Transactions Costs and Governance Structures: The Case of Great Lakes Cooperative and Green Plains Renewable Energy

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Introduction

"We have done a great deal of work, analysis, and even soul searching over this proposal before you. We stand here as your board and very confidently tell you that this is an extremely good and fair offer. We are confident that it is in the best interests of Great Lakes Cooperative's members, employees, communities, and customers to approve this proposal." Kevin Adolf, Board President, Great Lakes Cooperative

In early 2007, Great Lakes Cooperative's (hereafter GLC) board and manager held meetings with its membership to lay out the terms of a merger agreement with – a sale to, rather – Green Plains Renewable Energy (hereafter GPRE). The agreement was the result of months of discussions between the GLC board and GPRE. The catalyst that would ultimately lead to the merger of the two companies began as discussions about grain origination for GPRE's ethanol plant.

The ethanol industry was in its infancy in Iowa during this time, but was changing rapidly. GLC's members encouraged the board and management to find a way to engage in this growth with the hopes of securing margins for their grain. GPRE had just announced it was building an ethanol plant in GLC's territory near Superior, and GLC itself had months prior conducted feasibility studies of building an ethanol plant. GLC's goal was to find a way to be the grain origination for the Superior plant. Origination contracts, joint ventures, and other coordination agreements were considered. It was after months of discussions that the idea of a merger was born.

Background on GLC – A Tale of Two Co-ops

GLC was formed in 2001 and was the merger of two centralized, agricultural cooperatives, Everly Cooperative (hereafter Everly) and Superior Cooperative (hereafter Superior). These were headquartered in Everly and Superior, Iowa, cities about 40 miles apart from each other. The cooperatives had similar sales volumes: $47 million for Everly and $45 million for Superior during the two years prior to the merger.

These cooperatives offered traditional products to their members, including grain storage and marketing services, animal feed, and agronomy (bulk fertilizer sales, seed, crop protectants) and petroleum (fuel, lubricants, etc.) products. The two differed in the composition of sales, with Everly having about 3 times the petroleum and feed sales of Superior, and with Superior having about 1.5 times the volume of agronomy product sales. Both had similar grain sales volumes. The Superior cooperative had grain storage facilities on major and short line railways.

As suggested by the relative proximity of the business locations, some farmers were members of both cooperatives prior to the merger. Everly operated service locations in seven cities; Superior operated two locations in two cities. The two cooperatives had service locations as close as 17 miles from each other, but Everly's locations were generally south and west of Superior's two locations. Everly's multiple service locations suggests an emphasis on strategic placement of assets so as to forestall entry by competitors (e.g. privately held grain and farm supply companies, such as Andersons) and an emphasis on convenient service to the membership. Alternatively, Superior's two locations had the same total volume (12.9 million bushels) of storage as Everly, suggesting an emphasis on rapid and large facilities available at some distance for its members. Disparate location and service strategies led to distinct operating practices in the cooperatives and historically fierce competition for farmer business. Members of the two cooperatives expected that differences in operations would be accommodated, after the approval of the merger, by adopting either the practices historically used by one of the two cooperatives or by developing a new practice. These two service strategies resulted in distinct financial profiles for the two cooperatives. As shown in the table below, Everly generally had greater financial resources than Superior although much of it was invested in other cooperatives via retained net income allocated to the cooperatives in proportion to the volume of business they do with them.

Table 1. Summary Financial Information for Everly and Superior Cooperatives

Financial capital, immediately prior to the merger (in $ millions)	**Superior**	**Everly**
Working capital	1.5	2.0
Fixed assets	6.4	6.6
Investments in other cooperatives	2.4	6.7
Long term debt	2.9	2.6
Total equity	7.4	12.7

At this point in time many centralized cooperatives were consolidating so as to take advantage of scale economies through reduced fixed and operational costs, to attract and retain quality employees, and to continue to provide products that suited member needs. According to USDA statistics, the number of centralized agricultural cooperatives nationally dropped from 3,346 in 2000 to 3,140 in 2002, approximately one merger or dissolution per week, corresponding with a wave of mergers in the agribusiness industry occurring at the same time. These mergers were a response, in part, to the need to have increasingly large balance sheets in order to increase the options for forming vertical relationships with value-added firms, such as ethanol refiners.

