on the cooperative for personal household income. For members of a patron-investor-oriented, new-

generation agricultural cooperative, where upfront financial commitments for members are greater, self-interest in cooperative-level operations increases. All other things being equal, the additional financial commitment required for membership in a new-generation cooperative would likely translate into greater emphasis on the monitoring role for board members.

Research Question

The main goal of this research is to open the "black box" of cooperative board governance and develop an empirically based description of the activities, attitudes, and characteristics of members elected to serve on a cooperative's governing board. Two overriding research questions are addressed.

> **Research Question #1: *What roles do governing boards of directors of U.S. agricultural cooperatives play in governing their organizations?***
>
> **Research Question #2: *Do boards of directors of patron-investor U.S. agricultural cooperatives play the same roles as boards of directors of patron-oriented U.S. agricultural cooperatives?***

These two questions lead to three main areas of hypotheses. The first includes comparison of board members from strategically defensive, patron-oriented cooperatives with those from strategically offensive, patron-investor cooperatives. The second examines correlated aspects of the four theoretical roles of board governance and how they interact within the board rooms of agriculture cooperatives. The final area examined is the degree of balance in

board members' level of effort and cognitive perception toward each of the four governance roles.

Comparative Hypotheses

The user-control principle dictates that board members for a cooperative must be democratically elected from the membership pool by fellow members. This criterion has been maintained through the evolution from traditional patron-oriented structures toward strategically offensive, patron-investor agricultural cooperatives. It is therefore logical to hypothesize that levels of intellectual and social capital in the two types of boards are equal. This assumption leads to the first set of testable hypotheses (Table 3A).

Table 3A: Hypotheses on Intellectual and Social Capital

Variable	Hypotheses
Intellectual Capital	**Ho:** Board members from traditional patron-oriented cooperatives possess a level of intellectual capital **equal** to the level of intellectual capital that board members from new-generation, patron-investor cooperatives possess. **Ha:** Board members from traditional patron-oriented cooperatives possess a level of intellectual capital **unequal** to the level of intellectual capital that board members from new-generation, patron-investor cooperatives possess.
Social Capital	**Ho:** Board members from traditional, patron-oriented cooperatives possess a level of **external social capital equal** to the level of external social that capital board members from new-generation, patron-investor cooperatives possess. **Ha:** Board members from traditional, patron-oriented cooperatives possess a level of **external social capital unequal** to the level of external social capital that board members from new-generation, patron-investor cooperatives possess.
	Ho: Board members from traditional, patron-oriented cooperatives possess a level of **internal social capital equal** to the level of internal social capital that board members from new-generation patron-investor cooperatives possess. **Ha:** Board members from traditional, patron-oriented cooperatives possess a level of **internal social capital unequal** to the level of internal social capital that board members from new-generation, patron-investor cooperatives possess.

Ho: null hypotheses, Ha: alternative hypotheses

The election of board members by fellow cooperative members dictates an interesting economic relationship between the organization and the individual board member. In essence, this arrangement provides a perfect example of the classic dilemma between organizational common interest and individual self-interest. Cooperative board members surely face governance decisions that impact their personal patronage benefits and the overall value they receive from being a cooperative member. Furthermore, this relationship is unique among board members and across organizations and is the basis for the next testable hypothesis (Table 3B).

Table 3B: Hypothesis on the Economic Relationship with the Cooperative

Variable	Hypothesis
Economic Relationship with Cooperative	**Ho:** Board members from traditional, patron-oriented cooperatives have an economic relationship with the cooperative that is **equal** to the economic relationship of board members from new-generation, patron-investor cooperatives. **Ha:** Board members from traditional, patron-oriented cooperatives have an economic relationship with the cooperative that is **unequal** to the economic relationship of board members from new-generation, patron-investor cooperatives.

The final portion of the comparative hypotheses examines the actions and perceptions of board members to governance roles, beginning with a comparison of the amount of effort that each individual role receives from the board member (Table 3C).

Table 3C: Hypothesis on Effort Investment toward Board Roles

Variable	Hypothesis
Effort Investment toward Board Roles	**Ho:** Board members from traditional, patron-oriented cooperatives invest an amount of time in the board's four governance roles that is **equal to the amount of time invested by** board members from new-generation, patron-investor cooperatives. **Ha:** Board members from traditional, patron-oriented cooperatives invest an amount of time in the board's four governance roles that is **unequal to the** amount of time invested by board members from new-generation, patron-investor cooperatives.

In addition to examining the effort invested in each board role individually, I complete a comparative analysis of attitudes and allocation of effort to the four roles collectively.. In this section, hypotheses focus on identifying the roles that receive the greatest allocation of effort, are deemed most important, are the focus of the board as a whole, and are seen as most important to the members at large. These attitudes and allocations are examined for both forms of cooperative organization (Table 3D).

Table 3D: Hypotheses on Allocation of Effort and Perceptions of Board Roles

Variable	Hypotheses
Allocation of Individual's Invested Effort among Board Roles	**Ho:** Board members from traditional, patron-oriented cooperatives allocate their effort to the four board governance roles in quantities and proportions **equal** to allocation of effort by board members from new-generation, patron-investor cooperatives. **Ha:** Board members from traditional, patron-oriented cooperatives allocate their effort to the four board governance roles in quantities and proportions **unequal** to allocation of effort by board members from new-generation, patron-investor cooperatives.
Rank of Importance of Board Roles	**Ho:** Board members from traditional, patron-oriented cooperatives rank the importance of the four board governance roles in an order **equal** to the ranking by board members from new-generation, patron-investor cooperatives. **Ha:** Board members from traditional, patron-oriented cooperatives rank the importance of the four board governance roles in an order **unequal** to the ranking by board members from new-generation, patron-investor cooperatives.
Allocation of Aggregate Board's Efforts among Board Roles	**Ho:** Board members from traditional, patron-oriented cooperatives perceive allocation of the aggregate board's effort to the four board governance roles in a manner **equal** to how board members from new-generation, patron-investor cooperatives perceive allocation of aggregate board effort to the four board governance roles. **Ha:** Board members from traditional, patron-oriented cooperatives perceive allocation of the aggregate board's effort to the four board governance roles in a manner **unequal** to how board members from new-generation, patron-investor cooperatives perceive allocation of aggregate board effort to the four board governance roles.
Perception of How Members Want Effort to be Allocated by Board Members	**Ho:** Board members from traditional, patron-oriented cooperatives perceive member expectations of their allocation of personal effort to the four board governance roles in a manner **equal** to how board members from new-generation, patron-investor cooperatives perceive member expectations of allocation of personal effort to the four board governance roles. **Ha:** Board members from traditional, patron-oriented cooperatives perceive member expectations of their allocation of personal effort to the four board governance roles in a manner **unequal** to how board members from new-generation, patron-investor cooperatives perceive member expectations of allocation of personal effort to the four board governance roles.

Governance Space Hypotheses

Spatial analysis allows for a comparison of board members between traditional patron cooperatives and new-generation, patron-investor cooperatives in terms of the interactions of the four roles in each cooperative form and the similarities and differences in each governance space. This comparison is used to test the set of hypotheses listed in Table 3E.

Table 3E: Hypotheses on Cooperative Governance: Traditional versus New-Generation.

Variable	Hypotheses
Traditional, Patron-oriented Cooperative Governance Effort Space versus New-generation, Patron-investor Governance Effort Space:	**Ho:** The governance effort space of members serving on boards of directors of traditional, patron-oriented agriculture cooperatives in the state of Missouri **matches** the governance effort space of members serving on boards of directors of new-generation, patron-investor agricultural cooperatives in the state of Missouri. **Ha:** The governance effort space of members serving on boards of directors of traditional, patron-oriented agriculture cooperatives in the state of Missouri **does not match** the governance effort space of members serving on boards of directors of new-generation, patron-investor agricultural cooperatives in the state of Missouri.
Traditional, Patron-oriented" Cooperative Governance Ranking Space versus Newgeneration, Patron-investor Governance Ranking Space:	**Ho:** The governance ranking space of members serving on boards of directors of traditional, patron-oriented agriculture cooperatives in the state of Missouri **matches** the governance ranking space of members serving on boards of directors of new-generation, patron-investor agricultural cooperatives in the state of Missouri. **Ha:** The governance ranking space of members serving on boards of directors of traditional, patron-oriented agriculture cooperatives in the state of Missouri **does not match** the governance ranking space of members serving on boards of directors of new-generation, patron-investor agricultural cooperatives in the state of Missouri.

Ranking Order Hypotheses

The last set of hypotheses tests the significance of differences in perceptions of the importance, effort allocated, and aggregate allocation of board effort to individual roles and the board's perceptions of what is important to the membership. The purpose of these hypotheses is to determine if certain roles significantly dominate cooperative board governance or if the roles are relatively equal in terms of perceptions and actions within the cooperative board room.

Table 3F: Hypotheses on the Ranking Order of Board Governance Roles

Variable	Hypotheses
Rank Order across All Respondents	**Ho:** Cooperative members who serve on their organizations' boards of directors allocate personal effort to each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors allocate personal effort to each of the four roles **unequally**.
	Ho: Cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **unequally**.
	Ho: Cooperative members who serve on their organizations' boards of directors perceive allocation of the aggregate board's effort to each of the four roles as **equal**. **Ha:** Cooperative members who serve on their organizations' boards of directors perceive allocation of the aggregate board's effort to each of the four roles as **unequal**
	Ho: Cooperative members who serve on their organizations' boards of directors perceive the cooperative members as wanting them to allocate their personal effort to each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors perceive the cooperative members as wanting them to allocate their personal effort to each of the four roles **unequally**.

Table 3G: Hypotheses on the Balance of Board Governance Roles in Traditional versus New-Generation Cooperatives

Variable	Hypotheses
Comparison of Rank Order: Traditional versus New Generation	**Ho:** Cooperative members who serve on their organizations' boards of directors allocate their personal effort to each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors allocate their personal effort to each of the four roles **unequally**.
	Ho: Cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **unequally**.
	Ho: Cooperative members who serve on their organizations' boards of directors perceive allocation of the aggregate board's effort to each of the four roles as **equal**. **Ha:** Cooperative members who serve on their organizations' boards of directors perceive allocation of the aggregate board's effort to each of the four roles as **unequal**
	Ho: Cooperative members who serve on their organizations' boards of directors perceive the cooperative members as wanting them to allocate their personal effort to each of the four roles **equally**. **Ha:** Cooperative members who serve on their organizations' boards of directors perceive the cooperative members as wanting them to allocate their personal effort to each of the four roles **unequally**.

CHAPTER 4

METHODOLOGY OF RESEARCH

Due to the limited scope of previous research on cooperative boards of directors, the empirical portion of this research required collection and analysis of primary data. To achieve a high level of rigor with regards to the hypotheses tested, the data were collected using a survey instrument developed with the intention of administering it to the largest possible proportion of agriculture cooperative board members within the State of Missouri. This methodology chapter explains the processes behind development of the survey, acquisition of the sample population, and analytical techniques used to transform the collected data into descriptive information.

DATA COLLECTION

The Survey Instrument

The unit of analysis for this research is an embedded unit that consists of a combination of individual respondents who serve on the board of directors for their cooperative and aggregate boards of directors of particular cooperatives. The advantage of an embedded, two-tiered unit of analysis is that it allows for examination of variance among individuals serving as board members while at the same time permitting an analysis and comparison of complete boards across participating cooperatives.

The general categories of data desired from board member respondents were the levels of intellectual capital, social capital with external stakeholders, and internal social capital with fellow board members; personal board member business relationships with the cooperative; the size of board members' personal

farm operations; the importance of those farm operations to household incomes; and measures of effort and perceptions relative to the four roles of board governance identified by theory.

The measures for intellectual capital captured the scope and scale of experience each respondent brings to the position as a member of the cooperative's board of directors (Table 4A). The elements included in intellectual capital were categorized under identifying sources of experience and knowledge and included general knowledge, industry knowledge, company- or cooperative-specific knowledge, functional knowledge, and general business knowledge. In addition, experience in similar organizations and experience as a member of a governing board were considered under the scope of intellectual capital.

Measures for external and internal social capital were included in the survey instrument. The external measures were constructed to allow for development of a resource generator index (Van der Gaag and Snijders 2005). It was the interest of this research to capture the level of access that board members have to social capital resources that may be used to fulfill the networking role of a board member. The manner in which these data were collected allowed for an analysis of the scope of board members' social networks and the volume of social relationships each board member brought to the cooperative.

Table 4A: Forms of Intellectual Capital

Areas of Intellectual Capital	Specific Target Data
General Knowledge	Level of formal education attained
Industry Knowledge	Experience in agriculture as a farmer and/or nonfarmer
Organizational Experience	Experience being involved in a cooperative organization
Company-specific Knowledge	Experience being involved in the survey cooperative of interest
Board Experience	Length of time and number of organizations the respondent has served on a governing board of directors
Functional Knowledge	Work experience in areas associated with cooperative-level activities (sale of farm inputs, marketing of farm commodities, production of value-added products)
General Business Knowledge	Management experience in a business other than personal farm business

The measures of internal social capital were constructed to capture levels of the three elements of internal group social capital: trust, liking, and identifying. It is theorized that internal social capital in a working group influences the ability of the group to work together effectively (Bolino et al. 2002; Leana and Van Buren 1999). In the case of the board of directors, the level of internal social capital among board members theoretically influences their perceptions of their roles and the amount of effort they expend.

The final explanatory elements of the survey measured the economic relationship the individual respondent has with the respective cooperative. Information regarding the size of the board member's farm operation, the importance of farm-generated income to the member's household welfare, and

the importance of the cooperative to the performance of the farm operation were used to build variables that indicate the level of dependency or personal welfare risk the individual board member has invested in the cooperative and how variability in this relationship is associated with perceptions and actions taken by the board members.

The dependent variables in this research represented different aspects of the four theoretically identified roles of board governance. The first aspect, level of effort, was measured by having respondents identify the frequency with which they participated in specific actions associated with each of the four roles. This measure allowed for independent examination of effort expended by the respondent to each of the roles separately. In addition, items were included in the survey that enabled examination of respondent's perceptions toward the four roles simultaneously. Perceptions of personal effort, aggregate board effort, member preferences with regard to effort, and ranking of the importance of each role were measured using a method of point distribution. The respondents were told they had 100 points to distribute among the four roles and that the distribution of points should be based on specific criteria. This form of measurement allowed for examination of the four roles in conjunction with one another.

Population and Sample Selection

The population identified in this research is board members from all of the farmer-owned agricultural cooperatives that are formally based within the state of Missouri. Limiting the population to cooperatives within Missouri eliminated any

variability in perception and effort of board roles due to differences in state cooperative organization laws. For a cooperative and its board of directors to be invited to participate in the research, the official location of business had to be within the state of Missouri and be identified by the Missouri Secretary of State.

The process of sample selection began with development of a list of all active agricultural cooperatives within Missouri with the aid of the Missouri Secretary of State's website and business search tool. Since the business listings included all present and historical businesses and did not directly distinguish between a cooperative and a noncooperative business, identification of active agricultural cooperatives required an intensive search and selection process. First, businesses were searchable only by name, which meant searching the database by various terms associated with "agriculture" and "cooperative." Once a list of businesses was produced, only the businesses that were listed under type as "nonstock corporation" or "stock coop" with status of "good standing" or "active" were included on the list of cooperatives. This procedure resulted in a final list of 88 producer-owned agriculture cooperatives in Missouri.

The listed included the name and contact information for the cooperative's president, who was designated as the point of contact for inviting involvement by the board of directors. The goal was to extend the potential for participation to each and every agricultural cooperative in the state. Initial contact and extension of the invitation were done via mail.

A preliminary mailing (see Appendix A) with an invitation to participate, a sample copy of the survey instrument, and a self-addressed response postcard was sent to the person listed as president of all 88 identified cooperatives. Potential respondents were asked to share the invitation and sample survey with their fellow board members and mail the response card back within two weeks. After the two-week period, a follow-up phone call was placed to presidents who had not returned a response by mail. This process resulted in positive recruitment of 20 (23%) separate cooperative boards and a total of 167 potential individual respondents.

Upon completion of the recruitment process, the survey instrument was finalized based on feedback from potential respondents and submitted to campus internal review board (IRB) for approval. Once approval was received, each participating cooperative was sent a package containing a self-addressed stamped return envelope, an instruction cover letter explaining how the surveys were to be administered, and adequate copies of the survey instrument. The participating boards were asked to return the completed surveys within one month. After that month, a reminder post card was sent to cooperatives that had not submitted the completed surveys. The survey administration process produced a final sample of 17 cooperative boards of directors and 115 individual board member respondents. A breakdown of the population representation is presented in Table 4B.

Table 4B: Comparison of Missouri Cooperative Population and Survey Sample.

