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Note

- 1 By CF is meant a co-operative firm, which is a firm like all other businesses except that it is owned, used and controlled by the members. Members are representing businesses. The Member Firm (MF) is called farm, horticultural firm, or just member, interchangeably.

7 Marketing Cooperatives as a System of Attributes

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Agricultural and horticultural cooperatives operate nowadays in a rapidly changing environment. The Dutch Cooperative Council (Nationale Coöperatieve Raad, 1990) distinguishes three developments. Production of a large number of products has reached self-sufficiency at the level of the European Union. Many markets are not characterized by shortages anymore, but by firms having large inventories or idle capacity. The agricultural policy of the EC tries to cope with this situation of over-production by adopting instruments like quotas, leave fallow, lower prices and less subsidized exports. The implication of these policies for firms is that expensive adjustments have to be made in order to eliminate excess capacity. A second development is that a different product assortment is required in order to be successful in a market which has changed from a seller's market to a buyer's market. Strategies like expansion of production and competition on the basis of prices are nowadays less important than product differentiation, market segmentation, specialization and diversification. Finally, the emergence of the internal market in Europe induced many merger activities which has resulted in a few large, multinational private corporations. These developments are not uniquely Dutch or European. Californian cooperatives also face consumers demanding more variety and markets which expand rapidly by transcending national borders due to trade agreements like NAFTA.

These developments have increased the demand for funds by cooperatives. First, product differentiation and diversification are necessary to meet the changing demand by consumers. It requires large sums of money. Second, the increasing size of markets has resulted in a few large players. Cooperatives try to prevent that the strength of their bargaining position decreases in favor of multinationals and concentrated retailers. However, they have problems to adopt the same policy as multinational corporations because financial funds are mostly acquired by retained earnings. This way of financing expansions is viable in slowly growing markets, but it has a hard time to deal with a jump in market size of the extent of European integration or NAFTA. They have been able to generate these funds up till now mainly by designing new internal financial instruments through relaxing the requirements regarding liability and exit. However, empirical evidence (van Dijk and Poppe, 1992) indicates that the limits to the sources of self-financing seem to be almost reached. The use of external funds like bank debt and outside equity seems inevi-

table. External funds may be acquired by issuing equity or using debt or some hybrid source of funds.

The Nationale Coöperatieve Raad (1990) identifies the domination of control by the members of the cooperative as the prime distinguishing feature of this organizational form. Dutch law provides possibilities for securing control by members (ter Woorst, 1989) because it provides the possibility that the members write in their charter that "up to two thirds of the boards of directors may be appointed from the members of the cooperative". This definition allows for more cooperative forms than the ones surveyed in Bonin et al. (1993). They distinguish the labor managed firm or production cooperative (PC) and the investor owned or conventional firm (CF). A PC is characterized by worker participation in firm decision making, profit sharing and employee ownership. Worker's decision-making right is a necessary condition in their definition. However, PCs are relatively rare in the Netherlands, whereas the agricultural and horticultural cooperatives are common.¹ These latter cooperatives are like a CF, with the difference that it is mainly financed by the input suppliers or buyers of the output. One way of defining an agricultural or horticultural cooperative is that it is either a certain group of input suppliers or a certain group of customers which owns a CF at another stage in the production column (marketing chain), either upstream (a purchasing cooperative) or downstream (a marketing cooperative). We restrict ourselves to marketing cooperatives in this article and refer to them as MC. Notice that the members of an MC own and decide upon the assets of an MC, but that the MC doesn't have any ownership rights regarding the assets of individual members which are used at the upstream stage. Another way of formulating this feature is that each member of an MC owns assets at two stages of production. First, the farmer makes his own investment decisions and owns the resulting assets at his farm (the upstream stage). Second, the ownership of the assets which are used to process the produce of farmers at the downstream stage is in the hands of all the members of the MC together. Figure 1 summarizes the differences between the PC, MC and CF mode of organization. This article analyses the differences between an MC and a CF.