Contemplation of the Everly-Superior merger began only after Everly hired a new CEO. The prior CEO had a lengthy tenure with the cooperative and had developed a predictable relationship with the board of directors to educate them about the operations of the cooperative, to assist directors in developing their governance skills, and collaborating with directors to form strategic plans for the cooperative. The new CEO had no operations experience in a cooperative, but had been a loan officer in a financial cooperative that had done business with Everly.

In January, 2001, the vote to approve the merger was held. Forty-seven percent of the eligible Everly members approved the merger and 16 percent of them voted against it; 44 percent of the eligible Superior members approved the merger and 21 percent of them voted against it. On average, over 35 percent of the membership in either cooperative did not vote. The new cooperative had approximately 2,500 members. The relatively long-tenured CEO of Superior, became CEO of the newly merged cooperative, Great Lakes Cooperative, and Everly's CEO, returned to a position in the finance industry.

GLC's formation resulted in several changes for the directors. Boards of directors typically perform planning, representation, and management monitoring functions on behalf of the membership, are elected from among the active membership of their cooperatives. Directors are expected to be responsive to the preferences of the membership for how the overall culture of operations develops within the cooperative, selecting products, services, and business strategies they believe best suit the current membership. In other words, the Everly board of directors tended to pursue a strategic plan for building assets that provided convenient agronomy products and grain storage and marketing service, with relative independence from other cooperatives. These directors developed relative expertise in planning for feed and petroleum markets, as well as grain merchandising. The Superior board of directors tended to pursue development of, and developed expertise in, relatively large physical assets at two locations, at low prices, with some of these products and services provided through relationships with other cooperatives. These directors developed relative expertise in grain, farm input supply, and petroleum products. The Superior board tended to monitor product pricing and personnel decisions made by the CEO very closely. A former CEO indicated the management team was "always defending [itself] against a couple of board members that knew more. It was never allowed to run." Both boards were composed of nine directors. The merged cooperative aggregated the boards of the two cooperatives into a single, 18 member board which would then be reduced to nine members over the next three years. Immediately after the approval of the merger, the combined board selected officers, electing Kevin Adolf as chair, and began operations. The board would represent an increasingly heterogeneous membership.

The CEO and board of GLC commenced operations in the rapidly changing environment of the ethanol boom; Iowa-based ethanol production in 2001 was growing rapidly. According to the U.S. Energy Information Administration, Iowa produced 10.5 million barrels of fuel ethanol in 2001; by 2008 it produced 56.1 million barrels, an average year-over-year production capacity growth rate of 28 percent. Nationally, 707 million bushels of corn were used for ethanol production in the 2001-2002 marketing year; 3.1 billion bushels were used in the 2007-2008 marketing year. Much of the increased corn production to supply ethanol happened in Iowa. The 2002 agricultural census indicates 1.9 billion bushels of corn were produced, increasing to 2.3 billion bushels in the 2007 census.

The GLC board made steady efforts to determine where the cooperative fit in this supply chain given the production capacity constraints of its membership and the voluntary nature of member choice to sell grain through the cooperative. They investigated a number of alternatives to originate corn for ethanol including condoing, leasing, sales of assets, and joint ventures with ethanol-producing firms. For instance, GLC contemplated increased coordination with a nearby ethanol production facility in Superior, called Superior Energy. GLC made a presentation to Superior Energy in late 2006 to facilitate this coordination. Consideration of these alternatives typically occurred in monthly board meetings and in consultation with outside experts; no mention is found of director retreats dedicated to developing a strategy for this supply chain opportunity or of consultation with professional associations or other groups that facilitate director skills and strategic planning.

GPRE's History and the Local Ethanol Realities

GPRE began operations in August, 2007 in Shenandoah, Iowa. Shortly thereafter, it purchased the assets of Superior Energy in August, 2008, bringing GPRE into the operating territory of GLC. A third plant was purchased in Tennessee in 2008, two were purchased in central Nebraska in mid-2009, and several others have been purchased since. According to the GPRE website, it is now the second largest ethanol producer in the world.