Cooperative Type	Missouri Population	Research Participants
New-generation Patron-investor Cooperatives	21	4 (19%)
Traditional Patron Cooperatives	67	13 (19%)
Total	88	17 (19%)

DATA ANALYSIS

The descriptive aspect of this research lent itself to the application of three analytical techniques to gain information from the survey data. The first portion of the analysis involved a complete comparison board member respondents from cooperatives identified as new-generation, offensive cooperatives and those from traditional, defensive cooperatives. This comparison of the survey data involved analysis of variance and of chi squares. The second application involved principal component analysis and use of board member response data to develop a spatial representation of the cooperative governance space. The final technique administered to the data set was a Friedman test of rank-order. Each of these techniques is explained further.

Analysis of Variance, Chi Square Test

Each of the variables measured in the survey instrument were independently analyzed to compare mean responses between board members of

new-generation and traditional cooperatives. For those characteristics that were measured as continuous variables, the standard analysis of variance was used to determine significant differences among the means of the two groups. For discrete variables for which respondents were asked to choose a category, the chi square test was used to compare differences between the two groups.

Principal Component Analysis

Principal component analysis (PCA) is an analytical technique within the field of multivariate analysis. Multivariate analysis consists of statistical methods that allow two or more related random variables to be considered as a single entity and in an attempt to produce an overall result that takes the relationship of the variables into account (Jackson 2003). Most multivariate procedures represent generalizations of classical univariate techniques. Corresponding to the univariate t-test is the multivariate T^2-test and there are multivariate counterparts of such techniques as regression and the analysis of variance.

PCA, however, represents one procedure in a class of techniques that is unique to the multivariate arena. These techniques, rather than serving a primary purpose of statistical inference (though they may be employed that way), focus mainly on describing the multivariate structure of the data. PCA in particular is used for the most part as a descriptive tool but does offer inferential possibilities. Specifically, PCA is used to:

1) Reduce a large number of correlated variables and replace them with a smaller number of uncorrelated variables.
2) Understand the relationships between the original variables.
3) Understand the relative importance of the original variables.

4) Understand the relationships between the observations and the original correlated variables.
5) Identify groupings of observations or locate outlier observations.

The PCA method is founded on a key result from matrix algebra: a k-x-k symmetric nonsingular matrix such as the covariance matrix **S** can be reduced to a diagonal matrix **L** by premultiplying and postmultiplying it by a particular orthonormal matrix **U** (Jackson 2003) such that

$$\mathbf{U'SU = L}$$

The diagonal elements of matrix **L** are called the characteristic roots, latent roots, or eigenvalues of **S** (Jackson 2003). The eigenvalues of the correlation matrix are used because values in this matrix are standardized. This is especially important when dealing with variables of differing measurement units.

The values of the calculated eigenvalues determine the order in which the principal components are used in the analysis. The primary principal component is the eigenvector with the highest eigenvalue and, therefore, accounts for the maximum amount of variance in the data space. In essence, the primary principal component is represented as a line that goes through the plane of maximum elongation. The secondary principal component is extracted in a similar manner and accounts for the next highest amount of remaining variance in the data space that is orthogonal or uncorrelated—graphically, it is situated at a 90-degree angle to the primary principal component. This extraction process is repeated until the total number of primary components has been identified. The total number of primary components equals the number of original variables as long as the number of observations is greater than the number of variables.

Each of the principal components represents a linear combination of the original variables so it is possible to project the original variables onto the spatial representation of the data with the spatial axes being the extracted principal components. This process is referred to as loading and makes it possible to use the original variables as attribute vectors within the space. The position of the loadings within the space indicates the correlation of the original variables with each of the primary components. The length of the vectors associated with the loadings roughly indicates their importance in explaining variations in the data. The orientation of the loading vectors also indicates their relationship with each other. Vectors within the space that have a small angle between them indicate a positive, high correlation. In contrast, vectors with an angle of orientation that is close to 180 degrees indicate a high, negative correlation. Vectors at right angles (90 degrees) are essentially uncorrelated. The interpretation of the angle of orientation is the same for the relationship between the original variables and the principal components. Vectors with small angles or 180-degree angles to a primary component are, respectively, highly positively or negatively correlated to that component. Vectors with angles of 90 degrees to a primary component are not correlated to that component. Vectors with angles of 45 degrees are equally related to each of the primary components.

In this research, principal component analysis was used to examine the orientation of the four roles of board governance within the governance space. This analysis allowed for comparison of the cooperative governance space with that of the theoretical competing-values framework. In addition, the use of PCA

provided an initial examination and comparison of the governance spaces for new-generation, offensive cooperatives and traditional, defensive cooperatives.

Rank-Order Tests

Two rank-order tests were used to examine the balance cooperative board members have in their perceptions and effort allocated to each of the theoretical governance roles. The first analytical technique used was the Friedman test, which was followed by the Kramer test.

The Friedman test is also referred to as a two-way analysis on ranks. In this research, the Friedman test modeled the rankings of all of the respondent board members on each of the governance roles. Under this test, the null hypotheses states that no significant difference exists between the rankings of board roles by the respondents. In other words, the respondents treat each of the roles equally when allocating effort, reporting aggregate board effort, or determining what members expect from them.

The Friedman test was followed by the Kramer test for least significant differences. This test allowed for comparison of rankings between pairs of roles. The two tests combined provided information relative to the questions: was there a difference among the roles in how respondents allocate effort, perceive allocation of aggregate board effort, and perceive expectations from cooperative members, which was determined by the Friedman test. If differences existed, the follow-up question is which role pairs are ranked differently from one another and which roles are essentially ranked equally.

CHAPTER 5

ANALYSIS OF DATA AND EMPIRICAL RESULTS

The first part of this chapter presents findings from a complete analysis comparing board members from traditional, defensive cooperatives and new-generation, offensive cooperatives using a combination of chi square testing for categorical data and analysis of variance for continuous variables.

The comparative analysis is followed by a spatial analysis of the data pertaining to the four roles. Principle component analysis allowed for an examination of how the four roles relate to one another within the governance space of the respondents. These results help to identify the underlying dimensions of the governance space and test this space against the theoretical competing-values framework. In addition, the governance space for traditional cooperative and new-generation cooperative respondents is compared.

The final part of the analysis examines more closely how board members balance their allocation of effort to each governance role. This analysis uses a rank-order test of hypotheses related to board members' balance of the perceived importance and effort allocated to each role.

PHASE 1: COMPARATIVE ANALYSIS

This phase of the data analysis compared board members from traditional and new-generation cooperatives and grouped the survey questions into categories: experience, farm operations and personal cooperative relationships, external social capital, internal social capital, frequency of actions for each board role, and perspectives regarding the board's roles. The comparison was conducted using analysis of variance (ANOVA) or chi square discrete variance analysis based on whether a variable was a continuous or a discrete measure.

For each variable to which ANOVA was applied, the mean value for each group is given, along with the p-value. For discrete variables, the observed and critical value of the chi square is given, along with the p-value and an indication, via analysis of variable mode, of the directional difference between the two groups when significant differences were observed.

Board Member Experience

Board member experience, shown in Table 5A, was broken down into five areas that collectively account for the measure of intellectual capital: general knowledge, industry knowledge, organizational experience, board member experience, and functional knowledge.

Table 5A: Board Memeber Experience

VARIABLE NAME	CHI SQUARE (observed value)	CHI SQUARE (critical value)	P-VALUE	MODE NG	MODE TRAD
BOARD MEMBER EXPERIENCE					
BOARD TRAINING (FREQ)	**29.75**	**3.84**	**<.0001**	**+**	
TERM LIMITS (YES/NO)	1.39	3.84	0.239		
BUSINESS EXPERIENCE (NONFARM)					
GENERAL EXPERIENCE	**4.26**	**3.84**	**0.039**	**+**	
SALES OF AG INPUTS	**6.35**	**3.84**	**0.012**	**+**	
COMMODITY MARKETING	-	-			
FOOD PROCESSING	0.103	3.84	0.749		
FORMAL EDUCATION	**10.44**	**11.07**	**0.064**	**+**	
	MEAN TRADITIONAL	**MEAN NEW GENERATION**	**P-VALUE**		
FARM EXPERIENCE YEARS	32.24	34.24	0.3612		
AGICULTURE EXPERIENCE (NON-FARM) YEARS	4.65	6.42	0.3405		
COOPERATIVE EXPERIENCE					
THIS COOP (YEARS)	**27.06**	**3.76**	**<.0001**		
ALL COOPS (YEARS)	30.15	29.27	0.7308		
ALL COOPS (NUMBER)	**3.32**	**4.21**	**0.0315**		
BOARD MEMBER EXPERIENCE					
	9.60	**3.20**	**<.0001**		
THIS COOP (YEARS)	**3.76**	**5.03**	**0.0797**		
OVERALL (NUMBER OF ORG)	27.98	26.80	0.8154		
OVERALL (YEARS)					
AGE	54.83	52.48	0.2949		

General knowledge and industry knowledge included measures of formal education, board member age, experience as an agricultural producer, and experience in other aspects of agriculture off the farm. As indicated in Table 5A, the only variable that displays a significant difference between the two types of

cooperatives is formal education achieved. This survey question asked respondents to indicate the highest level of formal education completed and offered the respondent six options. As the data indicate, the categorical response indicates a higher level of education for board members of new-generation cooperatives. For both groups the average level of education fell between some college or technical school education and completion of a college or technical school degree, suggesting that new-generation respondents were more likely to have finished a college level education and received a degree. The mean values of the three variables—farm experience, nonfarm agriculture experience, and age—were not significantly different for the two groups.

Measures of organizational experience were included to capture potential variation in board members' knowledge about cooperative organizational structure. The three variables in this case were length of time spent as a member of the cooperative for which the respondent was serving as a member of the board, the general length of time the respondent had spent as a member of any cooperative, and the number of cooperatives to which the respondent had been a member.

There is a wide difference between board members for the two cooperative types in the length of time spent with the current cooperative—almost 23 years. This large difference can be attributed to the relatively "young" age of most new-generation cooperatives in Missouri. While traditional cooperatives have existed in Missouri for more than 100 years, the creation of new-generation cooperatives occurred within the past decade or so. Further

reinforcing the conclusion that the difference in cooperative-specific experience is due to the age of the organization, the measure of experience with all cooperatives in years indicated no significant difference between board members of traditional and new-generation cooperatives.

The last of the organizational experience variables measured the number of different cooperatives to which the respondent had belonged to measure the diversity of respondents' experience. Interestingly, the data indicate that board members from new-generation cooperatives have been involved with a larger number of cooperatives (4.21) than board members from traditional cooperatives (3.32).

The results for general cooperative experience closely match the results for experience as a board member. The length of time spent as a member of the current cooperative's board is significantly greater for respondents from traditional cooperatives (9.6 years) than for new-generation respondents (3.2 years). Again, this likely reflects the age of the organizations, a conclusion that is reinforced by the number of years of experience with any board being the same for the two groups. Interestingly, there is a significant difference in the number of organizations for which respondents had served as board members; new-generation respondents had a broader scope of board appointments (5.03) than traditional respondents (3.76).

The final aspect of intellectual capital is functional knowledge and includes variables for the board member's experience running a nonfarm business and experience in other sectors of the food and fiber chain that the cooperatives they

serve might enter. The our variables were measured as a binary 1/0 score corresponding to a yes/no survey response. A chi square analysis showed a significant difference in measures of overall nonfarm business experience and sales of farm production inputs. Examination of the variable mode indicates that for both of these variables respondents from new-generation cooperatives had more experience. Both groups had extremely limited experience with food processing and no experience at all with commodity sales.

In summary, the results of mean tests of intellectual capital suggest that individuals serving on new-generation boards of directors bring slightly more to the organization in terms of formal education, general business experience, and farm input sales. Experience with the current cooperative and board member experience greatly favor respondents from traditional cooperatives, but this is expected because new-generation cooperatives have mostly been formed in the past 15 years. Overall cooperative and board experience did not vary for the two groups. Finally, new-generation board members generally have more diverse experience in cooperative organizations and governing boards than do their traditional counterparts.

Board Member Farm Business and Cooperative Relationship

Respondents were asked questions that captured the economics of individual board members' farm operations and the importance of their cooperative memberships to their farm operations. The variables measured the size of individual board members' farm businesses, the contribution of those farm operations to total household incomes, the degree to which cooperative services

contributed to farm operations, the financial requirement for membership in the cooperative, and how individuals perceived the benefits of being a member of the cooperative. The analysis is summarized in Table 5B.

Table 5B: Board Member Farm Business and Cooperative Relationship

VARIABLE NAME	CHI SQUARE (observed value)	CHI SQUARE (critical value)	P-VALUE	MODE NG	MODE TRAD
SIZE OF FARM OPERATION					
CROP PRODUCTION	**19.73**	**14.07**	**0.006**	**+**	
CATTLE PRODUCTION	8.23	12.59	0.222		
HOG PRODUCTION	4.40	12.59	0.623		
USE OF COOPERATIVE					
FARM INPUT PURCHASE	**75.96**	**12.59**	**<.0001**		**+**
FARM PRODUCT MARKETED	**23.36**	**12.59**	**0.001**		**+**
OVERALL USE OF COOPERATIVE	**53.79**	**12.59**	**<.0001**		**+**
IMPORTANCE OF COOPERATIVE					
INCOME FROM FARM	**9.95**	**11.07**	**0.077***	**+**	
IMPORTANCE OF COOPERATIVE TO HOUSEHOLD	**27.59**	**18.31**	**0.002**		**+**
FINANCIAL REQUIREMENT OF MEMBERSHIP	**82.11**	**3.84**	**<.0001**	**+**	
	MEAN TRADITIONAL	**MEAN NEW GENERATION**	**P-VALUE**		
COOPERATIVE BENEFITS					
IMPROVE FARM PROFIT	**3.18**	**3.99**	**0.0172**		
SHARE COOP-LEVEL PROFITS	**3.63**	**2.35**	**<.0001**		

The first subset of variables in this section focused on the size of individual board members' personal farm operations. Each respondent was

asked to select the range of values that best described the current size of the farm operation for acres of crops planted, number of cattle raised, and number of hogs raised from seven choices. Table 5B demonstrates the significant difference in acres of crops planted by ewgeneration and traditional cooperative board members. Analysis of mode indicates that a greater proportion of new-generation respondents plant between 1,000 and 1,500 acres of crops while most traditional respondents farm between 500 and 1,000 acres of crops. Neither hog nor cattle production showed a significant difference for the two groups.

The next set of variables measured the link between individual member farm businesses and the services provided by the cooperatives they govern. With this categorical variable respondents had six choices representing a range of percentages. The resulting data indicate a significant difference in the percentage of farm inputs purchased from the cooperatives. The majority of board members from traditional cooperatives purchased 60 to 80 percent of their farm inputs from the cooperative, while new-generation board members purchased almost no inputs from the cooperative. Obviously this difference reflects the fact that traditional cooperatives focus on commodity marketing and input supply while new-generation cooperatives focus almost exclusively on farm production marketing and processing with no input supply services. This being understood, it is interesting that the level of farm production marketed through the cooperative is significantly greater for board members of traditional cooperatives. The relative youth of new-generation cooperatives may explain this

difference. Members may be reluctant to commit large portions of their production until the organization becomes more stable in the market.

Maximum cooperative dependence is a constructed variable that reflects the maximum value for each respondent between the percentage of inputs purchased and the percentage of farm production marketed through the cooperative. This variable reflects the maximum level of dependence each respondent has on the cooperative to link his farm business with the agricultural production chain. Table 5B indicates that board members of traditional cooperatives depend heavily on the cooperative given the large percentage of farm input services they purchase through it. Comparably, board members of new-generation cooperatives depend less on cooperative services to link their farm businesses to the agricultural production chain.

The next set of variables provides additional information about the scope of the importance of the cooperative to board members' economic welfare. The first variable measures the level of total household income that comes from the farm business operation. There is a significant difference in households' reliance on farm income. New-generation board members indicated that a greater percentage of their household incomes depended on the farm business: 64 percent of new-generation respondents indicated that 80 to 100 percent of household income was generated by the farm business while only 34 percent of traditional board members gave the same response.

The level of contribution that respondenst' farm businesses make to household income is combined with the level of maximum cooperative

dependence to create a measure of the importance of the cooperative to household income flows. The scale response (1–6) of cooperative dependence was added to the scale response of household income contributed by the farm business (1–6).

Maximum Dependence on Cooperative	**+**	**Farm Business Contribution to Household Income**	**=**	**Importance of Cooperative to Household Income**

The resulting variable is an index measure that captures the economic importance of the respondents' relationships with the cooperatives they serve and has values between 1, representing no importance, and 12, representing the highest level of importance. This measure represents one dimension, household income flow, of the economic relationship between the board member and the cooperative. The results of this comparative analysis indicate a significant difference in the level of the cooperative's importance to household income. Board members from traditional cooperatives demonstrated greater dependence on the cooperative for household income via dependence of the farm operation on cooperative services.

The second dimension of the economic relationship between the respondent board member and the cooperative is the level of wealth investment the board member must make as a member. Respondents were asked a simple yes/no question about the need to commit a significant amount of capital upfront to become a member of their cooperative. Since an upfront investment requirement is one of the factors that differentiates a traditional cooperative from

a new-generation one, it is not surprising to see the significant difference demonstrated by the survey data (see Table 5B).