Figure 1 Organizational Forms

Residual claimant	Organizational form		
	PC	MC	CF
Input suppliers	no	yes	no
Employees	yes	no	no

The implications of the feature of member domination in MCs is analyzed from a contract theoretic perspective. The starting point in the economic theory of contracts is a conflict of interest between the parties (owner of the firm and supplier of external financial funds) and asymmetric information (firm has superior information regarding the circum-

stances of stances of production). The guiding principle is that differences between financial instruments can be explained best by analyzing the incentives of the various parties. Financial instruments differ because they imply different incentives for the parties involved. The relationship between financial structure and organizational form is established by the observation that both involve a certain allocation of control rights. This implies that the choice of financial structure and organizational form will respond to a change in the optimal level of asset specificity, which is due to changing market circumstances.

Already Nourse (1922) explained the vertical integration aspect of an MC along the nowadays familiar lines of transactions-related costs associated with asset specificity² or sunk costs of investments at the farm (Williamson, 1985):

"Let us say that a small fruit-producing section has just been brought to bearing. The area is far from any large market, the product is perishable, and hence both risk and expense are high. Volume is not large enough to attract a private distributor. But success or failure, the salvaging of their investment, or the continuance of their life work may be at stake on the part of the growers. Hence it is argued (and demonstrated in practice) that the cooperative association of producers frequently achieves results where private outside entrepreneurship fails."

Ex post opportunistic behavior regarding the contract terms by one's trading partners (i.e. post-harvest 'hold-ups') is reduced by vertical integration (Klein et al., 1978). Another advantage is that the downstream part of the MC has lower transaction costs in acquiring inputs.

There are also issues of asset specificity regarding the investments of the MC. MCs face a trade off between reducing post-harvest holdups of highly perishable farm products at the upstream part and getting attractive terms on outside funds for the investments of the downstream part of the MC. We will focus on the investments at the downstream part of the MC and argue that the increasing level of asset specificity, especially investments in brand names, has reduced the viability of the MC.³

Another way of characterizing our results is to formulate them as a contribution to the Coase program. The celebrated Coase theorem (1960) states that every assignment of property rights results in a Pareto efficient allocation in the absence of bargaining inefficiencies and wealth constraints. The implied research agenda is that a fruitful starting point for research on organizations consists of the investigation of the assumptions of efficient bargaining and/or no wealth constraints. This paper addresses the viability of the MC by analyzing the impact of the lack of sufficient funds (wealth constraint) of MC members on the outcome of an efficient bargaining process between the parties associated with an MC regarding the level of asset specificity of new investments. Insufficient funds may prevent that an MC realizes a Pareto improvement in the allocation of control rights.

A successful cooperative is a unique construction: the triad of (common) interest, (common) finance and (common) control, realized in a twofold construction: a society (of members) and a company (economic institution).

Organizations are viewed as a cluster of attributes between which complementarities have to be realized (Milgrom and Roberts, 1990; Holmstrom and Milgrom, 1994).

The next two sections characterize an MC and a CF as two distinct clusters of attributes. Thereafter, several stylized facts of an MC are identified. Organizational attributes are distinguished, while the two following sections identify the circumstances in which a particular system of attributes (i.e. either a CF or an MC) is more efficient than the other cluster of attributes. An incomplete contracting account of MCs and CFs is formulated. The next section addresses the viability of the MC. Conclusions and some avenues for future research are formulated at the end.

Stylized Facts of MCs

MCs exist in many variations. This is to a large extent due to differences in the nature of their produce, e.g. milk is collected every day, whereas potatoes are harvested only during a certain season. However, there are also quite a few commonalities between MCs. This section lists several stylized facts of MCs and provides an account of its governing bodies.

The residual claimants of MC (i.e. the input suppliers) are usually faced with a number of obligations that differ from those of residual claimants of a CF. Five financial differences are distinguished. Members of an MC ...

- have a large personal financial stake in the MC, because a considerable share of the profits is added to the internal financial reserves of the MC each year;
- are to a certain extent personally responsible for financial losses⁴;
- are faced with the non-transferability of return claims during the membership period (i.e. 'money in the dead hand');
- don't face in general financial barriers to acquire membership. New members have immediately costless access to the resources of the MC and have the same rights as established members to the returns when the MC is liquidated;
- do face exit barriers.

Two closely related differences regarding the product portfolio are distinguished. Members of an MC...

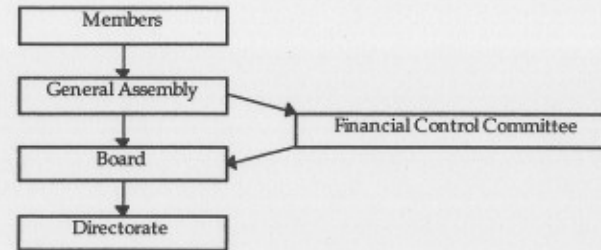
- are usually organized around one raw material, e.g. potatoes, sugar, beets, wheat, milk, etc.⁵;
- are reluctant to diversify the product portfolio of the MC.