Ethanol producers participate in several, distinct, supply chains. Ethanol is derived from corn or other biomass as a feedstock, but the availability and carbohydrate-rich nature of corn make it the preferred feedstock. Corn is merchandised through country elevators or imported. Costly transportation of corn leads to only a handful of country elevators being present in any one corn producing area, but corn is otherwise available for import throughout the world. Records available from GLC at the time of the proposed merger indicate grain sales were approximately 70 percent of revenue. Once produced, ethanol is typically blended with gasoline and sold to consumers, making fuel blenders and refiners, a highly concentrated market, the primary customers of these firms. GLC was a retailer of petroleum products and was interested in installing E-85 pumps in its retail locations. Ethanol production generates distillers grains as a byproduct. These are sold to beef and dairy cattle operations as a feed ration ingredient. Sales occur at lowest cost when dried and transported to nearby farmers, a market with low concentration. GLC had significant feed sales at the time of the merger.

Conceptual Framework – The Role of Transaction Costs on Optimal Governance Structures

New Institutional Economics (NIE) is a framework of concepts describing how groups of agents interact. A key unit of analysis in this framework is individual transactions, including exchanges of physical and intellectual goods. The essential result of this framework is that organizations select a governance structure that minimizes the costs of doing transactions among the organizations. The term governance structure refers to institutions or arrangements that facilitate exchange, including firms of different types (e.g., sole proprietorships, corporations), contractual relationships, and arm's length transactions. Transactions have a broad interpretation, including actual transactions for goods and services but also include things like costs from asymmetric or incomplete information, search costs, and decision costs. Below are a few of the commonly refered to transaction costs that are considered.

Transactions costs and the frictions arising from them, of which decision making cost is one, in the context of NIE are externalities. An externality is anything that is created in the exchange (or transaction) that was not an original intent of the exchange. Coase famously reasoned that assigning property rights, when no transaction costs are present, causes any externalities in an exchange to be internalized by one of the parties. Once transaction costs arise, property rights may still make the distribution of externalities possible, but the optimal governance structure minimizes these.

Applying NIE to farmers and their cooperatives, farmers have property rights in a cooperative in that they have rights to the income generated by the cooperative by virtue of ownership. These rights are most valuable when the inputs provided to maintain them are highly variable (Fulton, 1995), with a consistent supply of quality inputs needed in order to generate maximum returns for the group. That is, the ownership rights farmers have in cooperatives only have value to the extent that enough capital – retained profits – is being put into the business to ensure it will continue to generate income. Farmers extract the benefits of ownership not through ownership alone, but also through patronizing the cooperative. Farmers are expected to regularly participate in the decision making of the cooperative so as to indicate what benefits they are willing to sustain through patronage.

The collective nature of the ownership and decision making in the cooperative is affected by at least two property rights issues: the free rider problem and the horizon problem (Giannakas et al., 2016). The free rider problem describes a situation where economic agents benefit from the provision of goods or services that they do not bear the entire cost of providing. In cooperatives, which are open membership (no requirement to use it), producers who do not become members benefit from the market and transparency of pricing the co-op provides, but do not share in the capital risk of investing and using the cooperative. Free rider problems emerge in the context of raising investment funds at the formation of the cooperative and, later on, during its growth during operations. They also arise in the context of making decisions about policies and investments associated with the cooperative. In both cases, members prefer to let others make investments and decisions but enjoy having access to the benefits of these. Since members may have differing valuations of the perceived benefits from the cooperative, whether its investments or its decisions, a large enough group of members in favor of generating a particular benefit must exist in order to overcome the free rider problem.

Horizon problems arise when the length of time during which members could claim the benefits from any given investment is less than the length of time during which the benefits are generated. As a result, the cooperative faces the prospect that short-run investments may be preferred over long-run investments since the length of time members can benefit from these investments can be mismatched with the life of the asset. Again, cooperatives overcome this when a large enough group of members is present that value the benefits of the long-run investment.