The results from this set of variables suggest that the two forms of cooperative organization lead to different economic relationships between board members and the cooperative. For respondents from traditional cooperatives, the business relationship with the cooperative seems more focused on the on-farm flow of income, while relationships with new-generation cooperative center more on the stock wealth of the board member. Further support for this conclusion is supplied by the analysis of how the two sets of board members derive benefits from their cooperative membership.

The last set of variables included in Table 5B corresponds to survey items that identify how the respondent derives value from membership in the cooperative. Respondents were asked to indicate their level of agreement or disagreement with two statements:

1) Lower prices for my farm inputs and/or access to markets for my farm production reflect the primary way I receive value as a member of this cooperative.

2) Increased prices for my farm production and receiving a share of the annual profits earned by the cooperative reflect the primary way I receive value as a member of this cooperative.

Respondents were asked to indicate their level of agreement by selecting a number between 1, strongly agree, and 7, strongly disagree. As Table 5B indicates, the mean responses for both statements varied significantly by cooperative type. When the two questions are analyzed together, respondents from traditional cooperatives received benefits chiefly via improved on-farm

performance through lower input prices and access to markets. Respondents from new-generation cooperatives perceived the primary value of membership as increased prices for farm production and a share of cooperative-level annual profits.

To summarize the findings shown in Table 5B, board members of traditional cooperatives demonstrate greater dependence on the cooperative for access to the food and fiber chain but lesser dependence on the cooperative for household income. One possible explanation for the difference in cooperative use is a desire by new-generation board members to limit the degree of risk associated with household income that motivates them to disperse their farms' service dependency across more than one organization. That aspect of cooperative membership is outside the realm of this research. Additional light may be shed by examining how board members receive value from cooperative membership. As the data suggest, board members from new-generation cooperatives focus more on the share of cooperative-level profits than on improved on-farm performance, which is the center of traditional cooperatives. This suggests that members of new-generation cooperatives may view membership as a wealth-enhancing investment rather than a tool for improving income generation.

Board Member External Social Capital

Measurements of external social capital were included to identify the ability of board members to link their cooperatives to outside resources and, ultimately, perform the networker role. Two questions were used to 1) identify

respondents' level of association within various types of outside organizations that could provide necessary resources, and 2) identify personal relationships that respondents have with individuals in positions that could benefit the cooperative. The results from the social capital data are presented in Table 5C.

For organizational links, respondents were given a list of various types of organizations associated with agriculture, politics, business, and the community and asked to indicate their level of involvement with each type. As Table 5C demonstrates, significant differences in association were found for commodity groups (The Corn Growers Association and Pork Producers), farm organizations (The Farm Bureau), and political organizations. In each case, respondents from new-generation cooperatives showed a greater degree of interaction with group leadership or already served as leaders.

Table 5C: Board Member External Social Capital

VARIABLE NAME	CHI SQUARE (observed value)	CHI SQUARE (critical value)	P-VALUE	MODE NG	MODE TRAD
ORGANIZATIONAL LINKS					
COMMODITY ORGANIZATION	**18.81**	**9.48**	**0.001**	**+**	
FARMER ORGANIZATION	**11.12**	**9.48**	**0.025**	**+**	
POLITICAL ORGANIZATION	**11.46**	**9.48**	**0.022**	**+**	
PROFESSION. ORGANIZATION	6.57	9.48	0.160		
SERVICE ORGANIZATION	5.21	9.48	0.267		
NONPROFIT ORGANIZATION	3.95	9.48	0.413		
RELIGIOUS ORGANIZATION	4.21	9.48	0.379		
PERSONAL RELATIONSHIPS					
REGIONAL COM. OFFICER	**7.31**	3.84	**0.007**	**+**	
NATIONAL COM. OFFICER	**5.08**	3.84	**0.024**	**+**	
FARM INPUT EXECUTIVE	0.47	3.84	0.491		
FOOD PROD. EXECUTIVE	0.06	3.84	0.808		
REGIONAL AG NGO OFFICER	**3.12**	3.84	**0.077***	**+**	
NATIONAL AG NGO OFFICER	0.13	3.84	0.719		
ELECTED U.S. FED. OFFICAL	**7.27**	3.84	**0.007**	**+**	
ELECTED STATE OFFICIAL	**8.88**	3.84	**0.003**	**+**	
ELECTED LOCAL OR COUNTY OFFICIAL	**9.52**	3.84	**0.002**	**+**	
U.S.D.A. EXECUTIVE	0.14	3.84	0.707		
MISSOURI.D.A. EXECUTIVE	0.07	3.84	0.790		
POLITICAL PARTY OFFICER	0.162	3.84	0.688		
UNIVERSITY FACULTY MEMBER	**4.93**	3.84	**0.026**	**+**	
FINANCE INDUSTRY EXECUTIVE	**4.21**	3.84	**0.040**	**+**	
LAW FIRM PARTNER OR OWNER	0.87	3.84	0.352		
EXTERNAL SOCIAL CAPITAL SCORE	**24.18**	24.99	**0.062***	**+**	

The results for personal relationships were similar. To assess respondents' links to outside individual resources, they were given a list of

individual professional titles and asked if they knew someone who held such a title. As Table 5C indicates, 8 of the 15 titles proved to be significantly different for the two cooperative types with board members from new-generation cooperatives having more individual resources. The scores for total external social capital—a simple sum of “yes” responses for each professional title—also reflected this trend. As shown in Table 5C, there was a significant difference at the alpha=0.10 level in overall external social capital as measured by the scope of personal relationship links. These results favor the argument that the board members of new-generation cooperatives bring a broader personal social network to their cooperatives.

Board Member Internal Social Capital

Measures for internal social capital identified the level of social bond between board members. Table 5D summarizes this analysis.

Table 5D: Board Member Internal Social Capital

VARIABLE NAME	CHI -SQUARE (observed value)	CHI SQUARE (critical value)	P-VALUE	MODE NG	MODE TRAD
INTERNAL SOCIAL CAPITAL					
HUNTING / FISHING	**3.53**	**3.84**	**0.060***	**+**	
CHURCH	0.47	3.84	0.493		
INVITED TO BOARD MEMBER HOME	**5.37**	**3.84**	**0.020**	**+**	
HOSTED BOARD MEMBER	2.06	3.84	0.151		
NON-COOP TRAVEL	0.07	3.84	0.790		
ATTEND SOCIAL EVENT	1.29	3.84	0.257		
INTERNAL SOCIAL CAPITAL SCORE	6.43	11.07	0.266		
	MEAN TRADITIONAL	**MEAN NEW GENERATION**	**P-VALUE**		
ASSESMENT OF FELLOW BOARD MEMBERS					
TRUST OF BOARD	1.59	1.44	0.498		
QUALITY OF BOARD	1.54	1.24	0.152		

Internal social capital was determined by social activities in which board members engage with their colleagues. Respondents were asked to answer yes or no to whether they ever interact with fellow board members in various activities. As the data indicates, 2 of the 6 activities showed significant differences for the two groups of respondents. New-generation board members more often participated in hunting and fishing and invited fellow board member to their homes. Overall internal social capital, an index of all responses, showed no significant difference, suggesting that the level of social bond for the two groups is similar.

In addition to the activities measure, respondents were asked to indicate agreement with the following statements.

1) If I were unable to attend one of this cooperative's board meetings in which an important vote were to take place, I would trust my fellow board members to make a good decision in my absence.

2) I believe that my fellow board members and I make a good team and serve this cooperative well.

Responses ranged from 1, strongly agree, to 7, strongly disagree. As Table 5D indicates, there was no significant difference in the mean response for the two groups. Furthermore, the mean responses of the groups—1.59 and 1.54, respectively, for traditional cooperative respondents and 1.44 and 1.24, respectively, for new-generation cooperative respondents, indicate a fairly high level of agreement with the two statements. This result suggests both groups of board members have a relatively high degree of trust in their fellow board members and a strong belief in the quality of the collective team.

Frequency of Board Role Execution

Board member respondents were given a list of executable actions that define the essence of each of the four board governance roles— representation, monitoring, networker, and strategic visionary. Two statements of action were developed for each role, generating a total of eight. Respondents were asked to categorize the effort they gave to each action.

Table 5E: Frequency of Board Role Execution

VARIABLE NAME	CHI SQUARE (observed value)	CHI SQUARE (critical value)	P-VALUE	MODE NG	MODE TRAD
REPRESENTATION					
MEMBERS CONTACT BOARD MEMBER	**31.46**	**7.82**	**<.0001**	**+**	
BOARD MEMBER COMMUNICATES TO MEMBERS	**17.90**	**7.82**	**0.0004**	**+**	
MONITOR					
COMMUNICATE TO MANAGEMENT AND BOARD MEMBERS ABOUT COOPERATIVE PERFORMANCE	4.87	7.82	0.181		
PERSONALLY REVIEW COOPERATIVE PERFORMANCE	**25.14**	**7.82**	**<.0001**	**+**	
NETWORK					
SHARE PERSONAL NETWORK WITH MANAGEMENT AND BOARD MEMBERS	**13.88**	**7.82**	**0.003**	**+**	
COMMUNICATE WITH PERSONAL NETWORK ON BEHALF COOPERATIVE	**6.24**	**7.82**	**0.100***	**+**	
STRATEGIC VISIONARY					
PERSONALLY THINK ABOUT POTENTIAL COOPERATIVE STRATEGY	**17.33**	**7.82**	**0.001**	**+**	
COMMUNICATE WITH MANAGEMENT AND BOARD MEMBERS ABOUT STRATEGY	**10.10**	**7.82**	**0.018**	**+**	

The choices presented for the four categories of effort were never, one or less times per month, two to three times per month, and four or more times per month. The results from the analysis of board members' self-reports are presented in Table 5E. Significant differences were found for 7 of the 8

statements, the lone exception being communicating the cooperative's performance to management and members. The categorical response frequency demonstrates that board members serving for new-generation cooperatives expend more effort per month than their counterparts in traditional cooperatives. In summary, the overall effort expended by a board member is greater for those serving new-generation cooperatives.

Allocation of Effort among Board Roles

The next level of analysis examines how board members' efforts are divided among each of the four roles. In the survey, respondents were asked to perform the following task for a number of items.

> You are given 100 points. Please distribute these 100 points among the five options according to how much each option reflects _____.

The blank space represents criteria the respondent had to use when making the allocation decisions in three areas: what the respondent did as a member of the board of directors, the respondent's perception of what the aggregate board does, and the respondent's perception of what cooperative members wanted board members to do. The points were to be allocated to five statements reflecting the four board roles. The representative role involved two statements to capture the two primary aspects of that role. The five statements and their coinciding board roles were:

1) Assist in setting the strategic direction. (Strategic Visionary)

2) Share access to information and resources from my noncooperative network. (Networker)

3) Critically evaluate cooperative performance. (Monitor)

4) Communicate to my fellow board members and management what member-owners want from our cooperative. (Representative-1)

5) Communicate to members what the cooperative, as an organization, is trying to accomplish. (Representative-2)

Points were awarded to reflect what the board member did the most, what they thought the aggregate board did the most, and which role they felt members wanted to receive the most attention. In addition, respondents were asked to rank the five statements based on their perception of which were the most important. The ranking was done in descending order with the most important role ranked as 1. The results from this analysis are presented in Table 5F.

The analysis of variance and comparison of means for the two types of cooperatives indicates no significant differences in allocation of effort to each of the five role statements or to their rankings. Combined with the results of how frequently board members execute various roles, it appears that there is a difference in the amount of effort expended in serving as a member of the board but not in the manner in which the effort is allocated to each role.

Table 5F: Allocation of Effort Among Board Roles

VARIABLE NAME	MEAN OVERALL	MEAN TRADITIONAL	MEAN NEW GENERATION	P-VALUE
WHAT YOU DO AS A BOARD MEMBER				
STRATEGIC VISIONARY	29.05	29.65	27.58	0.4995
NETWORKER	10.91	10.99	10.73	0.8626
MONITOR	22.78	22.92	22.42	0.8344
REPRESENTATIVE-1	20.67	20.55	20.97	0.8672
REPRESENTATIVE-2	16.58	15.89	18.30	0.2010
RANK OF IMPORTANCE OF BOARD ROLES				
STRATEGIC VISONARY	1.94	1.96	1.88	0.7251
NETWORKER	4.35	4.40	4.23	0.4292
MONITOR	2.52	2.54	2.47	0.7850
REPRESENTATIVE-1	2.83	2.73	3.08	0.1035
REPRESENTATIVE-2	3.37	3.38	3.35	0.8966
WHAT ENTIRE BOARD OF DIRECTORS DOES				
STRATEGIC VISONARY	32.46	32.58	32.14	0.8855
NETWORKER	10.98	10.84	11.33	0.7254
MONITOR	24.52	24.91	23.57	0.5756
REPRESENTATIVE-1	17.02	16.57	18.13	0.3897
REPRESENTATIVE-2	15.02	15.10	14.82	0.8767
WHAT COOPERATIVE MEMBERS WANT YOU TO DO AS A BOARD MEMBER				
STRATEGIC VISONARY	29.31	29.67	28.40	0.6763
NETWORKER	10.23	9.97	10.88	0.5282
MONITOR	24.00	24.85	21.88	0.1653
REPRESENTATIVE-1	18.41	18.56	18.04	0.8126
REPRESENTATIVE-2	18.05	16.95	20.80	0.1013

Interestingly, in every case the ranking order was the same. The top-rated role was strategic visionary, followed by monitor, representative-1, representative-2, and networker. This suggests that, on average, board members of agricultural cooperatives in Missouri allocate effort to their board roles based on what they believe to be important and that they perceive their priorities as in

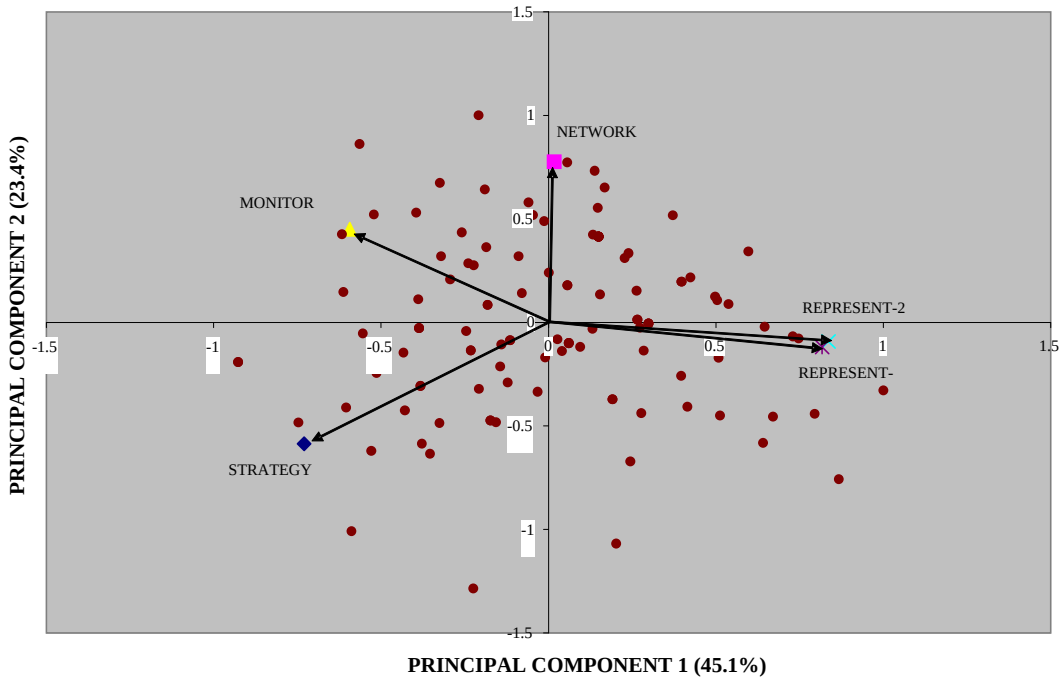
line with the priorities of the aggregate board and of the members. Effort, importance, and perceptions are further compared in the second phase of the analysis.

PHASE 2: THE COOPERATIVE GOVERNANCE SPACE

This phase employed a principal component analysis to generate a spatial representation of the four board governance roles. That representation was the basis for examining interactions between the roles, comparing those interactions for traditional and new-generation cooperatives, and identifying underlying factorial dimensions that influence governance activity in each group to determine whether they operate in similar governance spaces

The multidimensional representation of the governance space allows for recognition of the multiple roles required in an effective governance mechanism. Data used to create this space came from the respondents' allocation of 100 points to the five statements described in phase 1 that represented their actions as board members. As noted earlier, three of the actions coincide directly with strategic visionary, networker, and monitor roles and two addressed the role of representative. The awarding of points allowed for ties in the distribution.