Five organizational differences are observed. Members of an MC ...

- have in many cases 100% delivery requirement of their inputs to the MC;
- enjoy 100% purchase assurance of their produce by the MC;
- are faced with an increasing average age of their members due to declining entry of new, young members;

- allocate voting power according to one member, one vote;
- face institutional differences regarding the Board of Directors.

Figure 2 The Organization of an MC



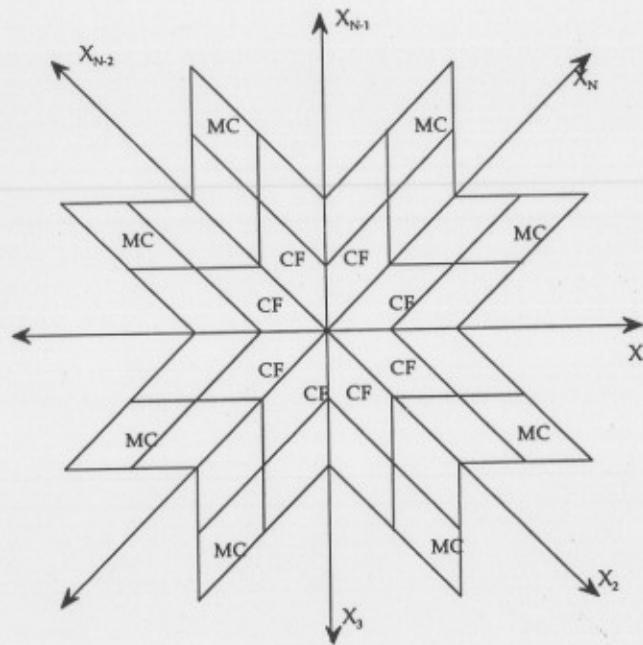
Ter Woorst (1989) describes several institutional differences between an MC and a CF. The Dutch law requires that the MC has a General Assembly, a Board of Directors and a Financial Control Committee. The General Assembly is the most important, because ultimately it determines the policy of the MC and evaluates the execution of the policy by the Board. In many cases, because of the large number of members and the vast region of the MC, regional committees are elected which form together the General Assembly. (This is often called the Members Council⁶.) The General Assembly chooses the members of the Board and the Financial Control Committee and has the power to replace them. Members of the Board and the Financial Control Committee are almost always members of the MC. One explanation is that their own financial interest coincides with that of the other members. This secures members' trust in the Board. The Board is ultimately responsible for the governance of the MC, culminating in the exclusive authority to determine the prices, dividends, or tariffs paid to or by the members. However, though the Board actively determines the strategic decisions and interferes with major organizational ones if necessary, a Directorate is appointed to run the MC in its day to day operational business. In regular joint meetings the Board monitors the Directorate, discusses possible options, decides on those and gives clear instructions to the Directorate. Figure 2 illustrates the relationships between the different bodies in an MC.

System of Attributes

Enterprises can be considered as a system of attributes.⁷ Good performance requires that the attributes/decisions are matched. Each specific system of matched decisions is considered an organization and carries a specific name. For example, an MC is considered as a system of matched attributes regarding the allocation of control, democratic decision making, culture, and so on. A CF is a system with the same attributes as an MC, but the value of each attribute differs.

Enterprises with two attributes can be represented by a matrix with the two decisions as entries and the payoffs in the cells of the matrix. However, an enterprise consists usually of more than two attributes, which is problematic from the viewpoint of graphical representation. This is resolved in Figure 3 by flattening an n -dimensional representation into two dimensions. The symbols x_1, \dots, x_N indicate the various decisions/attributes of an enterprise and the MCs (CFs) indicate the match of decisions which comprises an MC (CF). The rest of this section identifies attributes of an enterprise, either an MC or a CF, which are related and therefore have to be matched. The definition of each attribute is chosen such that a CF is associated with a low value and an MC with a high value.