In the NIE framework, the choice of governance structure, e.g. a cooperative, is the dependent variable, while uncertainty, asset specificity, and frequency – all which contribute to transaction costs – are independent variables. Cooperatives are an optimal structure in which to assign the property rights when that structure facilitates exchanges among farmers and with other organizations at the lowest possible transaction cost. The NIE framework has been used to explain the particular features of transaction costs in cooperatives. Formation of a cooperative introduces transactions costs for farmers at two levels: among the farmers themselves, and between the farmers and the customers of the cooperative. These costs are affected by uncertainty accompanying the transaction, the level of transaction-specific investment required to consummate the transaction, and the frequency of interactions accompanying exchanges.

The primary transaction between a farm supply and grain marketing cooperative is the sale of farm inputs by the cooperative to the farmer or the purchase of grain from the farmer, bundled with associated storage and other marketing services. Farmers are typically well informed about grain purchase prices and are also generally aware of the prices of farm inputs from other retailers, cooperatives or not. As a result, employees of the cooperative have strong incentives to price competitively. Furthermore, this tends to be a topic about which a board of directors is most likely to be the best informed and can easily exchange ideas with the management team about these products and services. Under these circumstances the management team has low incentives for opportunism; the uncertainty of manager opportunism is low: members know something about how managers are likely to make decisions and they know how their capital investment will be used.

The primary transaction between farmers and the customer of the cooperative is the sale of a good, such merchandising corn. As customers, ethanol plants must have access to a consistent supply of corn that can be delivered on demand throughout the year. As explained by Wessen et al. (2014), corn has a number of alternative uses and farmers do not necessarily have to sell their grain to the ethanol plant. Uncertainty exists between the cooperative and the ethanol producer given the possibility that grain producers might renege upon a prior agreement to deliver grain feedstocks to an ethanol plant at an agreed upon price and delivery schedule due to unexpectedly higher spot prices. Furthermore, the Iowa region during the time period of this case can be characterized by a large number of potential grain producers and merchandisers with which to transact, making the consequences of any one merchandiser acting opportunistically against the ethanol firm significant.

When members transact with the cooperative, members often make little to no direct investment to supply capital or to construct fixed assets in order to participate in any individual transaction beyond incurring the fixed, often transportation, costs of obtaining or delivering goods. Members make substantial investments in the cooperative through allocated retained income generated by the cooperative, in proportion to the volume of patronage conducted by the member. On the other hand, members are not obligated to transact with the cooperative and may choose from multiple merchandisers for bids. Conversely, the sole reason for the jointly-owned fixed assets of the cooperative is to participate in farm input and grain marketing transactions and the cooperative makes significant physical and human capital investments in order to participate in the scope of transactions members desire. Members know a lot about the level of investments they make to participate in transactions with cooperatives, and tend to be well informed about the level of investment made by cooperatives. Members also tend to be willing to provide an opinion about how management should purchase or utilize resources and anticipate their opinions will affect operations decisions.

Transactions between farmers, via the cooperative, and the customer of the cooperative may involve transaction-specific investments. An ethanol firm, for example, may choose to site the construction of its refinery adjacent to the storage assets of a corn merchandiser. Customers of the cooperative face a potential hazard in the transaction: once the refinery is constructed their cooperative trading partners may try to appropriate the rents, the rights of which to use is a type of property right, from sale of corn to the ethanol company. Similar to the farmers, owners of the rights to dispose of the rents from the ethanol company's assets select a governance structure that minimizes the transactions costs. Rents can be safeguarded through vertical integration, but other options include long-term contracts, partial ownership, or other agreements.

The third determinant of transaction costs, transaction frequency, should be considered from at least two perspectives within an agricultural cooperative: the membership and the board of directors. Members make frequent purchases of a variety of farm input products, especially at harvest and planting times of year. Farmers transact frequently within a growing season, and transact across multiple growing seasons, with a cooperative. Members know something about the products that will be available and know their invested equity will be used to purchase assets that are used to store and distribute these.

The Role of Co-op Members, Boards, and CEOs within the NIE Context

Farmers interact with the market through various governance structures. Each structure features unique ownership and decision making characteristics. In cooperatives, farmers both regularly use the cooperative's services and make equity investments in it. In exchange for investment, farmers receive membership in the cooperative, are given nominal control over the disposition of the cooperative's assets, and have rights to the income the cooperative generates. Given the large number of farmers often comprising a co-op's membership, farmers typically use their decision making power indirectly through a board of directors composed of farmers elected from among the membership. Nevertheless, major decisions, such as whether to dissolve the firm or to merge with another entity, are decided by votes of the entire membership.