FIGURE 5A: WHAT YOU DO AS A MEMBER OF THE BOARD OF DIRECTORS
N=115



As indicated in figure 5A, the first two dimensions of the empirical space combined account for 68.5 percent of the variation in the data. PC-1 (the x axis) is the primary dimension and accounts for 45.1 percent of the variation; PC-2 (the y axis) accounts for an additional 23.4 percent of sample variation.

The proximity of the roles to PC-1 indicates the degree of sample variation for the role that is explained by PC-1. The actual percentage of variation explained by each principal component analyzed is listed in Table 5G.

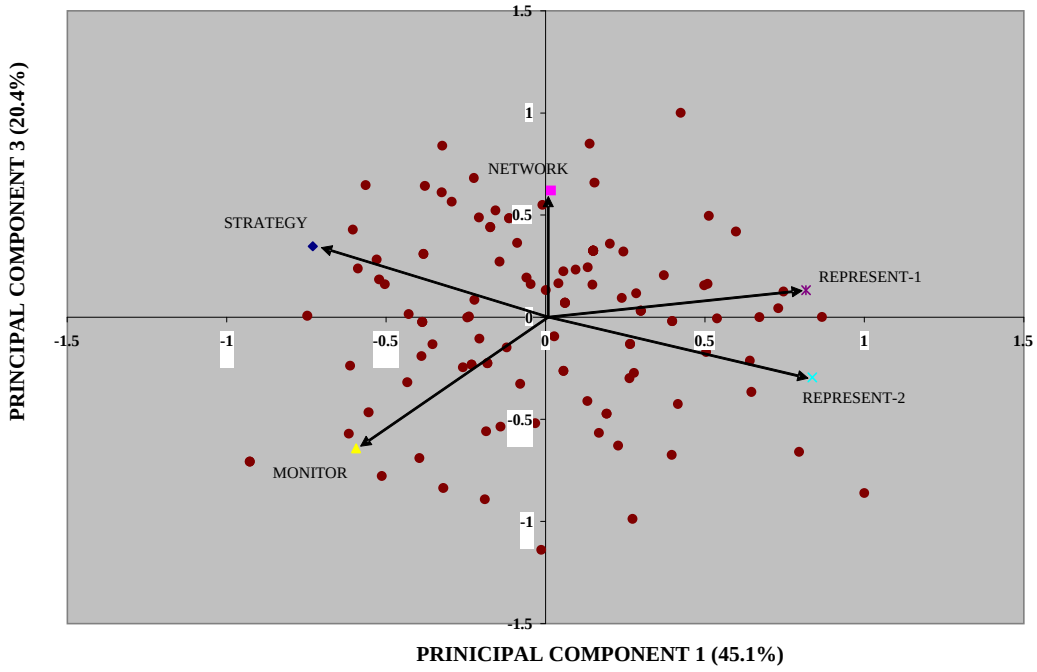
Table 5G: Percent of Sample Variation for "What You Do" Explained per Principal Component

	STRATEGY	NETWORK	MONITOR	REPRESENT-1	REPRESENT-2
PC-1	53.29%	0.03%	35.30%	69.95%	66.78%
PC-2	34.37%	60.21%	20.28%	0.85%	1.40%
PC-3	12.05%	38.42%	41.18%	8.69%	1.75%

In figure 5A, the influence of PC-1 on the role of networker is very limited (0.03 percent), a fact indicated by the almost-90-degree orientation of the networker position relative to the primary dimension. In contrast, the two aspects of the role of representative are strongly influenced by the primary factor (69.95 percent and 66.78 percent). These results suggest that efforts made as a representative are strongly influenced by the dimension associated with PC-1. The position of the networker role suggests that efforts by board members to use their personal external networks on behalf of the cooperative are not influenced by PC-1. The empirical space suggests that the PC-2 dimension is strongly correlated with the role of networker (60.21 percent) and not correlated with the role of representative (0.85 percent and 1.40 percent). The monitor and strategic visionary roles are moderately influenced by this dimension of the governance space.

A clearer understanding of the governance space can be obtained by observing PC-3, the third dimension of the governance space (Figure 5B).

FIGURE 5B: WHAT YOU DO AS A MEMBER OF THE BOARD OF DIRECTORS
PC-1 AND PC-3 N=115



Although PC-3 represents the third most influential dimension, it still accounts for 20.4 percent of variation among respondents. The monitor and representative-1 roles are situated in the lower half of the space with the strategic visionary and networker roles in the upper half. As with PC-2, the networker role is strongly influenced by PC-3 while the remaining roles are only moderately influenced by PC-3.

The positions of the roles relative to each other also provide information. In figure 5A, the position of the representative role relative to the roles of monitor and strategic visionary indicates a negative influence. In other words, within this empirical governance space the effort expended toward the role of representative comes at a cost of effort expended in the roles of strategic visionary and monitor. The positions of representative-1 and representative-2 relative to each other

show strong positive correlation. This suggests that the two aspects of the representative role—communication of member interests and communication of the cooperative's interests—are perceived as requiring similar effort. The 90-degree orientation of the networker role to the representative roles indicates that the representative roles do no influence effort applied to the networker role.

There is a strongly negative correlation in the position of the roles in the PC-3 dimension between the representative-1 aspect and the role of strategic visionary. Representative-1 reflects effort by board members to communicated to fellow board members and management about the changing needs and preferences of their member constituencies. Therefore, in the third dimension, the effort expended on the needs and wants of cooperative members comes at a cost to effort expended toward developing cooperative-level strategies.

Comparison of Effort Space:
Traditional Cooperative versus New-generation Cooperatives

The 115 respondents in the sample were divided grouped according to the type of cooperative organization each one served: 82 served traditional cooperatives and 33 were members of new-generation cooperatives.

A principal component analysis of each group identified a point distribution describing what members did as part of their boards. The resulting empirical governance space, hereafter referred to as the effort space, for board members of traditional cooperatives is shown in figure 5D and the space for new-generation cooperatives is shown in figure 5E.

FIGURE 5C: WHAT YOU DO AS A MEMBER OF THE BOARD OF DIRECTORS: TRADITIONAL COOPERATIVE N=82

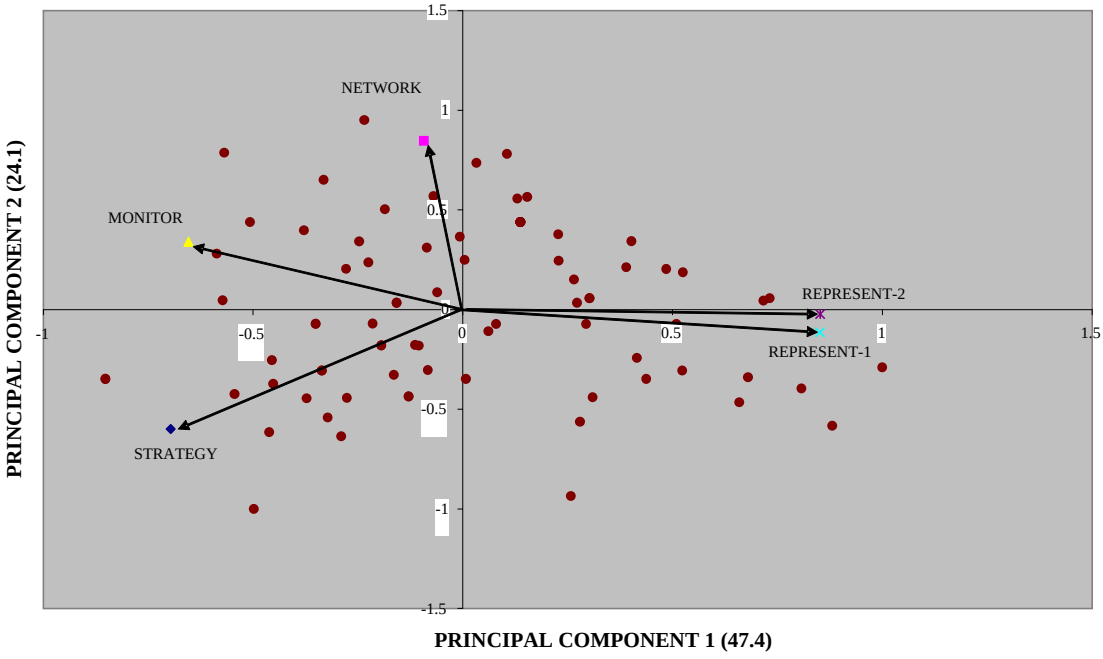
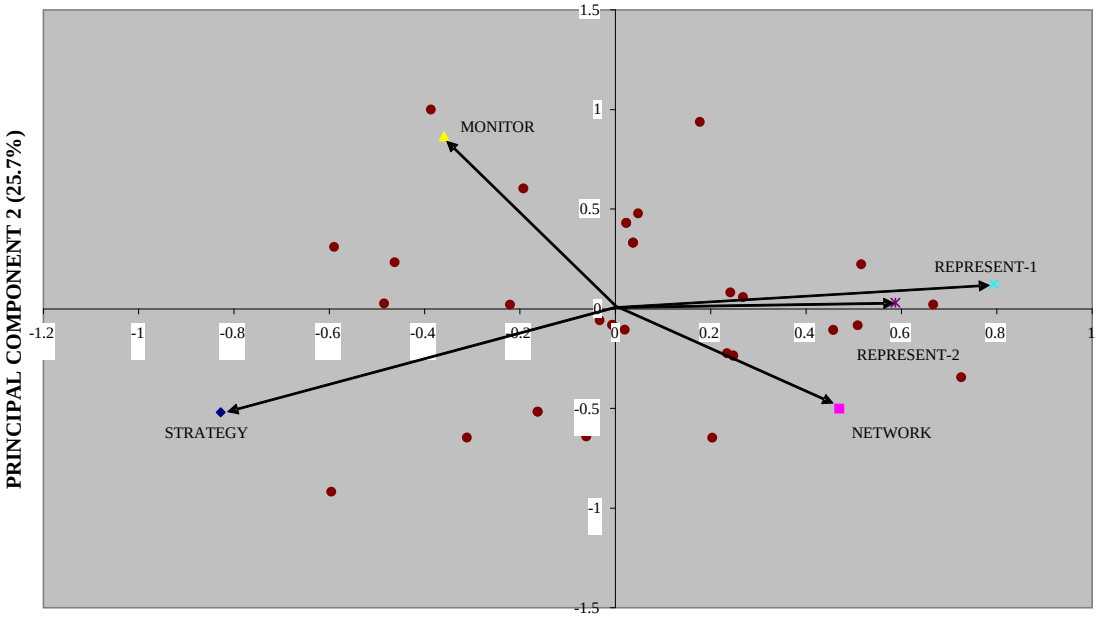


FIGURE 5D: WHAT YOU DO AS A MEMBER OF THE BOARD OF DIRECTORS: NEW-GENERATION COOPERATIVE N=33



The first question in the comparative analysis of the empirical governance space for the two types of cooperatives was do the dimensions of the space, and therefore the space itself, match?

Table 5H: Correlation of Principal Components Across the Empricial Governance Space

	PC-1 ALL	PC-2 ALL	PC-3 ALL	PC-1 TRAD	PC-2 TRAD	PC-3 TRAD	PC-1 NG	PC-2 NG	PC-3 NG
PC-1 ALL	1.000								
PC-2 ALL	–0.019	1.000							
	0.976								
PC-3 ALL	–0.008	–0.013	1.000						
	0.991	0.983							
PC-1 TRAD	**0.997***	–0.098	–0.017	1.000					
	0.0002	0.876	0.978						
PC-2 TRAD	0.065	**0.988***	0.106	–0.014	1.000				
	0.917	0.002	0.866	0.982					
PC-3 TRAD	–0.005	–0.132	**0.991***	–0.004	–0.010	1.000			
	0.994	0.833	0.001	0.995	0.987				
PC-1 NG	**0.929***	0.330	0.040	**0.897***	0.406	–0.006	1.000		
	0.022	0.587	0.949	0.039	0.497	0.992			
PC-2 NG	–0.009	0.241	**–0.944***	-0.015	0.136	**–0.947***	0.000	1.000	
	0.989	0.697	0.016	0.981	0.828	0.014	1.000		
PC-3 NG	–0.329	**0.665**	–0.006	–0.388	**0.600**	–0.128	–0.002	0.000	1.000
	0.588	0.221	0.992	0.519	0.285	0.838	0.998	1.000	

This phase of the analysis was conducted by first subjecting each subgroup of respondent data to a principal component analysis to determine the

factor loadings for each empirical space. Once the factor loadings were calculated a correlation, analysis was conducted on the principal components of the two groups. The results of this correlation analysis are shown in Table 5H. A comparison of the principal components determines whether the effort spaces for the two types of cooperatives are similar. For example, when comparing respondents from traditional cooperatives with the overall respondent effort space, the three primary principal components or dimensions match. The primary dimension of the traditional cooperative effort space (PC-1) has a correlation estimate of 0.997 (p-value = 0.0002) with the primary dimension of the overall respondent effort space, supporting the notion that the primary dimension of the two spaces is the same. Comparisons of PC-2 and PC-3 across the two spaces show equally strong correlations, indicating that the spaces are the same.

When comparing the empirical spaces of the new-generation cooperative respondents with all respondents, the data reflect a similarly strong correlation between the PC-1s of each space—0.929 with a p-value of 0.02. Differences in effort spaces appear, however, with comparisons of PC-2 and PC-3. As Table 5H demonstrates, the PC-2 for all respondents does not match the PC-2 of new-generation respondents according to their weak correlation—0.241 with a p-value of 0.697. Interestingly, the PC-3 of the all-respondent effort space demonstrates a strong correlation with the PC-2 of the new-generation space, as shown by the correlation estimate of 0.944 with a p-value of 0.016.

The findings are similar when comparing the traditional effort space to the new-generation space. PC-1 for the two groups of respondents shows strong

correlation (an estimate of 0.897 and a p-value of 0.039). Unlike PC-1, however, there are differences in the comparison between the PC-2 and PC-3 dimensions of the two spaces. The more significant difference is in the second dimension (PC-2) of the traditional effort space and the third dimension (PC-3) of the new-generation space. PC-2 of the traditional space, which is also identified as PC-2 of the all-respondent space, shows no significant correlation with any of the dimensions of the new-generation space. Similarly, the PC-3 dimension for the new-generation space shows no significant correlation with dimensions of the traditional space.

Board members' self-reports, therefore, identify differences between the two types of cooperatives in their effort spaces. Primarily, these differences are the result of a unique combination of underlying dimensions that influence the allocation of board member effort to each of the four roles.

Table 5I: Communalities of the Five Role Responses

ALL					
	STRATEGY	**NETWORK**	**MONITOR**	**REPRESENT-1**	**REPRESENT-2**
PC- 1	53.29%	0.03%	35.30%	69.95%	66.78%
PC- 2	34.37%	60.21%	20.28%	0.85%	1.40%
PC- 3	12.05%	38.42%	41.18%	8.69%	1.75%
TRADITIONAL					
	STRATEGY	**NETWORK**	**MONITOR**	**REPRESENT-1**	**REPRESENT-2**
PC- 1	48.50%	0.86%	42.78%	72.47%	72.50%
PC- 2	35.88%	71.69%	11.53%	1.30%	0.05%
PC- 3	15.35%	25.11%	42.28%	9.61%	3.44%
NEW GENERATION					
	STRATEGY	**NETWORK**	**MONITOR**	**REPRESENT-1**	**REPRESENT-2**
PC- 1	68.55%	22.05%	12.93%	63.09%	34.52%
PC- 2	26.96%	25.06%	74.99%	1.54%	0.09%
PC- 3	2.56%	28.42%	4.66%	2.39%	53.02%

Further differences in the governance spaces of offensive and defensive cooperatives are provided by examining the communalities between the five role responses and the specific dimensions of each space (Table 5I). The communality estimations show the percentage of total variation for each role response accounted for by a single dimension within the space. For example, for the all-respondent space, 53.29 percent of the variation associated with the role of strategic visionary is explained by PC-1 of the governance space, 34.37 percent is explained by PC-2, and 12.05 percent is explained by PC-3. When examining the communalities between the two cooperative types, differences in the level of influence by each dimension on a role become apparent. The correlation-of-factors analysis has suggested that the primary dimension of the governance space for the two cooperative forms is the same. If we accept that this is accurate, it is obvious from the information provided in Table 5I that this

dimension influences the effort allocated to each of the roles differently. The most striking differences are in the roles of networker and monitor. In the traditional governance space, PC-1 accounts for 0.86 percent of the variation in effort allocated to the role of networker and 42.78 percent of the variation in effort allocated to the role of monitor. In contrast, PC-1 in the new-generation governance space accounts for 22.05 percent of the variation in effort allocated to the role of networker and 12.93 percent of the variation in effort allocated to the monitor role.

PHASE 3: RANK-ORDER TESTS

The final phase of the analysis used a rank-order analytical test to better address the hypotheses related to how cooperative board members balance their allocations of effort to the four roles of board governance. Responses to both the frequency-of-action questions that measured the effort expended on a role and the allocation-of-effort questions were used in this analysis.