Figure 3 CF and MC



Control by Providers of Input

An MC has (by definition) a high level of control by input suppliers, whereas a CF has not. Enterprises have to take into account which other parties are associated with it, like owners, suppliers, financiers, consumers and labor. MCs and CFs are expected to react differently to their environment due to their different objectives. The members of an MC are

special in the sense that they are both suppliers of raw materials and capital. A member of a cooperative in his role of supplier of raw materials is interested in receiving a high price for his input, a high price for the produce of the MC and a high return on the invested capital and likes to pay a low remuneration to the suppliers of outside capital. Their interests as a provider of funds are different, i.e. low prices of raw materials and a high return on capital. These considerations result in a different objective function of members of an MC than those of shareholders of a CF.

One-Member-One-Vote

Voting power in an MC has traditionally been allocated according to the one-member-one-vote principle. It is often seen as a crucial ingredient in strengthening the 'organized trust' perception of an MC because all members are treated equally. However, differences in size between members have gradually resulted in differentiated voting rights, although there is still a maximum number of votes per (big) member. Voting power in a CF is allocated according to one-share-one-vote.

One Product

MCs are usually organized around one product. This is viewed as a basic element for a successful cooperative, because it creates a common clearly perceived interest and a resulting common willingness of producers with a weak market position to work together. In case of combined processing of products realizes economies of scale and substantially combined product supply realizes higher prices. It enhances a very clear and straightforward way of accounting costs and benefits and of distributing the results, so that members can control the company effectively. The one product feature supports and strengthens the 'organized trust' perception of an MC, which facilitates decision making.

Democratic Decision Making and Internal Control Systems

A preceding section described the prominent role of the General Assembly in an MC. A number of arguments can be made in favor of democratic decision making. First, democratic decision making is likely to generate a merging of opinions along the lines of the Blackwell and Dubins' (1962) result. Second, democratic decision making is less vulnerable to successful politicking because bad proposals are winnowed out (Tullock, 1992). Third, the huge financial involvement of the financiers in the success of the cooperative is in general a strong commitment to acquire substantial information in order to evaluate policy decisions.

MCs seem to have a well functioning internal control system. Four aspects of the input suppliers are responsible. First, input suppliers have a large personal financial stake in the downstream firm. It turns out that third parties are even willing to provide debt without any liability of the input suppliers when they have generated a high level of 'inside' equity. This equity stake held by agents provides a credible signal that they will do their job of policing internal decision making well.

Second, the preceding section pointed out institutional features of the Board of Directors. They are favorable for the functioning of the Board of Directors in an MC. This is enhanced by the feature of personal liability of (internal) financiers of the MC. This provides input suppliers with strong incentives to collect information and force the Board of Directors to take decisions in their interest. These incentives seem to provide a setting in which the internal control system will work well. Both the organization of the Board of Directors and the personal liability of their members imply that the incentives to put forth effort in the internal control system of an MC are superior to those of a CF. Members of the Board of Directors of a CF face much weaker financial incentives to implement good policies, which opens the door for managers and members on the Board of Directors to realize certain personal goals at the expense of the value of the firm.⁸

Third, the lack of the market for corporate control enhances the incentives for members in an MC to generate a well functioning internal control system. Shares of an MC are not traded in the stock market. Members therefore face difficulties in trading their financial stakes. Stockholders can easily get out of a CF by selling their stock in the market. Members of an MC can't and therefore pay more attention to the way the MC is being run.⁹

Finally, a similar incentive is provided by the relatively bad developed market for inputs.¹⁰ This reduces the possibility for an MC of comparing its own performance with those of rivals. It becomes therefore more attractive to put forth effort in the internal control system in order to compensate for the absence of the yardstick of the market. The lack of the market for corporate control and the largely absent market for inputs provides a commitment to participate in the internal control system.¹¹

External Control System

Internal as well as external control systems serve a role in disciplining corporate decision making. Examples of external control systems are the capital market, the market for corporate control and the input market. The capital market and the market for corporate control are addressed in this section, whereas footnote 9 provides references regarding the input market.

MCs seem to have a different portfolio of banks from which they attract financial funds than CFs. It is usually much narrower. Aoki (1990) has pointed out the advantageous monitoring effects of having a

main bank instead of many banks in an analysis between different economic systems. It seems that the same arguments can be applied to different organizational forms in one economic system. A closer relationship between an investor and an entrepreneur implies that the investor receives a better signal regarding the bad state. It reduces the degree of incompleteness of ex-ante contracts. It will be argued in the next section that this increases the range of projects which will be implemented.