Boards of directors interact regularly with the CEO of the cooperative to carry out the mission of the cooperative. These two groups interact successfully when the board generates comments and questions for the manager to consider which, when answered, further the cooperative's mission. Formulating these questions happens in the context of the board's culture, which could be described as the sum of many elements: the board's strengths and weaknesses, its composition, its committee structure, the personalities of individual directors, historical leadership of the board, recent major decisions made by the board, and the nature of its relationship with the CEO.

Boards with a healthy culture enable directors to engage in planning, governing, representing, and monitoring activities that are more likely to promote achievement of the cooperative's mission. Boards with a healthy culture require an optimal amount of effort to engage in these activities. Planning effort results in a cohesive statement of how the management team can guide operations to achieve the mission. Governance effort includes adherence to bylaws, developing candidates that can serve as future directors and strengthening the capacity of existing directors, and developing and maintaining policies that allow cooperative management to be aware of and responsive to internal and external conditions. Representation activities on the board include protecting the member's financial interest in the cooperative through development of physical and human capital that can perform operations that contribute to member welfare. Monitoring occurs when directors can select indicators and measures of the cooperative's operations performance that contribute to the member's welfare and to require changes in operational procedures when performance deviates from desired results.

Directors divert effort, on a part time basis, from their own operations to make decisions in regular meetings of the board. Directors are elected from among the membership, with no regard to professional expertise related to the operations of the cooperative and serve voluntarily. Professional managers are hired and evaluated by the board of directors. The CEO is expected to organize, lead, plan, and control the day-to-day operations of the cooperative so as to achieve its goals, as specified in the cooperative's strategic plan. Directors cede formal control over the cooperative's assets to the CEO, but retain ultimate control through its planning, governing, representing, and monitoring obligations. Each CEO brings their own style of organizing, leading, planning, and controlling to the firm. The board and CEO optimize their engagement in their respective duties as they adapt to individual styles of providing feedback, exchanging information, and controlling the cooperative such that its mission is achieved.

The element of transaction frequency in this context should also be considered from two perspectives: between the farmers-via the cooperative-and the ethanol firm, and the frequency of transactions between the ethanol firm and its shareholders. Ethanol plants transact repeatedly with farmers, by direct sale, or with grain merchandisers. Transaction costs are minimized when transacting with parties nearest the ethanol as delivery costs are reduced. Ethanol plants may prefer to transact with large groups of farmers, or with large merchandisers, as the number of separate transactions needed to supply grain is reduced. As these groups make frequent transactions, incentives for misappropriating the rents from the exchange are reduced since this would jeopardize future transactions. In these situations, as reasoned by Wessen et al. (2014), less integrated forms of coordination for exchange can be employed.

As in cooperatives, ethanol firm shareholders form boards of directors to perform the planning, governing, representing, and monitoring obligations on behalf of shareholders. In this case, directors divert effort, on a part time basis, from their own employment to make decisions in regular meetings of the board. Directors are selected based on professional background and experience, with the chief executive often also chairing the board, accompanied by, for example, recently retired executives of the firm or others with substantial professional experience in the ethanol production or merchandising industries. Directors are compensated for their expertise and are now much more likely to be evaluated for their performance under the guidelines of the Sarbanes-Oxley Act of 2002.

Toward the Merger Between GLC and GPRE

The GLC board spent several months studying ways it could participate in the growing ethanol market and was conscious this would change the merchandising, and perhaps originating, opportunities available to the cooperative, not to mention its influence on attracting and retaining quality employees. The board had studied joint venture possibilities for ethanol production and development of a new generation cooperative as authorized by the recently passed section (501a) to the Iowa Cooperative Associations statute. This statute allows non-producer members to contribute equity to the cooperative, receive up to a maximum share of net income from the cooperative, and have limited voting rights.