As mentioned previously, the 100-point allocation-of-effort questions used three distinguishable point-awarding criteria. The awarding of points was based on the respondent's perception of the level of effort each role received from the respondent and from the aggregate board and by the level of effort the respondent perceived as desired by the membership for each role. The mean distribution of points for each is displayed in Table 5J.

Table 5J: Mean Distribution of 100 Points across Five Board Role Options

ROLE OF BOARD MEMBER	WHAT YOU DO	WHAT BOARD DOES	WHAT MEMBERS WANT
STRATEGIC VISIONARY	29.05	32.46	29.31
NETWORKER	10.91	10.98	10.23
MONITOR	22.78	24.52	24.00
REPRESENTATIVE-1	20.67	17.02	18.41
REPRESENTATIVE-2	16.58	15.02	18.05

***Representative-1= "Communicate to my fellow board members and management what member-owners want from our cooperative."**
***Representative-2 = "Communicate to members what the cooperative, as an organization, is trying to accomplish."**

As identified in phase 1 of the analysis, the mean response for all respondents indicates that the role of strategic visionary receives the most attention under each of the distribution criteria, followed by the role of monitor

and then by the two representative statements. The role of networker received the least effort and focus, which could indicate either an inability by board members to use their personal networks to benefit the cooperative or a perception that the external networking role is of minimal importance. In contrast, the effort and focus expended on the role of strategic visionary identifies this role as of prime importance to board members.

In addition to distribution of the 100 points to the five statements, respondents were asked to rank each statement from 1 to 5 based on their personal perceptions of the relative importance of each role. Respondents were asked to rank the roles in ascending order with the most important role receiving a 1 and the least important role a 5. Ties were allowed in this ranking, resulting in some respondents giving subsets of the five roles the same rank. Ties in ranking were recalculated so that the roles included in the tied subset received a value equivalent to the mean rank for all of the ranks included in the subset. The mean rankings of role importance are shown in Table 5K.

Table 5K: Rank of Importance of Board Member Roles

Role of Board Member	Rank of Importance
STRATEGIC VISIONARY	1.94
NETWORKER	4.35
MONITOR	2.52
REPRESENTATIVE-1	2.83
REPRESENTATIVE-2	3.37

The mean values of the rankings further support the perception that the role of strategic visionary is the primary role for a board member. The remaining roles were ranked in the same order as in the spatial analysis in phase 2—monitor, representative-1, representative-2, networker—reaffirming that board members focus their efforts on what they believe to be the most important aspect of their service.

The analysis conducted in phases 1 and 2 suggests that there is little balance among respondents regarding allocation of effort or the perceived importance of the governance roles. According to theory, balance of governance roles equates to an effective governing board of directors. Therefore, this preliminary result of imbalance implies that the effectiveness of cooperative board members is limited. The goal of phase 3 of the analysis is to more closely examine this measure of balance for the four roles by expanding the review of the ranking data using a combination of the Friedman test of significance in difference between the ranks and the Kramer rank-sum test. The Friedman test is an analysis-of-variance technique used specifically for ranked data and is fairly powerful when applied to ranking of multiple items by all respondents. Data sets for the Friedman test take the same form as a one-way analysis of variance with repeated measures except that ranks are used instead of raw scores. This

aspect of the Friedman test allows for analysis of nonranking data such as the 100-point distribution questions as a ranking. Consequently, the raw responses for the questions regarding what board members do, what the aggregate board does, and what board members believe their constituents want them to do are transformed using Excel into ranking data in which the role receiving the highest proportion of the 100 points is assigned a ranking of 1 and so on. This transformation resulted in a data set with all 100-point-distribution questions resembling the ranking-of-importance question.

The Friedman test is very sensitive to any pattern that consistently ranks one of the options higher or lower than the middle ranking. The resulting statistic is comparable to the chi square value that depends on the number of items to be ranked and the number of respondents. Information provided by the Friedman test indicates whether there is a significant overall difference among the five role statements as ranked by respondents in each of the three questions. Once the significance of difference in ranking is assessed, it is possible to examine the significance of differences in ranking between each pair of responses. This allows for an examination of whether board members rank the strategic visionary role, for example, the same or different from the monitor role. The results from the ranking analysis for all respondents are presented in Table 5L.

The Friedman test chi square is significant in each of the rank sum comparisons. This indicates that for each 100-point-distribution criteria of what board members do individually, what the aggregate board does, and what members want the rank differences for the roles are significant. For each of the

ranking columns, a least-significant distance test, or Kramer rank-sum test, was conducted on each of the role pairs within the ranking. As Table 5L indicates, the ranking of the role of strategic visionary is significant for three of the four remaining roles, the exception being the role of monitor. This indicates that individual board members focus their efforts equally on the roles of strategic visionary and monitor. Furthermore, they perceive the same equality between strategic visioning and monitoring for the aggregate board and for what the members want them to do. When comparing the importance of these two roles, there is a significant difference in rank, indicating that respondents view one role, strategic visionary, as clearly more important than the monitor role.

Table 5L: All Cooperative—Rank Sum Differences of Roles

	WHAT YOU DO AS A MEMBER OF THE BOARD	WHAT ENTIRE BOARD DOES	WHAT MEMBERS WANT YOU TO DO AS MEMBER OF THE BOARD	WHAT ROLE IS MOST IMPORTANT
STRATEGY-NETWORK	**204.5****	**244****	**239****	**276.9****
STRATEGY-MONITOR	*41.00*	*44.5*	*29*	**66.35****
STRATEGY-REPRESENTATIVE-1	**70****	**140.5****	**109.5****	**102.04****
STRATEGY-REPRESENTATIVE-2	**114.5****	**188.5****	**132.5****	**164.64****
NETWORK-MONITOR	**163.5****	**199.5****	**210****	**210.55****
NETWORK-REPRESENTATIVE-1	**134.5****	**103.5****	**129.5****	**174.86****
NETWORK-REPRESENTATIVE-2	**90****	**55.5****	**106.5****	**112.27****
MONITOR-REPRESENTATIVE-1	*29.00*	**96****	**80.5****	*35.69*
MONITOR-REPRESENTATIVE-2	**73.5****	**144****	**103.5****	**98.29****
REPRESENTATIVE-1– REPRESENTATIVE-2	*44.50*	**48****	*23*	**62.60****
FRIEDMAN TEST CHI SQUARE	**85.33****	**140.97****	**123.44****	**153.71****
Least Significant Difference (LSD)	47.00	47.00	47.00	47.00
***=SIGNIFICANT AT THE .05 LEVEL*				

An interesting result comes from comparing the rankings of the two representative statements. Each statement was constructed to identify a direction of the representative role: 1) communicate from the membership to the cooperative; 2) communicate from the cooperative back to the members. The rank-sum analysis indicates a perception among board members that cooperative members want equal effort to be expended both aspects of representation and that the individual respondents apply equal effort and focus to each. But the importance of the two approaches and the amount of effort and focus applied to them by the aggregate board are not equal. In both cases, representative-1, “Communicate to my fellow board members and management what member owners want from our cooperative,” is ranked higher than

representative-2, “Communicate to members what the cooperative, as an organization, is trying to accomplish.”

Traditional Cooperatives versus New-generation Cooperatives

Further analysis of the ranking data was conducted to determine how differences in organizational type influence board members’ perceptions of the roles they assume. The 115 respondents were grouped according to the type of cooperative they represented, assigning 82 respondents to the traditional cooperative group and 33 to the new-generation group.

Table 5M displays the results of the ranking analysis for board members in the traditional group. In most cases, there were large differences in how members of the two types of cooperatives ranked board functions. Exceptions were the relationship between the role of strategic visionary and monitor and between the two aspects of representation, results that closely resemble the outcome for all respondents.

Table 5M: Traditional Cooperatives—Rank Sum Differences of Roles

	WHAT YOU DO AS A MEMBER OF THE BOARD	WHAT ENTIRE BOARD DOES	WHAT MEMBERS WANT YOU TO DO AS MEMBER OF THE BOARD	WHAT ROLE IS MOST IMPORTANT
STRATEGY-NETWORK	**142.50****	**174****	**173.5****	**199.4****
STRATEGY-MONITOR	*25.50*	*32*	*22.5*	**46.8**
STRATEGY-REPRESENTATIVE-1	**55****	**107.5****	**82****	**62.5****
STRATEGY-REPRESENTATIVE-2	**92****	**141.5****	**114.5****	**116.1****
NETWORK-MONITOR	**117****	**142****	**151****	**152.6****
NETWORK-REPRESENTATIVE-1	**87.50****	**66.5****	**91.5****	**136.9****
NETWORK-REPRESENTATIVE-2	**50.50****	*32.5*	**59****	**83.3****
MONITOR-REPRESENTATIVE-1	*29.50*	**75.5****	**59.5****	*15.7*
MONITOR-REPRESENTATIVE-2	**66.50****	**109.5****	**92****	**69.3****
REPRESENT ATIVE-1– REPRESENTATIVE-2	*37.00*	*34*	*32.5*	**53.6****
FRIEDMAN TEST CHI SQUARE	**61.47****	**104.75****	**95.76****	**113.37****
Least Significant Difference (LSD)	39.69	39.69	39.69	39.7
***=SIGNIFICANT AT THE .05 LEVEL*				

These results indicate that the traditional cooperative aggregate boardis viewed as focusing equal effort on communication back to cooperative members and utilizing personal networks. Given that these two areas are the lowest ranked of the five choices, this suggests that the aggregate boards of traditional cooperatives view outward communication, whether with external resource providers or cooperative members, as a low priority relative to the other three roles.

Table 5N: New-Generation Cooperatives—Rank Sum Differences of Roles

	WHAT YOU DO AS A MEMBER OF THE BOARD	WHAT ENTIRE BOARD DOES	WHAT MEMBERS WANT YOU TO DO AS MEMBER OF THE BOARD	WHAT ROLE IS MOST IMPORTANT
STRATEGY-NETWORK	**62****	**70****	**65.5****	**77.5****
STRATEGY-MONITOR	*15.5*	*12.5*	*6.5*	*19.5*
STRATEGY-REPRESENT1	*15.0*	**33****	**27.5****	**39.5****
STRATEGY-REPRESENT2	*22.5*	**47****	*18.0*	**48.5****
NETWORK-MONITOR	**46.5****	**57.5****	**59****	**58****
NETWORK-REPRESENTATIVE-1	**47****	**37****	**38****	**38****
NETWORK-REPRESENTATIVE-2	**39.5****	*23.0*	**47.5****	**29****
MONITOR-REPRESENTATIVE-1	*0.5*	*20.5*	*21.0*	*20*
MONITOR-REPRESENTATIVE-2	*7.0*	**34.5****	*11.5*	**29****
REPRESENTATIVE-1– REPRESENT ATIVE-2	*7.5*	*14.0*	*9.5*	*9.00*
FRIEDMAN TEST CHI SQUARE	**26.31****	**37.25****	**32.14****	**41.87****
Least Significant Difference (LSD)	25.18	25.18	25.18	25.18
***=SIGNIFICANT AT THE 0.05 LEVEL*				

For respondents serving on boards of new-generation cooperatives (Table 5N), differences in effort and focus between the five functions are drastically reduced. The strategic visionary role is not significantly different in rank of individual effort relative to any of the other functions except networker. This is also true between monitor and both of the representative roles and for the representative roles' interaction with each other. In other words, the roles of strategic visionary, monitor, and representative receive equal effort from new-generation board members. This suggests that new-generation board members bring better balance to the roles they perform. Although the results are not as pronounced, the outcomes for perceptions of aggregate board effort and for what members want from the board are basically the same.

SUMMARY OF HYPOTHESIS TESTS

Table 5P: Summary Results of Hypothesis Tests—Intellectual and Social Capital

Variable	Hypotheses	Analysis Results
Intellectual Capital	Ho: Board members from traditional, defensive cooperatives possess a level of **intellectual capital equal** to the level of intellectual capital board members from new-generation, offensive cooperatives possess. Ha: Board members from traditional, defensive cooperatives possess a level of **intellectual capital unequal** to the level of intellectual capital board members from new-generation, offensive cooperatives possess.	**Reject Null Hypothesis:** • Governing board experience • Cooperative experience • Nonfarm business experience • Formal education **Fail to Reject Null Hypothesis:** • Farm experience • Nonfarm agricultural experience
Social Capital	Ho: Board members from traditional, defensive cooperatives possess a level of **external social capital equal** to the level of external social capital board members from new-generation, offensive cooperatives possess. Ha: Board members from traditional, defensive cooperatives possess a level of **external social capital unequal** to the level of external social capital board members from new-generation, offensive cooperatives possess.	**Reject Null Hypothesis:** • Social capital through organizational links • Social capital through personal relationships
	Ho: Board members from traditional, defensive cooperatives possess a level of **internal social capital equal** to the level of internal social capital board members from new-generation, offensive cooperatives possess. Ha: Board members from traditional, defensive cooperatives possess a level of **internal social capital unequal** to the level of internal social capital board members from new-generation, offensive cooperatives possess.	**Fail to Reject Null Hypothesis:** • Degree of social interaction • Assessment of fellow board members.

Table 5Q: Summary Results of Hypothesis Tests—
Economic Relationship with Cooperative

Variable	Hypotheses	Analysis Results
Economic Relationship with Cooperative	Ho: Board members from traditional, defensive cooperatives have **economic relationships** with their cooperatives that are **equal** to the economic relationships of board members from new-generation, offensive cooperatives. Ha: Board members from traditional, defensive cooperatives have **economic relationships** with their cooperatives that are **unequal** to the economic relationships of board members from new-generation, offensive cooperatives.	**Reject Null Hypotheses:** • Farm input purchase • Farm product market • Overall use of cooperative • Importance of cooperative to household • Financial requirement of membership • Value = improved farm profit Value = share cooperative profit

Table 5R: Summary Results of Hypothesis Tests—
Effort Investment Toward Board Roles

Variable	Hypotheses	Analysis Results
Effort Investment o Board Roles	Ho: Board members from traditional, defensive cooperatives **invest equal amounts of time** to each of the four board governance roles as board members from new-generation, offensive cooperatives. Ha: Board members from traditional, defensive cooperatives **invest unequal amounts of time** to each of the four board governance roles compared to board members from new-generation, offensive cooperatives.	**Reject Null Hypotheses:** • Frequency of strategic visionary role • Frequency of monitor role • Frequency of networker role • Frequency of representative role

Table 5S: Summary Results of Hypothesis Tests—
Comparison of Board Governance Roles

Variable	Hypotheses	Analysis Results
Allocation of Individual's Invested Effort among Board Roles	Ho: Board members from traditional, defensive cooperatives **allocate their pools of effort** to the four board governance roles in a manner **equal** to how board members from new-generation, offensive cooperatives allocate their pools of effort to the four board governance roles. Ha: Board members from traditional, defensive cooperatives **allocate their pools of effort** to the four board governance roles in a manner **unequal** to how board members from new-generation, offensive cooperatives allocate their pools of effort to the four board governance roles.	**Fail to Reject the Null Hypothesis**
Rank of Importance of Board Roles	Ho: Board members from traditional, defensive cooperatives **rank the importance** of the four board governance roles in an order **equal** to how board members from new-generation, offensive cooperatives rank the importance of the four board governance roles. Ha: Board members from traditional, defensive cooperatives **rank the importance** of the four board governance roles in an order **unequal** to how board members from new-generation, offensive cooperatives rank the importance of the four board governance roles.	**Fail to Reject the Null Hypothesis**

Table 5S (Continued): Summary Results of Hypothesis Tests—Comparison of Board Governance Roles

Variable	Hypotheses	Analysis Results
Allocation of Aggregate Board's Efforts among Board Roles	Ho: Board members from traditional, defensive cooperatives **perceive allocation of aggregate board effort** to the four board governance roles in a manner **equal** to how board members from new-generation, offensive cooperatives perceive allocation of aggregate board effort to the four board governance roles. Ha: Board members from traditional, defensive cooperatives **perceive allocation of aggregate board effort** to the four board governance roles in a manner **unequal** to how board members from new-generation, offensive cooperatives perceive allocation of aggregate board effort to the four board governance roles.	**Fail to Reject the Null Hypothesis**
Perception of How Members Want Effort to be Allocated by Board Members	Ho: Board members from traditional, defensive cooperatives perceive **member expectations of allocation of personal effort** to the four board governance roles in a manner **equal** to how board members from new-generation, offensive cooperatives perceive member expectations of allocation of personal effort to the four board governance roles. Ha: Board members from traditional, defensive cooperatives perceive **member expectations of allocation of personal effort** to the four board governance roles in a manner **unequal** to how board members from new-generation, offensive cooperatives perceive member expectations of allocation of personal effort to the four board governance roles.	**Fail to Reject the Null Hypothesis**

Table 5T: Summary Results of Hypothesis Tests—
Traditional Cooperative Effort and Rank Space versus New Generation Cooperative Effort and Rank Space