The recent curbing of the disciplinary functions of the capital market in the USA frustrates corporate decision making. It is obvious that the importance of organizational processes and procedures has increased in order to compensate for the reduced disciplinary power of the MC. However, Jensen (1993) argues that they often fail in CFs. He posits that this is also due to the restrictions which have been imposed on capital markets. One of the reasons for the failure of internal control systems is "the curbing of what I call active investors. Active investors are individuals or institutions that simultaneously hold large debt and/or equity positions in a company and actively participate in its strategic direction. Active investors are important to a well-functioning governance system because they have the financial interest and independence to view firm management and policies in an unbiased way. They have the incentives to buck the system to correct problems early rather than late when the problems are obvious but difficult to correct."

Capital markets in Europe and especially in the Netherlands have traditionally been more curbed than those in the USA (Boot, 1994). The rights of outside equity-holders are extensively curtailed in the Netherlands and new members of the board of directors are usually appointed by the principle of co-optation.

Delivery/Purchase Requirement

The delivery/purchase requirement assures the MC of raw materials, whereas CFs have to compete for inputs in the market. Another feature is that it used to be an important instrument in generating retained earnings. There was no market for inputs, because all input suppliers were member of an MC. This implied that the Board of Directors of an MC could exercise some discretion in the determination of the input price paid to the members in order to build up the retained earnings. This situation was prevalent in the fifties and sixties in Europe. Third, the delivery and purchase requirement prevents adverse selection problems regarding the quality of inputs. Fourth, it enhances the continuity of the MC and reduces the fluctuations in the rate of return.

Free Entry

New members of an MC have free entry, but members face an exit barrier. Free entry entails not only that a new member has the same access to

resources of the MC as the established members, but also that he has gained equal rights to the returns in the liquidation contingency. They have to either pay a fee when leaving (the Netherlands) or stay for a minimum number of years with the MC (Germany).¹² This exit barrier strengthens the continuity and the predictability of the MC. Its main purpose, however, seems to be to prevent attracting members whose only intention is to free ride on the existing resources of the MC. It is a scheme similar to Lazear (1979) in the sense that wealth constraints regarding an entry fee in order to obtain membership of an MC are circumvented by having payments spread out over the membership period.

Retained Earnings

Fourth, members of an MC are usually required to pay every year a financial contribution (by withholding part of the paid out price) in order to increase the reserves of the MC. This enhances the ability of an MC to acquire debt at favorable terms.

Non-Transferability

Transferability differences between CFs and MCs are likely to affect investment and capital formation. Equity shares of a CF can at every instant of time be traded in the stock market, i.e. they are transferable. Members of an MC have only claims to the returns of assets during the membership period. They often do not have individual and transferable ownership rights in the assets of the MC. Returns during the membership period have therefore to be at least as high as returns elsewhere. This limited appropriability problem requires that the internal rate of return on the assets of MCs must be higher than that of CFs if internally financed investment is to be chosen when the median membership duration is shorter than the project's recoupment period (Bonin et al., 1993). MCs using mainly internal funds to finance capital will therefore 'underinvest' relative to comparable CFs when a member's individual claim to the returns is non-transferable. The problem is getting worse due to adverse changes in the demographic composition of the member population. Retained earnings are also under pressure because the delivery/purchase requirement is harder to maintain in the current market.

Personal Liability

Members are (to a certain extent or even completely) liable for the losses of the MC, depending on the structure of the MC. Several advantages are associated with this feature. First, the solvency of the MC becomes more sound, which creates extra possibilities to increase the amount of debt (Diamond, 1989). Second, it makes the MC less vulnerable to adverse

shocks than a CF, i.e. MCs seem to have the ability to survive a longer period of temporary losses than CFs. Personal liability reduces the probability of liquidation. This will enhance the ability of an MC to get debt finance for new investment projects.

Cost of Equity

The cost of outside equity for an MC will in general be above those of a CF. Members of an MC have by definition the decision making power. It is not attractive for outside financiers to carry financial risks in an MC, because people with (partially) different interests are allowed to spend the money of outside financiers in ways they like best. Providers of equity have to be compensated for the lack of decision-making rights, which is due to the requirement of member control.