The GLC board also spent time learning how it should form governance structures in future relationships with other firms. By 2008, GLC had just exited an origination agreement with New Fashion Pork. Corn forms an ingredient in the feed rations of pigs. Large pork processors, such as Smithfield, have increased the fraction of corn purchased directly from farmers and cancelled contracts with grain merchandisers such as Archer Daniels Midland and CHS, the nation's largest farmer owned cooperative. The CEO of GLC reported to the membership that "we had … experienced the problems that can arise in … a contract if not constructed correctly or both parties are not on the same page," and that it would be difficult to write a grain origination contract with an "I'll trust you, you trust me" philosophy.

These efforts occurred in the context of, what the board chairman described, the cooperative "finally beginning to jell into what it always had the potential to be." GLC approached the merger discussions with GPRE under the leadership of its second CEO since the merger and the fourth CEO many directors from the former Everly Cooperative had known in the past ten years. The board chairmanship had not changed since the Everly-Superior merger seven years prior.

In August, 2005 Superior Energy announced it had acquired land for construction of ethanol production adjacent to the Superior facility of GLC. This facility required corn as an input, and representatives of Superior Energy, later purchased by GPRE, interacted with GLC over the next three years to discuss plans Superior Energy, then GPRE, had to purchase corn from GLC. The board chair at the time indicated representatives of GPRE initially claimed "they had little interest in working closely with" GLC. Over the course of multiple discussions between GLC directors, and management, and representatives of GLRE, both groups learned about each other's scope of business in the grain origination, fuel marketing, and animal feed businesses. These discussions included introducing E-85 fuel pumps, that blend ethanol and gasoline, at GLC retail locations, making the cooperative one of the first to provide this type of fuel. GPRE and GLC representatives also discussed farmer-member incentives for planting corn varieties that enhanced ethanol yield during the refining process.

One evening during these discussions, two representatives of GPRE visited with the CEO of GLC and asked if he and the board would ever consider selling the cooperative. “The Superior facility?,” the CEO asked. “No. We mean the whole thing.” The CEO repeated the question to the board. The board requested an offer from GPRE and hired private consultants to consider several dimensions in order to evaluate the bid. These included an attorney, a grain appraiser, a real estate appraiser, accountants to review the cash flow of the cooperative, and how potential payouts of equity from a merger would compare to historical situations in which a cooperative had been merged into another type of firm.

GPRE offered GLC members $12.5 million in cash for their equity in the cooperative, equal to 101 percent of the cooperative’s equity. It also offered shares of GPRE stock, amounting to 7.1 percent of its company offering. For individual members of GLC, this meant they would receive a combination of cash and GPRE stock after the merger. For example, a member with $200 in common stock and $9800 in preferred stock (obtained as deferred allocated income), the member would receive $10,100 in cash and approximately 400 shares of GPRE stock. GPRE would also assume the liabilities for the existing employee pension program. The total value of the bid was approximately $30 million. The balance of the cooperative’s investments in other cooperatives, redeemed only through equity retirements at a time selected by the boards of the respective cooperatives, would be put into an escrow account. Members would have a share in the proceeds of these investments, valued at $10.4 million, as the associated equity was redeemed by their respective cooperatives.

During member meetings leading up to the merger vote, boards and management of both companies laid out the common interests both companies share in fuel, feed, agronomy, and grain. They also made the case that "buying the same bushel of corn twice" – once by the co-op and then by the ethanol plant – ultimately eroded value to the producer. As members considered the offer they noted the GLC had made cash payments of patronage historically, and was currently retiring equity allocated to the members as retained net income from earnings 25 years prior.

Questions for reflection

1. What governance structure should farmers select in order to influence agricultural markets in a way that brings them maximum benefits? Farmers are patrons with ownership and control rights when acting cooperatively. If they were to agree to the purchase, they would have neither. Why might they be willing to change the governance structure?
2. How did the value of participating in the decision-making process and in ownership change for GLC members and directors before and after the Everly-Superior merger? What is the role of member heterogeneity in deciding whether a cooperative is an optimal governance structure?

3. What was GLC's experience with writing grain origination contracts with customers? What do you think GPRE's experience was? How did this experience affect perception of which governance structure was ideal for exchange? How do markets police an executive team's ability to minimize transaction costs?
4. What concepts should be considered when valuing a cooperative? Is there a difference between valuing this type of firm and a publicly traded one? What information might be overlooked in a mere accounting analysis? Was GPRE's bid too low?

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