Variable	Hypotheses	Analysis Results
Traditional "Patron" Cooperative Governance Effort Space versus New-generation "Patron-Investor" Cooperative Governance Effort Space:	Ho: The governance effort space of members serving on boards of directors of traditional, defensive-oriented agricultural cooperatives in the state of Missouri **matches** the governance effort space of members serving on boards of directors of new-generation, offensive-oriented agricultural cooperatives in the state of Missouri. Ha: The governance effort space of members serving on boards of directors of traditional, defensive-oriented agricultural cooperatives in the state of Missouri **does not match** the governance effort space of members serving on boards of directors of new-generation, offensive-oriented agricultural cooperatives in the state of Missouri.	**Reject the Null Hypothesis**

Table 5U: Summary Results of Hypothesis Tests —
Role Rank Order of Board Roles In Cooperative Board Governance: All Cooperatives

Variable	Hypotheses	Analysis Results
Balance across All Respondents	Ho: Cooperative members who serve on the organization's board of directors allocate personal effort to each of the four roles **equally**. Ha: Cooperative members who serve on the organization's board of directors allocate personal effort to each of the four roles **unequally**.	**Reject the Null Hypothesis**
	Ho: Cooperative members who serve on the organization's board of directors rank the importance of each of the four roles **equally**. Ha: Cooperative members who serve on the organization's board of directors rank the importance of each of the four roles **unequally**.	**Reject the Null Hypothesis**
	Ho: Cooperative members who serve on the organization's board of directors perceive the allocation of the aggregate board's effort to each of the four roles as **equal**. Ha: Cooperative members who serve on the organization's board of directors perceive the allocation of the aggregate board's effort to each of the four roles as **unequal**.	**Reject the Null Hypothesis**
	Ho: Cooperative members who serve on the organization's board of directors perceive cooperative members as wanting them to allocate their personal efforts to each of the four roles **equally**. Ha: Cooperative members who serve on the organization's board of directors perceive cooperative members as wanting them to allocate their personal efforts to each of the four roles **unequally**.	**Reject the Null Hypothesis**

Table 5V: Summary Results of Hypothesis Tests—
Role Rank Order of Board Roles in Cooperative Board Governance:
Traditional Cooperatives Versus New Generation Cooperatives

Variable	Hypotheses	Analysis Results
Comparison of Balance: Traditional versus New Generation	Ho: Traditional / new-generation cooperative members who serve on their organizations' boards of directors allocate personal effort to each of the four roles **equally**. Ha: Traditional / new-generation cooperative members who serve on their organizations' boards of directors allocate personal effort to each of the four roles **unequally**.	**Reject the Null Hypothesis**
	Ho: Traditional / new-generation cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **equally**. Ha: Traditional / new-generation cooperative members who serve on their organizations' boards of directors rank the importance of each of the four roles **unequally**.	**Reject the Null Hypothesis**
	Ho: Traditional / new-generation cooperative members who serve on their organizations' boards of directors perceive the allocation of the aggregate board's effort to each of the four roles as **equal**. Ha: Traditional / new-generation cooperative members who serve on their organizations' boards of directors perceive the allocation of the aggregate board's effort to each of the four roles as **unequal**.	**Reject the Null Hypothesis**
	Ho: Traditional / new-generation cooperative members who serve on their organizations' boards of directors perceive cooperative members as wanting them to allocate their personal efforts to each of the four roles **equally**. Ha: Traditional / new-generation cooperative members who serve on their organizations' boards of directors perceive cooperative members as wanting them to allocate their personal efforts to each of the four roles **unequally**.	**Reject the Null Hypothesis**

CHAPTER 6

CONCLUSION

Using the results from the three phases of data analysis and hypothesis testing it is possible to develop a simple description of members of the governing board of directors of agricultural cooperative and distinguish between directors from new-generation, patron-investor cooperatives and traditional patron cooperatives. In this chapter I present a detailed interpretation of how the empirical results from this research and resulting description inform cooperative board governance. In addition, I will demonstrate the limitations of this research and raise questions for future research.

WHAT DO THE EMPIRICAL RESULTS MEAN?

The Roles of the Cooperative Board

Setting strategic direction, a board governance action associated with the role of strategic visionary and formulated from a stewardship framework of governance, is the leading role as measured by allocation of personal effort, rankings of importance, perceived allocations of aggregate board effort, and perceived expectations of members in cooperative board governance. Collaborating with management in determining the best strategy for maximizing membership value received equal status for both forms of cooperative. This result implies that the members of a cooperative board of directors view their relationship with management as one that favors collaboration over conflict. Theoretically, this indicates that cooperative board members in Missouri share the stewardship view that management goals are not in conflict with those of a

cooperative's members and that opportunistic behavior by management is not the main obstacle hindering cooperative performance. As such, the directors' main role is to provide assistance to a rationally constrained management in developing the best strategy for achieving cooperative objectives.

Although the order of importance of the strategic visionary and monitor roles were equal for both types of cooperatives, the significance of this ranking is limited. Although strategic visionary, on average, is ranked ahead of critically evaluating cooperative performance, rank-order testing indicates that the difference in rank is significant in only one category—role importance—and then only for traditional cooperatives.

These combined results lead to the conclusion that strategic visioning, though receiving a higher mean average rank, is actually employed as often as monitoring in the governance of agriculture cooperatives. This finding demands further research into the seemingly independent but inseparable roles of forming strategy and monitoring performance. Potential questions about these two roles are numerous. What is the true nature of the relationship between cooperative board members and management? Is this relationship truly viewed as collaborative or is it adversarial? To what degree does the strategic visioning role facilitate the monitoring role? Do board members view the role of strategic visionary as independent of monitoring or is it a manifestation of monitoring? What motivates board members to engage in each oles? How are these motivations different for the two types of cooperatives?

As for differences based on cooperative type, the result that traditional board members perceive a significant difference in the importance of the roles of setting strategic direction and monitoring cooperative performance and new-generation board members do not spawns an interesting line of questions as well. Does the fact that strategy formation receives the highest rank and is significantly more important than monitoring the cooperative's performance represent the behavioral consequences of focusing performance at the farm level and not at the cooperative level? In essence, within a patron-centered organization, strategy formation represents an extension of members' farm business strategies. This revelation, in conjunction with the economic heterogeneity of cooperative members' farm businesses, would explain why strategic planning is considered the primary board task. The complexities associated with developing strategy to achieve the broadly defined, farm-focused objective function far outdistance the bounded rationality of cooperative management and call for increased collaboration between management and the board of directors through strategic visioning. In addition, linking strategy to farm performance creates a disconnect with cooperative performance that may diminish the importance of the monitoring role. Since the traditional cooperative's objective is mainly performance at the farm level, monitoring of its performance would logically take place at the farm level by independent cooperative members, thereby decreasing the need to focus board effort on the cooperative's performance.

In contrast, a new-generation cooperative connects strategy formation directly to cooperative-level performance objectives. This makes the setting of strategic direction and monitoring of performance equally important and justifies giving them equal attention. The findings from the ranking data support a hypothesis that differences in the influence of economic heterogeneity of owners between the two cooperative types alter the complexities of strategy development and, therefore, the required focus from management and the board. The results also support the need for more detailed descriptive research that identifies the specific tasks associated with each governing role. It may be that the differences between the two groups with respect to the rank-order significance of the board's roles result from differences in the scope of the tasks that are the essence of each role. Further examination via a qualitative research agenda that examines the relationship between differences in patron and patron-investor organizations and the complexities of strategy development and monitoring is encouraged.

The findings from the spatial analysis of the relative allocation of board member effort to each of the roles indicate that the dimensions that drive the level of role engagement are different. This supports the hypothesis that board members in both types of cooperative engage in the strategic visionary role with the same amount of effort but do so for fundamentally different reasons. The drivers of board governance effort would logically be manifestations of owner-benefit allocations. For traditional, patron cooperatives, strategy efforts would therefore be driven by the idiosyncrasies of the economics of members' farm

businesses whereas strategy and monitoring in patron-investor cooperatives are driven more by cooperative-level performance in the external market place. Better identification of these underlying drivers would allow for more specialized board training in strategy formulation.

The role of representative, which this research indicates is unique to boards of cooperative organizations, which are elected by the membership, receives equal status and effort from both forms of cooperative organization. Communicating to fellow board members and management what members want was consistently ranked higher on average than communicating to members what the cooperative as an organization is trying to accomplish. This was true for both types of organization.

The one difference in the rank-order of the representative role between the two groups was the rank of importance for the two representative actions. For traditional directors, the act of communicating the wants and needs of members was ranked significantly more important than the act of communicating back to members what the cooperative was trying to accomplish. Furthermore, communication from members to management via their board members was ranked as equally important and received the same proportion of effort as that of evaluating cooperative performance. There may be a close association between the act of performance evaluation and member communication in traditional patron cooperatives. Members of these cooperatives are presumably well informed about what they need as patrons and capable of assessing the degree to which the cooperative is meeting those needs, that is, performing. Monitoring,

therefore, would be done by the individual constituent members and then communicated to the cooperative via the representative board member to management. As for communication from the cooperative to members, the patron aspect of traditional members would allow them to witness the cooperative's operations whenever they patronized it, limiting the need for information conducted through the board.

For the patron-investor, new-generation board, the two aspects of representation were statistically equal in rank and level of engagement. The patron-owner character of these cooperatives would justify the similar status of communicating member needs to management. The enhanced status of directors communicating back to members in new-generation cooperatives is understandable given the large investments made by their members and their reliance on cooperative performance in the market as their source of ownership value. We would expect these characteristics, along with members' limited knowledge of value-added processing, to increase the demand on members to be better informed about cooperative operations.

Not surprisingly, the role of networker received the lowest status in both importance and level of engagement for both sets of cooperatives. As was hypothesized, the limited pool from which cooperative board members are selected restricts potential links to external networks and, therefore, constrains engagement in the role of networker.

One interesting difference in the status of the role of networker between the two cooperative types is its location in the spatial plot of board member effort

allocation. In the traditional effort space, the role of networker is orthogonal to the role of representative, indicating that these two roles are independent of one another in the allocation of effort. In other words, activity in cooperative member communication does not inform activity in communicating with external stakeholders. But for patron-investor, new-generation cooperatives, board members who engage in member communication via representation also are likely to engage in communication with outside resource providers. These differences in perspective and levels of engagement may be a further example of differences in the underlying dimensions that motivate and drive board member activities. This research offers a preliminary examination of cooperative board governance and sets the stage for more in-depth, detailed examinations.

Formal Board Training and Term Limits

An individual member who has been selected to serve on the board of a new-generation cooperative can expect to go through some level of formal board training. This is not true for traditional cooperatives, which conduct formal training significantly less frequently. Why would formal training of cooperative board members occur more frequently in new-generation cooperatives? Their degree of sophistication may provide the answer. The primary purpose of new-generation cooperative structure is to enable agriculture producers to vertically integrate into processing of agricultural commodities and seize economic opportunities higher up the supply chain. Value-added processing is an area of agribusiness that may be unfamiliar to many agricultural producers who would need formal training to effectively govern such activities. Furthermore, the fact that much of their fellow

constituents' personal wealth is linked to the cooperative's performance would move the board to adopt higher competency standards. Further support for this hypothesis comes from the significant difference in the level of formal education between the two groups of cooperative board members. Patron-investor board members, on average, have a higher level of formal education and likely place a higher value on formal education and training in general. Consequently, they might put a higher value on formal board training.

Although the quantity of formal training varies significantly between the two types of boards, the value of continued experience and continuity appears to be shared by both given the sparse use of term limits on board member service. Governance scholars argue that term limits enable the influx of new perspectives and ideas and propagate a higher level of creativity and analysis. The cost of this new perspective is the decrease in experience associated with board room cultures and in-depth understanding of cooperative-level business. This research suggests that both new-generation cooperatives and traditional cooperatives value the experience and stability of continued board service over the potential for new perspectives and ideas that come with formalized board turnover. Perhaps they recognize the lag time required for newly elected board members to learn enough about a cooperative's operations and a director's responsibilities to substantially contribute to governance of the cooperative. Discussions with many cooperative practitioners suggest that a newly elected board member who has no prior experience in organizational governance may require as much as one year of experience before being fully effective as a member of the board of

directors. It would be fair to hypothesize that the value of a trained, experienced board member is even higher in a new-generation cooperative due to the greater complexities associated with the value-added processing aspect of the business. This assumption is supported by the new-generation cooperative's greater reliance on formal board training. That investment would entice the organization to reap the returns as long as possible.

Board Member Social Capital

Vertical integration of an individual producer's farm business, which shifts the business focus from commodity production to value-added processing, via investment in a new-generation cooperative would be expected to heighten member awareness of the cooperative's interaction with the external market environment. This would explain the empirical result that the level of external social capital, as measured by organizational involvement and personal relationships, brought to the new-generation cooperative by board members is significantly greater than the level brought by traditional members. One could hypothesize that the increase in external social capital is associated with cooperative members' recognition that competitiveness in the external market depends on access to external resources. The more that member value is linked to cooperative performance, the more important it is that necessary resources be provided to assure satisfactory economic performance. Therefore, the level of social capital an individual can bring to the board room would partially determine being elected to the board.

An alternative hypothesis is self-selection by certain agricultural producers to invest in a new-generation cooperative. It is possible that the path of association between new-generation board members and increased external social capital actually begins with involvement in agricultural organizations. As the data suggest, patron-investor board members are significantly more involved in commodity, farmer, and political organizations. Each organization, to some degree, would be expected to promote the expansion of producer involvement in agribusiness and, as such, market the positives of vertical integration by farmers via new-generation cooperatives. It would be logical to assume then that increased individual activity in these forms of organization would positively influence a producer's decision to invest in a new-generation cooperative. To test this hypothesis, it would be necessary to do a comparative study of the general memberships of both forms of cooperative.

Board Member Intellectual Capital

More than 40 percent of new-generation respondents indicated that they had owned or managed a business other than their farms while only 23 percent of traditional respondents had. This represents a significant difference in general business experience that may indicate a more generalized difference between agricultural producers who choose to participate in a value-added new-generation cooperative and those who do not. As was hypothesized for levels of social capital, this difference may reflect recognition on the part of new-generation patron-investors of a need to be more selective when electing individuals to the board of directors. The greater commitment of personal wealth

by the patron-investor and the subsequent link of owner value to cooperative-level performance may incite members of new-generation cooperatives to select more business savvy individuals from the membership pool to serve as directors. Traditional directors, on the other hand, may not have high expectations placed on them by members. Furthermore, since owner value in the traditional cooperative is tied to patronage and is therefore realized at the farm business level, the need for these directors to have business experience beyond the farm gate may not be as highly valued.

The observations made about overall general business experience are repeated for the degree of experience associated with specific nonfarm agricultural industries. Specifically, close to half (47 percent) of the new-generation respondents indicated that they had experience in agriculture input sales, compared to only 25 percent of traditional directors. As for experience higher up the food and fiber chain, neither group indicated significant experience beyond the farm gate in commodity sales or food processing. This lack of experience in agribusiness indicates that the decision to become a patron-investor in a value-added, new-generation cooperative is not influenced by a lack of knowledge about the food processing business.

The limited scope of respondents' experience in the food and fiber chain beyond the farm gate begs the question of how effective cooperative board members are in providing insight and wisdom about the development of cooperative-level strategies. As stewardship theory indicates, the board's governance role is to provide management with guidance in determining the best

strategies by which the organization can realize the collective interests of its owners. Furthermore, the ability of the board to fulfill this role effectively depends on the skills and experience they bring to the board room. The apparent lack of experience among cooperative board members suggests that the value of their assistance with strategic vision, even when a significant amount of effort is expended, may be limited.

The limits of directors' experience also provide further support for the increased need for new-generation directors to engage more frequently in formal board training. The focus of this research is on measuring and comparing the quantity of effort given to the various roles of board governance. This measurement of engagement in each role partially informs about board governance activities in cooperatives but it is apparent that some additional assessment of the quality of this engagement is needed. Specifically, what is the value of the end product of this engagement? One would postulate that the quality of the contribution that new-generation board members make in forming the cooperative's strategy would be limited by a lack of practical experience in agribusiness outside of farm operations.

Average age, number of years farming, and number of years spent working in nonfarm-related agricultural jobs were all slightly different for the two groups but not significantly so. This lack of difference may be interpreted as an indication that the decision to become a patron-investor in a value-added, new-generation cooperative is independent of age, farming experience, and nonfarm agriculture experience. In other words, there is potentially another dimension that

distinguishes between producers who decide to vertically integrate via investment in a new-generation cooperative and those do not This unknown entrepreneurial dimension could represent differences in perspective related to the boundaries of an agriculture producer's farm operation. On one end of the dimension would be traditional cooperative members who envision their farm operations as closed links in the supply chain with limited or no interest in economic opportunity outside the farm. The other end of the dimension would represent entrepreneurial agricultural producers who seek economic potential all along the length of the food and fiber chain. Research focused on identifying the tangible characteristics of this dimension would be invaluable in informing cooperative policy and patron-investor start-up practices.