Rights of Control

This section will analyze the choice of organizational form and financial instruments from a rights of control perspective. The main ingredients are a conflict of interests and the observation that not every possible contingency can realistically be described in a contract. Williamson (1985) and Grossman and Hart (1986) argue that ownership structure can be best understood in terms of the control rights that it confers. Debt and equity are besides financial instruments also governance instruments in this approach.

The starting point in the incomplete contracts literature is that it is too expensive to describe all possible contingencies in a contract and to formulate an agreement for every possible situation. Contracts are incomplete in the sense that only the most prominent eventualities are usually described in the real world. Unforeseen contingencies are covered in an incomplete contract by assigning somebody the rights of control. This implies that contracts will not only consist of financial instruments based on verifiable information, but will also specify decision power in situations which are not explicitly covered by the contract.¹³ Each financial instrument specifies certain control rights and how returns depend on outcomes.

An organization is viewed as a nexus of incomplete contracts with employees, managers, suppliers, buyers, financiers, and so on. The incompleteness of contracts causes ex post bargaining problems (transaction costs) in situations where parties make irreversible, specific investments, i.e. choose assets which have a higher value within the relationship than outside it. The extent to which an asset is irreversible and specific to a particular activity is referred to as the level of asset specificity. The ex post bargaining positions will depend on the particular organizational form. Markets and hierarchies are the two extremes on a

continuum of possible organizational forms. A following section will distinguish an MC and a CF as two different hierarchies.

Aghion and Bolton (1992) stress in their analysis of the choice of financial instruments a conflict of interest, the incompleteness of ex ante financial contracts and a wealth constraint. The allocation of control rights is important from an efficiency point of view in a world of incomplete contracts when there is a conflict of interest between the investor (provider of funds) and the members of the MC (entrepreneurs). It entails a trade-off between the optimality of ex ante investments and ex post efficiency. Each financial structure implies a certain control structure. Three financial instruments are distinguished.¹⁴

Investor control (voting equity) is attractive in satisfying ex ante investment constraints regarding the provision of funds. However, it doesn't guarantee ex post efficiency, because the wealth constrained entrepreneur is not always able to establish Pareto improvements in the ex post renegotiation process. (The wealth constraint reflects the need of the members of an MC to borrow funds.)

The attractive feature of entrepreneurial control (non-voting equity) is that nothing inhibits the efficiency of the ex post renegotiation process, because the investor doesn't face any wealth constraints. However, the investor might not recoup his ex ante investment and therefore not adopt surplus generating projects. The reason is that the members of the MC may advance their own interest at the expense of the outside financiers. They are able to do this to a certain extent because non-voting equity allocates control to them in contingencies not covered by the contract.

Debt is the third financial instrument. It involves contingent control because the results determine who is allowed to decide. The entrepreneur decides as long as things go well, whereas decision power switches to the debtor when financial obligations can't be met. Contingent control may be a desirable financial instrument because it may improve upon either the ex post efficiency problem of investor control or the ex ante participation problem associated with entrepreneurial control.

The size of inefficiencies differs between financial instruments and determines the range of projects, in terms of the level of asset specificity k , which will be carried out by a particular form of finance. The optimal financial structure consists of a combination of financial instruments such that the residual decision rights are allocated in each unforeseen contingency to the right person.

MCs have less freedom in their choice of financial structure than CFs, because their charter requires member control, which precludes the design of an efficient number of contingencies regarding the allocation of decision power. MCs are restricted to the use of non-voting equity and debt as sources of funds, because MC members feel strongly that the integrity of the MC is destroyed when control has to be shared with non-members. However, internal financial constraints may force them to acquire outside funds.¹⁵ This is problematic in the competition with other organizations, because the domination of control requirement will most likely result in a higher premium for outside funds. Two crucial aspects of financial

instruments are responsible for this: the financial risk and the allocation of decision rights regarding the use of funds. Asset ownership, i.e. those who carry the business risk, does in itself not confer any decision making rights. However, CFs assign these two aspects in the design of their financial instruments to their outside equity holders. The reason is that there is usually a negative relationship in financial contracts between the extent of decision-making rights and the premium received for providing outside capital. External financiers must be compensated with a higher premium when control rights are denied to them, in order to have them provide significant funds. The domination of control requirement puts MCs at a disadvantage compared to CFs in the competition for external funds, because they do not allocate the decision-making rights regarding the use of outside funds to the outside financiers. An inefficient level of asset specificity of new investments may be the result. Another way of formulating this result is that there are investment projects with levels of asset specificity k for which a CF will use outside equity, whereas it is efficient (but only second best) for an MC to use other financial instruments.