This entrepreneurial dimension, which could serve to drive certain agricultural producers toward vertical integration via ownership in a new-generation cooperative, may be informed by economic characteristics of individual farm operations. The results of this research indicate that there is no significant difference in the mean size of board member operations for the two types of cooperatives. This evidence, although informative, only touches the question of what influence an individual farm operation has on the decision to invest in a value-added new-generation cooperative. How does diversity of operation influence the decision? What about the influence of whether the producer focuses on livestock commodity production or crop production? Is there something about the culture of these kinds of farm production that might instill a more entrepreneurial approach to agribusiness?

These questions could be re-addressed with regards to selection as a director. What influence does economic size of a member's farm operation have on that farmer's chance of being elected to the board by the members? Are members of traditional cooperatives more worried than new-generation members about electing directors whose farm operations match theirs in economic size? One might assume, since member value in a traditional cooperative is tied to patronage and maximizing farm-level profits, that members would place more emphasis on electing directors with economically similar farms. In contrast, the emphasis placed on cooperative-level profits in a new-generation cooperative would then diminish the need for economic similarity between members and directors.

Board Member Use of the Cooperative

As dictated by differences in their cooperatives' ownership structures, traditional board members used the assets of their cooperatives significantly more. This was true for both input and commodity marketing services. This reflects a clear difference in the orientation of value received as a cooperative member. For the traditional board members, the value of patron ownership is realized through enhanced income flow from their farm operations. The use of cooperative assets decreases farm operation costs, as well as secures farm marketing revenues; cooperative assets do not directly influence the stock wealth of board members. In contrast, the required upfront investment in a new-generation cooperative introduces enhanced stock wealth as a major source of value for patron-investor owners.

Although patronage still represents a portion of new-generation cooperative ownership, it may be viewed as fundamentally different from the patronage of a traditional cooperative. Patronage in a traditional cooperative improves income flow within the predefined boundaries of the farm operation. Patronage in a new-generation cooperative expands the boundaries vertically and allows the owner-members to alter the revenue portion of their farm profit functions from sales of farm-produced commodities to sales of processed, value-added goods. For the new-generation board member, performance of the cooperative is the primary concern. The better the performance of the cooperative, the greater the revenue generated by the board members' supply of farm production and the higher the value of their cooperative ownership rights.

This emphasis on cooperative-level profits over farm-level performance by new-generation cooperatives board members is completely at odds with the emphasis of a traditional cooperative. This revelation offers an explanation for the significant differences in overall effort, as measured by frequency of engagement in board activities, given to each of the board governance roles by the two groups. Since cooperative-level performance is more important to member wealth in new-generation cooperatives, we expect a greater emphasis on all areas of organizational governance by the board of directors. Furthermore, the upfront investment by the board in the new-generation cooperative (as a requirement of ownership) reflects a higher degree of personal risk associated with the operations of the cooperative. Agency theory suggests that this increased relative risk would incite cooperative owners to increase the diligence

with which they monitor its performance. Similar to agency theory, the operational roles assigned to directors by the other three governance theories suggest a positive relationship between cooperative performance and role engagement. As such, with the increased emphasis on cooperative-level performance in patron-investor, new-generation cooperatives, we would expect that each role would receive more emphasis than they would in a traditional cooperative.

LIMITATIONS AND FUTURE DIRECTION

The survey instrument provided an adequate, although limited, source of data. Organizational board governance, which has proven to be complex and multidimensional, lends itself to the richness of qualitative case study methodology. Many variables within this research could be more clearly defined using a case study approach. Mainly, there could be more examples of how each of the four roles is manifested by individual board members. In addition, the assessment of the value of being a cooperative member by directors could be better understood with qualitative research. For the most part, a qualitative research approach that includes direct access to cooperative board room activity would improve the rigor of the research greatly. The ability to observe in depth the workings and interactions of the aggregate board and then link those observations to individual board member interview data would be invaluable in understanding organizational internal governance.

The survey data also fail to capture the influence of time on governance attitudes and actions. There was a considerable difference in the age of the two types of organizations. This age difference translates into differences in the life cycle of the cooperative. Logically, that life cycle difference could impact the dimensions of the board governance space. A sample selection of cooperatives that reflect different positions along the organizational life cycle would clarify this issue.

The comparison of cooperative board members in traditional and new-generation cooperatives demonstrates that there are differences in the types of individuals who typically serve as board members and the manner by which they govern. Furthermore, the spatial analysis suggests that the influences that drive governance activity are fundamentally different. When combined, these results suggest that there is an association between the structure of an economic organization and the drivers of its internal governance activity. Future empirical research should further examine this association by increasing the scope of economic organizational forms of the cooperatives in the comparison. Using the work of Cook and Chaddad (2004b), who developed a typology of various cooperative types, a comparison of different forms of cooperative property rights and board governance could provide a better understanding of the critical point at which organizational change results in differences in governance attitudes and actions. The results of the spatial analysis also call for further research to better identify the underlying dimensions of various cooperative board governance spaces. As the results indicate, there are dimensions in both the traditional,

defensive-oriented governance space and the new-generation governance space that are unique. Better identification of these dimensions would be valuable.

Future research should include an investigation into the types of individuals who join offensive-oriented cooperatives and those who choose to stay with defensive-oriented cooperatives. This study provides preliminary evidence that new-generation cooperatives attract individuals who are more entrepreneurial and possess a greater level of business savvy. This is apparent in the new-generation directors' tendency to be involved in a larger number of organizations and have greater levels of overall business management experience. Individuals who become members of new-generation cooperatives in general have a greater interest in seeking out potential economic opportunities. This hypothesis should be examined to a greater extent.

The aforementioned limitations and suggestions for future research offer a general perspective of how this dissertation can serve as a springboard for the examination of board governance in producer-owned organizations. The following in-depth interpretation of the differences observed in cooperative board governance provides more specific research questions and hypotheses suitable for future empirical work.

SUMMARY

This doctoral dissertation was produced for the purpose of better understanding and describing the complexities of cooperative governance. Using the four primary theories of board governance—agency theory, stewardship theory, resource dependence theory, and stakeholder theory—as a framework, the study surveyed 115 agricultural producers in the state of Missouri who serve as members of their cooperatives' boards of directors. The data from this survey were used to inform two research questions: What roles do governing boards of directors of U.S. agricultural cooperatives play in governing their organizations? Do the boards of directors of strategically offensive U.S. agricultural cooperatives play the same roles as the boards of directors of strategically defensive U.S. agriculture cooperatives? The results from this empirical study offer preliminary evidence that differences in cooperative structure do exist and influence the perceptions and actions of governing boards and their independent members. Furthermore, differences in cooperative structure seem to attract different types of agricultural producers. As expected, these results generate new questions and general hypotheses about the nature of cooperative board governance that can provide a fertile area for future research.

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APPENDIX A

RESEARCH PARTICIPANT RECRUITMENT PACKAGE:

1) **LETTER OF RECRUITMENT**
2) **SAMPLE RSVP RESPONSE CARD**
3) **SAMPLE FINAL SURVEY INSTRUMENT**

Division of Applied Social Sciences
College of Agriculture, Food and Natural Resources
University of Missouri-Columbia
Agricultural Economics – Agricultural Education – Agricultural Journalism – Rural Sociology

Dear Cooperative Board President

Your cooperative board of directors has been selected to participate in an important research project that addresses issues related to cooperative board governance. Participation in this research will involve each board member completing a survey questionnaire.

The questionnaire is designed to be completed during a regular board meeting and should take less than 15 minutes per individual to complete. The identity of each respondent will remain completely anonymous and will be treated with the utmost confidentiality.

The questionnaire responses will provide a means to analyze the characteristics, perceptions and practices of cooperative boards and individual board members within Missouri agricultural cooperatives. Ultimately, this research will grant cooperative leaders insight into the characteristics of effective cooperative board governance and contribute to the long-term goal of ensuring the continued viability and success of agricultural cooperatives in Missouri.

Please find enclosed two items.

1. **Sample Survey Questionnaire**:
   A sample of the questionnaire is enclosed solely for the purpose of your review as you consider the invitation to participate in the research. **This questionnaire need not be filled out and returned.**

2. **Self-addressed Stamped Post Card:**
   Once you have had a chance to examine the questionnaire and consider your board's participation, **please complete and return the post card provided by Friday March 17.**

The results of this research will be shared with each participating cooperative. If you have questions or comments regarding any aspect of this research please feel free to contact us at 573-882-0140.

Thank you very much for your consideration and support.

Sincerely,

Michael L. Cook Ph.D.
Professor
Department of Agricultural Economics

☐ **YES,** MY FELLOW DIRECTORS AND I WILL PARTICIPATE.

IF YES,

PLEASE INDICATE THE NUMBER OF DIRECTORS ON YOUR BOARD SO THAT WE MAY SEND THE CORRECT NUMBER OF QUESTIONNAIRES.

_____
NUMBER OF DIRECTORS

PLEASE PROVIDE THE MAILING ADDRESS TO SEND THE QUESTIONNAIRES.

_____

_____

_____

☐ **NO,** WE WISH TO NOT PARTICIPATE AT THIS TIME.

THE ROLE OF THE BOARD OF DIRECTORS IN AGRICULTURAL COOPERATIVES IN MISSOURI

THIS QUESTIONNAIRE IS DESIGNED TO MEASURE THE CHARACTERISTICS OF THE MEN AND WOMEN WHO SERVE AS MEMBERS OF THEIR COOPERATIVE BOARD OF DIRECTORS AND TO ASSESS PERSONAL PERCEPTIONS AND EFFORTS RELATIVE TO THEIR ROLE AS A BOARD MEMBER. ULTIMATELY, THIS RESEARCH WILL BENEFIT LEADERS OF MISSOURI AGRICULTURAL COOPERATIVES BY PROVIDING INSIGHT RELATIVE TO EFFECTIVE COOPERATIVE BOARD GOVERNANCE AND CONTRIBUTE TO THE LONG-TERM GOAL OF ENSURING THE CONTINUED VIABILITY AND SUCCESS OF AGRICULTURAL COOPERATIVES IN MISSOURI. INDIVIDUAL PARTICIPATION IN THIS RESEARCH IS VOLUNTARY AND WILL NOT EFFECT ONE'S POSTION AS A BOARD MEMBER. ALTHOUGH COMPLETION OF THE QUESTIONNAIRE WILL INVOLVE THE RESPONDENT SHARING INFORMATION ABOUT THEMSELF, THE IDENTITY OF EACH RESPONDENT WILL REMAIN COMPLETELY ANONYMOUS AND WILL BE TREATED WITH THE UTMOST CONFIDENTIALITY.

QUESTIONS OR COMMENTS REGARDING RESEARCH PLEASE CALL:

MICHAEL L. COOK 573-882-0140

IF YOU HAVE ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH PARTICIPANT, PLEASE CONTACT THE UNIVERSITY OF MISSOURI-COLUMBIA
IRB OFFICE AT (573) 882-9585 OR BY E-MAIL AT UMCRESEARCHCIRB@MISSOURI.EDU

HOW LONG, **IN YEARS**, HAVE YOU BEEN A FARMER?	**NUMBER OF YEARS**

HAVE YOU EVER WORKED IN AGRICULTURE IN SOME CAPACITY **OTHER THAN FARMING**?	**YES**	**NO**
IF YES, WHAT LENGTH OF TIME**, IN YEARS?**	**NUMBER OF YEARS**	

HOW MANY YEARS HAVE YOU BEEN A MEMBER OF **THIS** COOPERATIVE?	**NUMBER OF YEARS**
HOW MANY YEARS HAVE YOU BEEN A MEMBER OF **AT LEAST ONE** COOPERATIVE?	**NUMBER OF YEARS**
HOW MANY COOPERATIVES HAVE YOU BEEN A MEMBER OF IN YOUR LIFETIME?	**NUMBER OF COOPERATIVES**

ARE INDIVIDUAL PRODUCERS REQUIRED TO COMMIT A SIGNIFICANT AMOUNT OF CAPITAL UPFRONT TO BECOME A MEMBER OF **THIS** COOPERATIVE?	**YES**	**NO**

APPROXIMATE THE PERCENTAGE OF YOUR FARM PRODUCTION, IN AN AVERAGE YEAR, YOU <u>MARKET</u> THROUGH THIS COOPERATIVE?			
	0%		61%-80%
	1%-20%		81%-100%
	21%-40%		DON'T KNOW
	41%-60%		

APPROXIMATE THE PERCENTAGE OF YOUR FARM INPUTS SUCH AS SEED, FERTILIZER, FEED, ETC., IN AN AVERAGE YEAR, YOU <u>PURCHASE</u> FROM THIS COOPERATIVE?			
	0%		61%-80%
	1%-20%		81%-100%
	21%-40%		DON'T KNOW
	41%-60%		

APPROXIMATE SIZE OF YOUR TOTAL CROP OPERATION THIS YEAR IN ACRES.			
	I DON'T RAISE CROPS		1,001-1,500 ACRES
	LESS THAN 100 ACRES		1,501-3,000 ACRES
	100-500 ACRES		3,001-5,000 ACRES
	501-1,000 ACRES		MORE THAN 5,000 ACRES

APPROXIMATE SIZE OF YOUR CATTLE OPERATION IN NUMBER OF HEAD AT THE BEGINNING OF THIS YEAR.			
	I DON'T RAISE CATTLE		201-300 HEAD
	1-50 HEAD		301-500 HEAD
	51-100 HEAD		MORE THAN 500 HEAD
	101-200 HEAD		

APPROXIMATE SIZE OF YOUR **HOG** OPERATION IN NUMBER OF HOGS AT THE BEGINNING OF THIS YEAR.			
	I DON'T RAISE HOGS		2,001-3,000 HOGS
	1-500 HOGS		3,001-5,000 HOGS
	501-1,000 HOGS		MORE THAN 5,000 HOGS
	1,001-2,000 HOGS		

APPROXIMATE THE PERCENTAGE OF YOUR HOUSEHOLD INCOME DERIVED FROM **NON-FARM** SOURCES.			
	0%		61%-80%
	1%-20%		81%-100%
	21%-40%		DON'T KNOW
	41%-60%		

TO WHAT EXTENT DO YOU AGREE WITH EACH OF THE FOLLOWING THREE STATEMENTS? (PLEASE INDICATE BY CIRCLING THE NUMBERED BOX)

"LOWER PRICES FOR MY FARM INPUTS (FEED, SEED, FERTILIZER, ETC.) AND/OR ACCESS TO MARKETS FOR MY FARM PRODUCTION (CORN, SOYBEANS, LIVESTOCK, ETC.) REFLECT THE PRIMARY WAY I RECEIVE VALUE AS A MEMBER OF THIS COOPERATIVE. "						
STRONGLY AGREE			I'M NEUTRAL			STRONGLY DISAGREE
1	2	3	4	5	6	7

"INCREASED PRICES FOR MY FARM PRODUCTION AND RECEIVING A SHARE OF THE ANNUAL PROFITS EARNED BY THE COOPERATIVE REFLECT THE PRIMARY WAY I RECEIVE VALUE AS A MEMBER OF THIS COOPERATIVE. "						
STRONGLY AGREE			I'M NEUTRAL			STRONGLY DISAGREE
1	2	3	4	5	6	7

"IF THE SERVICES AND PRODUCTS PROVIDED BY THIS COOPERATIVE WERE TO DISAPPEAR TOMORROW, THE PERFORMANCE OF MY FARM OPERATION WOULD SUFFER."						
STRONGLY AGREE			I'M NEUTRAL			STRONGLY DISAGREE
1	2	3	4	5	6	7

AS A MEMBER OF **THIS** COOPERATIVE BOARD OF DIRECTORS ARE YOU REQUIRED TO ATTEND ANY FORM OF BOARD OF DIRECTOR TRAINING??	YES	NO

IF **YES** HOW OFTEN?

	LESS THAN ONCE EVERY TWO YEARS		TWICE PER YEAR
	ONCE EVERY TWO YEARS		MORE THAN TWICE PER YEAR
	ONCE PER YEAR		

IS YOUR SERVICE AS A MEMBER OF **THIS** COOPERATIVE BOARD OF DIRECTORS SUBJECT TO TERM LIMITS?	YES	NO

IN YOUR POSITION AS A MEMBER OF THIS COOPERATIVE BOARD OF DIRECTORS	NEVER	1 OR LESS TIMES PER MONTH	2 TO 3 TIMES PER MONTH	4 OR MORE TIMES PER MONTH
HOW OFTEN DO COOPERATIVE MEMBERS CONTACT YOU ABOUT COOPERATIVE ISSUES?				
HOW OFTEN DO YOU PERSONALLY COMMUNICATE WITH COOPERATIVE MEMBERS ABOUT COOPERATIVE POLICIES, ACTIVITIES AND ISSUES?				
HOW OFTEN DO YOU PERSONALLY COMMUNICATE WITH COOPERATIVE MANAGEMENT, OUTSIDE OF BOARD MEETINGS, ABOUT COOPERATIVE OPERATIONS AND PERFORMANCE?				
HOW OFTEN DO YOU PERSONALLY STUDY COOPERATIVE FINANCIAL AND/OR OPERATIONAL INFORMATION AND REVIEW COOPERATIVE PERFORMANCE?				

IN YOUR POSITION AS A MEMBER OF THIS COOPERATIVE BOARD OF DIRECTORS	NEVER	1 OR LESS TIMES PER MONTH	2 TO 3 TIMES PER MONTH	4 OR MORE TIMES PER MONTH
HOW OFTEN DO YOU SHARE INFORMATION WITH THE CEO AND YOUR FELLOW BOARD MEMBERS ABOUT PERSONAL CONTACTS YOU HAVE WHO MAY HELP THE COOPERATIVE IN SOME CAPACITY?				
HOW OFTEN DO YOU COMMUNICATE WITH PERSONAL FRIENDS OR BUSINESS ASSOCIATES, WHO ARE NOT COOPERATIVE MEMBERS, ABOUT ASSISTING THE COOPERATIVE WITH ISSUES THAT IMPACT THE COOPERATIVE'S MISSION AND OBJECTIVES?				
HOW OFTEN DO YOU THINK ABOUT AND STUDY POTENTIAL STRATEGIES THAT MAY HELP THE COOPERATIVE BE MORE SUCCESSFUL?				
HOW OFTEN DO YOU PERSONALLY COMMUNICATE WITH THE CEO AND/OR YOUR FELLOW BOARD MEMBERS ABOUT COOPERATIVE STRATEGY AND/OR PERFORMANCE OBJECTIVES?				

YOU ARE GIVEN 100 POINTS. PLEASE DISTRIBUTE THESE 100 POINTS AMONG THE FIVE OPTIONS BELOW ACCORDING TO HOW MUCH EACH OPTION REFLECTS WHAT YOU DO AS A MEMBER OF THIS COOPERATIVE BOARD OF DIRECTORS (WHAT YOU DO THE MOST SHOULD RECEIVE THE MOST POINTS).

WHAT I DO ON THE COOPERATIVE BOARD OF DIRECTORS IS..	POINTS
ASSIST IN SETTING THE STRATEGIC DIRECTION	
SHARE ACCESS TO INFORMATION AND RESOURCES FROM MY NON-COOPERATIVE NETWORK .	
CRITICALLY EVALUATE COOPERATIVE PERFORMANCE.	
COMMUNICATE TO MY FELLOW BOARD MEMBERS AND MANAGEMENT WHAT MEMBER-OWNERS WANT FROM OUR COOPERATIVE.	
COMMUNICATE TO MEMBERS WHAT THE COOPERATIVE, AS AN ORGANIZATION, IS TRYING TO ACCOMPLISH.	

NOW, PLEASE RANK THE OPTIONS IN ORDER OF IMPORTANCE FROM 1 TO 5, WITH 1 INDICATING THE BOARD TASK YOU BELIEVE IS MOST IMPORTANT.

THE ORDER OF IMPORTANCE OF WHAT YOU DO ON THE COOPERATIVE BOARD OF DIRECTORS IS..	RANK
ASSIST IN SETTING THE STRATEGIC DIRECTION	
SHARE ACCESS TO INFORMATION AND RESOURCES FROM MY NON-COOPERATIVE NETWORK .	
CRITICALLY EVALUATE COOPERATIVE PERFORMANCE.	
COMMUNICATE TO MY FELLOW BOARD MEMBERS AND MANAGEMENT WHAT MEMBER-OWNERS WANT FROM OUR COOPERATIVE.	
COMMUNICATE TO MEMBERS WHAT THE COOPERATIVE, AS AN ORGANIZATION, IS TRYING TO ACCOMPLISH.	

THE LAST TWO QUESTIONS DEALT WITH YOUR ROLE AS A BOARD MEMBER.

NOW WE ARE INTERESTED IN YOUR PERCEPTION OF….

…….<u>THE ENTIRE BOARD'S ROLE:</u>

YOU ARE GIVEN 100 POINTS. <u>PLEASE DISTRIBUTE THESE 100 POINTS AMONG THE FIVE OPTIONS BELOW</u> ACCORDING TO HOW MUCH EACH OPTION REFLECTS <u>WHAT THE COOPERATIVE BOARD OF DIRECTORS DOES COLLECTIVELY.</u>

WHAT THE COOPERATIVE BOARD OF DIRECTORS DOES COLLECTIVELY IS..	POINTS
ASSIST IN SETTING THE STRATEGIC DIRECTION	
SHARE ACCESS TO INFORMATION AND RESOURCES FROM MY NON-COOPERATIVE NETWORK .	
CRITICALLY EVALUATE COOPERATIVE PERFORMANCE.	
COMMUNICATE TO MY FELLOW BOARD MEMBERS AND MANAGEMENT WHAT MEMBER-OWNERS WANT FROM OUR COOPERATIVE.	
COMMUNICATE TO MEMBERS WHAT THE COOPERATIVE, AS AN ORGANIZATION, IS TRYING TO ACCOMPLISH.	

NOW WE ARE INTERESTED IN YOUR PERCEPTION OF….

…..**MEMBERS EXPECTATIONS OF YOUR ROLE**:

YOU ARE GIVEN 100 POINTS. PLEASE DISTRIBUTE THESE 100 POINTS AMONG THE FIVE OPTIONS BELOW ACCORDING TO HOW MUCH EACH OPTION REFLECTS WHAT THE MEMBERS WANT YOU TO DO AS A MEMBER OF THE BOARD OF DIRECTORS.

WHAT THE MEMBERS EXPECT ME TO DO IS…	POINTS
ASSIST IN SETTING THE STRATEGIC DIRECTION	
SHARE ACCESS TO INFORMATION AND RESOURCES FROM MY NON-COOPERATIVE NETWORK .	
CRITICALLY EVALUATE COOPERATIVE PERFORMANCE.	
COMMUNICATE TO MY FELLOW BOARD MEMBERS AND MANAGEMENT WHAT MEMBER-OWNERS WANT FROM OUR COOPERATIVE.	
COMMUNICATE TO MEMBERS WHAT THE COOPERATIVE, AS AN ORGANIZATION, IS TRYING TO ACCOMPLISH.	

HOW MANY YEARS, HAVE YOU SERVED AS A MEMBER OF **THIS COOPERATIVE'S BOARD OF DIRECTORS**?	**NUMBER OF YEARS**
FOR HOW MANY ORGANIZATIONS HAVE YOU SERVED AS A MEMBER OF THE GOVERNING BOARD (INCLUDING COOPERATIVES, OTHER BUSINESS, SCHOOL BOARD)?	**NUMBER OF ORGANIZATIONS**
HOW MANY YEARS EXPERIENCE HAVE YOU ACCUMULATED AS A MEMBER OF GOVERNING BOARDS? (INCLUDE ALL BOARD EXPERIENCE).	**NUMBER OF YEARS**

TO WHAT EXTENT DO YOU AGREE WITH EACH OF THE FOLLOWING TWO STATEMENTS? (PLEASE INDICATE BY CIRCLING THE APPROPRIATE BOX)

"IF I WERE UNABLE TO ATTEND ONE OF THIS COOPERATIVE'S BOARD MEETINGS IN WHICH AN IMPORTANT VOTE WERE TO TAKE PLACE, I WOULD TRUST MY FELLOW BOARD MEMBERS TO MAKE A GOOD DECISION IN MY ABSENCE."						
STRONGLY AGREE			I'M NEUTRAL			STRONGLY DISAGREE
1	2	3	4	5	6	7

"I BELIEVE THAT MY FELLOW BOARD MEMBERS AND I MAKE A GOOD TEAM AND SERVE THIS COOPERATIVE WELL."						
STRONGLY AGREE			I'M NEUTRAL			STRONGLY DISAGREE
1	2	3	4	5	6	7

LISTED BELOW ARE VARIOUS TYPES OF INTEREST GROUPS AND ORGANIZATIONS OUTSIDE OF THIS COOPERATIVE WITH WHICH A BOARD MEMBER MAY BE ASSOCIATED WITH. PLEASE INDICATE YOUR LEVEL OF ASSOCIATION WITH EACH TYPE OF GROUP MENTIONED BY PLACING AN X IN THE APPROPRIATE BOX TO THE RIGHT.

TYPE OF ORGANIZATION	I DO NOT BELONG TO AN ORGANIZATION LIKE THIS	I BELONG BUT HAVE VERY LITTLE INTERACTION WITH THE ORGANIZATION'S LEADERSHIP AND/OR FELLOW MEMBERS.	I BELONG AND INTERACT A FEW TIMES A YEAR WITH THE ORGANIZATION'S LEADERSHIP AND/OR FELLOW MEMBERS.	I BELONG AND INTERACT REGULARLY WITH THE ORGANIZATION'S LEADERSHIP AND/OR FELLOW MEMBERS.	I BELONG AND HOLD A LEADERSHIP POSITION WITHIN THE ORGANIZATION.
AGRICULTURE COMMODITY ORGANIZATION (EXAMPLE: CORN GROWERS ASSN., PORK PRODUCERS)					
FARM ORGANIZATION (FARM BUREAU)					
POLITICAL ORGANIZATION					
PROFESSIONAL SOCIETY					
SERVICE ORGANIZATION (EXAMPLE: KIWANIS, THE LIONS)					
SCHOOL BOARD OR OTHER NON-PROFIT					
CHURCH OR RELIGIOUS ORGANIZATION					

DO YOU HAVE A PERSONAL RELATIONSHIP WITH ANYONE WHO……..		
IS A REGIONAL OFFICER OF AN AGRICULTURE COMMODITY ORGANIZATION?	**YES**	**NO**
IS A NATIONAL OR STATE OFFICER OF AN AGRICULTURE COMMODITY ORGANIZATION?	**YES**	**NO**
HOLDS AN EXECUTIVE POSITION IN THE FARM INPUT MANUFACTURING INDUSTRY?	**YES**	**NO**
IS A REGIONAL OFFICER OF AN AGRICULTURAL NON-GOVERNMENTAL ORGANIZATION ? (EXAMPLE: FARM BUREAU, FARMERS UNION)	**YES**	**NO**
IS A NATIONAL OFFICER OF AN AGRICULTURAL NON-GOVERNMENTAL ORGANIZATION? (EXAMPLE: FARM BUREAU, FARMERS UNION)	**YES**	**NO**
HOLDS AN EXECUTIVE POSITION IN THE FOOD PROCESSING INDUSTRY?	**YES**	**NO**
HOLDS AN ELECTED POSITION IN YOUR LOCAL COMMUNITY OR COUNTY? (I.E. COUNTY SUPERVISOR, MAYOR, SCHOOL BOARD, ETC..)	**YES**	**NO**
HOLDS AN ELECTED POSITION IN YOUR STATE GOVERNMENT? (I.E. STATE REPRESENTATIVE, STATE SENATOR, ETC.)	**YES**	**NO**
HOLDS AN EXECUTIVE POSITION IN YOUR STATE DEPARTMENT OF AGRICULTURE ? (I.E. DIRECTOR OF AGRICULTURE, ASSISTANT DIRECTOR OF AGRICULTURE)	**YES**	**NO**
HOLDS A ELECTED POSITION IN THE U.S. FEDERAL GOVERNMENT ? (I.E. U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE, ETC.)	**YES**	**NO**

DO YOU HAVE A PERSONAL RELATIONSHIP WITH ANYONE WHO……..		
HOLDS AN EXECUTIVE POSITION IN THE U.S. DEPARTMENT OF AGRICULTURE?	**YES**	**NO**
IS A STATE OR NATIONAL OFFICER IN A POLITICAL PARTY?	**YES**	**NO**
IS ON THE FACULTY OR AN ADMINISTRATOR IN ONE OF YOUR STATE UNIVERISTIES?	**YES**	**NO**
HOLDS AN EXECUTIVE POSITION IN THE FINANCE INDUSTRY (BANK OFFICER)?	**YES**	**NO**
HOLDS A PARTNERSHIP IN A LAW FIRM OR OWNS THEIR OWN LAW FIRM?	**YES**	**NO**

HAVE YOU EVER MANAGED OR OWNED A BUSINESS OTHER THAN YOUR FARM BUSINESS?	**YES**	**NO**

HAVE YOU EVER WORKED IN THE SALES OF AGRICULTURAL INPUTS SUCH AS SEED, FERTILIZER, FEED, ETC..	**YES**	**NO**

HAVE YOU EVER WORKED AS A COMMODITIES BROKER ?	**YES**	**NO**

HAVE YOU EVER WORKED IN THE AREA OF FOOD PROCESSING OR PRODUCT MARKETING?	**YES**	**NO**

OVER THE PAST 12 MONTHS HAS YOUR COOPERATIVE EXPERIENCED ANY OF THE FOLLOWING ORGANIZATIONAL ISSUES?		
CHANGE IN CEO.	**YES**	**NO**
MERGER OR ACQUISITION.	**YES**	**NO**
EXPANDED OPERATIONS THROUGH MAJOR CAPITAL ACQUISITION OR IMPROVEMENT.	**YES**	**NO**
FACED LABOR CONFLICT.	**YES**	**NO**
MADE MAJOR CHANGES IN COOPERATIVE BYLAWS.	**YES**	**NO**
ENTERED OR TERMINATED A RELATIONSHIP WITH A MAJOR BUSINESS PARTNER (EITHER SUPPLIER OR BUYER).	**YES**	**NO**
RECOVERED FROM UNFORSEEN FINANCIAL CRISIS.	**YES**	**NO**
HAD THE REPUTATION OF THE COOPERATIVE ATTACKED FROM OUTSIDE SOURCES.	**YES**	**NO**

OVER THE PAST 12 MONTHS HAVE YOU EXPERIENCED ANY OF THE FOLLOWING ACTIVITIES WITH A FELLOW BOARD MEMBER FROM <u>THIS</u> COOPERATIVE?		
GONE FISHING OR HUNTING WITH A FELLOW BOARD MEMBER.	**YES**	**NO**
ATTENDED THE SAME CHURCH AS A FELLOW BOARD MEMBER.	**YES**	**NO**
WAS INVITED TO A FELLOW BOARD MEMBER'S HOME FOR A MEAL.	**YES**	**NO**
INVITED A FELLOW BOARD MEMBER AND THEIR SPOUSE TO YOUR HOME FOR A MEAL.	**YES**	**NO**
TRAVELED ON NON-COOPERATIVE RELATED TRIP WITH A FELLOW BOARD MEMBER.	**YES**	**NO**
ATTENDED A NON-COOPERATIVE SOCIAL EVENT WITH A FELLOW BOARD MEMBER.	**YES**	**NO**

WHAT IS YOUR FORMAL SCHOOLING BACKGROUND?			
	SOME HIGH SCHOOL		SOME GRADUATE OR PROFESSIONAL SCHOOL TRAINING (EXAMPLE: LAW SCHOOL, GRADUATE SCHOOL)
	RECEIVED HIGH SCHOOL DIPLOMA		RECEIVED GRADUATE OR PROFESSIONAL DEGREE.
	SOME COLLEGE OR TECHNICAL SCHOOL		
	RECEIVED COLLEGE DEGREE OR TECHNICAL SCHOOL DEGREE		

WHAT IS YOUR AGE?	**AGE IN YEARS**

PLEASE SHARE ANY COMMENTS YOU MAY HAVE ABOUT YOUR ROLE AS A MEMBER OF YOUR COOPERATIVE'S BOARD OF DIRECTORS OR ABOUT THIS RESEARCH.

THANK YOU VERY MUCH FOR YOUR CONTRIBUTION IN THIS IMPORTANT RESEARCH!!

VITA

William A. Matthews was born and grew up in Iowa City, Iowa. He graduated from Iowa City High School in 1986. He attended the University of Iowa as a freshman and sophomore before transferring and, utimately, completing his undergraduate course work at Iowa State University in May 1991. He graduated with a B.S. in Fisheries and Wildlife Biology.

Upon completion of his B.S. William worked for one season with the U.S. Fish and Wildlife Service in Valentine, Nebraska before volunteering for a two year service in the United States Peace Corps. From September 1993 to November 1995, William served as a natural resources volunteer in the South American country of Uruguay.

While in Peace Corps, William's experience with the impovershed peoples of Uruguay led to an interest in economics and economic development. Upon his return to the United States William persued his new interest in economics by taking introductory micro and macro economic courses at the University of Iowa. This experience led to a desire to become better educated in the field of applied economics, which eventually led to his arrival to the University of Missouri in January 1997. By May 2000 William had earned an M.S. degree in Agriculture Economics under the guidance of Dr. Elizabeth Dunn and attracted the interests of Dr. Michael Cook, who eventually offered William a National Needs Fellowship to continue his pursuit of a Ph.D.

In addition to earning two degrees at the University of Missouri, William was also fortunate to have met the love of his life, Dr. Hildegarde Heymann. With whom his is happily married.