One of the stylized facts of an MC is that a significant amount of inside equity is provided by keeping a considerable share of the profits as retained earnings each year. This is often seen as a major advantage of the MC, because it provides an inexpensive source of funds. However, it also has a disadvantage in the sense that it is a governance structure which is more 'forgiving' than debt. Inside equity provides weaker incentives than debt to perform well.

MC versus CF

Markets for agricultural and horticultural products have evolved from a growth period to a period of saturation. Current markets require specific investments of an MC in order to meet the specific demands in the many niches of the market. The optimal value of asset specificity of the MC investments is increasing. The choice of organization will be analyzed with respect to the change in market conditions, i.e. the viability of the MC-cluster of attributes will be addressed as a function of the level of asset specificity k of the investments of an MC.

The delivery/purchase requirement of many MCs seems to be attractive in shortage markets. However, markets for raw materials of MCs are quite different today. Excess supply is common, which is especially problematic for MC. In processing and in selling, growing output made high investments in new capacity necessary in order to absorb the deliveries of their members. This made MCs especially vulnerable to downward changes in input volumes, resulting in lower prices paid to members.¹⁶ Another effect is that it undermines the 'organized trust' perception of the members, which may result in more cumbersome democratic decision making and a reduced willingness to approve investment projects with a long horizon. It is further undermined by the tendency of MCs to

respond to these new circumstances by restricting free entry into the MC, limiting personal liability, relaxing the one-member-one-vote feature and reducing the non-transferability of return claims. The viability of the MC seems therefore questionable when the attractiveness of the purchase/delivery requirement is reduced.

A disadvantage of democratic decision making in an MC is that the process of opinion- and decision-making regarding important policy shifts is more time consuming than in other organizational forms. This problem seems to be increasing when markets become more complex. There are also problems in a strategic context. First, a consequence of the time consuming democratic decision making process is the wide spread practice of MCs to determine and fix their input price once a year. Members want to know and cash this price, which is the remuneration of their deliveries to the MC, as soon as possible. A first mover disadvantage in the competition with rivals is implied, especially when an MC has a high market share. A rival CF finds itself in a comfortable position in that it is able to choose its price later, sometimes at a different level. Second, an increase in the degree of asset specificity (k) exacerbates the disadvantages an MC has to face. Investments with a higher k entail less involvement of the members, because they lack the specific knowledge to form an opinion and give their fiat. Higher outlays are therefore required for a well functioning democratic process of decision making and the preservation of the 'organized trust'. The process of decision-making will also take more time because the degree of complexity probably increases with a higher level of asset specificity, especially in a globalizing economy. Third, if k increases without a direct relation with the original activities of the MC (and thereby with the basic activities of the members), members will be more pessimistic regarding the corresponding value and risks than shareholders of a CF.

This causes reluctance amongst members to accept that a large part of the surplus will be kept as retained earnings, unless an acceptable rate of profitability on other investments (including their own farm) will be realized.

The driving force behind the choice of financial instruments mentioned above is that the impact of the wealth constraint of entrepreneurs differs for each financial instrument. It is obvious that a relaxation of this constraint by the internal generation of funds reduces the hold-up problem of the use of non-voting equity by the MC. There are two sources of internal MC funds: financial contributions by MC members and retained earnings. These sources are under pressure in surplus markets.

The delivery/purchase requirement and the personal liability features are in principle able to compensate for disadvantages of the MC, but the change in market circumstances has undermined the strength of these two mechanisms. An inefficient level of asset specificity of new investments may be the result. This applies especially to situations where the size of the market grows faster, due to e.g. European integration, than the growth of organizations based on internal means.¹⁷ The limited transferability of ownership rights by the members of an MC

will result in underinvestment when mainly internal funds have to generate the required capital. The problem is getting worse due to adverse changes in the demographic composition of the member population. Retained earnings are also under pressure because the delivery/purchase requirement is harder to maintain in the current market.

Notice that the superior functioning internal control system of the MC either creates some leeway for either the input suppliers to advance an input price which is above the market price, or not to provide the efficient level of attention in the internal control system, or slack, or increase the financial reserves of the MC. However, the extent to which these activities are allowed by the market depends on the level of asset specificity. Figure 4 summarizes our account of the differences between MCs and CFs. Two hierarchical governance modes are distinguished: an MC and a CF. A hierarchy is a cost minimizing governance structure when the degree of asset specificity of investments is higher than k_1 .¹⁸ The MC and CF are examples of hierarchies and have therefore to be analyzed in this domain. The curve of an MC is below (above) the curve of a CF when the advantages of a cooperative outweigh (are smaller than) the disadvantages. The curve of an MC is steeper than curve of a CF.

Figure 4 MC versus CF

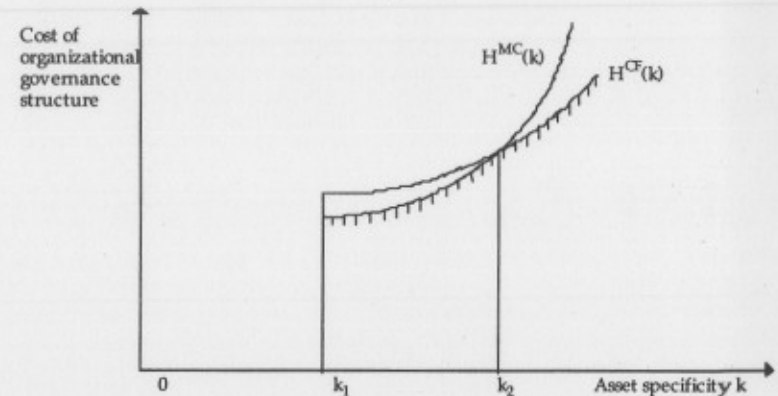


Figure 4 reflects a situation in which an MC may be an efficient governance structure. The conclusion is that MCs may be a viable organizational form for intermediate levels of asset specificity, i.e. $k_1 \leq k \leq k_2$.¹⁹ (An MC will not emerge or disappear when the costs of its governance structure are higher than those of a CF for every value of k higher than k_1 , i.e. $k_2 \leq k_1$.) Figure 4 also indicates that the members of MC have some leeway to advance their interests as input suppliers when $k_1 < k_2$. This is costly for this governance structure. However, market demand and competition by CFs provides an upperbound to the achievement of these interests (Hart, 1983; Scharfstein, 1988). The robust hypothesis which emerges is

that an increase in the level of asset specificity will not result in a switch from the CF-cluster of attributes to the MC-cluster of attributes.

Conclusions and Further Research

This article has investigated some aspects of the viability and financial structure of the MC. Contract theoretic notions and system complementarities have been used to analyze MCs. We have argued that an increase in the level of asset specificity of the investments of an MC will never result in a switch from a CF to an MC. The MC is likely to be an efficient, even superior, governance structure for intermediate levels of asset specificity in markets which are characterized by shortages. However, it seems that the transition of an economy from shortage to surplus markets together with the limited financial capabilities of the MC members reduces the (contract theoretic) viability of the MC. First, the disappearance of the shortage situation makes members less indispensable for the MC. Second, the delivery/purchase requirement can't be maintained anymore, which results in cream skimming by downstream firms and undermines the triad of (common) interest, (common) finance and (common) control. Third, lower margins and technological advances have had an adverse effect on the demographic composition of the member population, which drives MC into activities with an emphasis on short run returns. Finally, the twofold construction of a society (of members) and a company (economic institution), i.e. ownership of an adjacent stage in the production column with the requirement of member control, limits the asset specificity range of projects which outside financiers are willing to fund.

An important topic for future research is to investigate the possibility of designing financial instruments which on the one hand maintain the special cooperative character and on the other hand eliminate the inefficiencies associated with this organizational form. Section *Rights of Control* has addressed in this respect some interesting developments in the financial literature. This seems not only applicable to the feature of domination of control by the members of the MC, but also to the feature of the voting power of the members and the Board of Directors. Voting power in an MC is usually not related to the amount of money invested but to membership. Shares in a privately owned company determine the voting power of the owners, but this strong link between financing and voting is missing in an MC. Each member in an MC has one vote, regardless of the financial stake of a member. This seems problematic with respect to maintaining the largest, and usually most efficient, farmers as members. However, they are a crucial element in the viability of the MC. Most solutions which are nowadays considered within the MC structure consist of some differentiation in the financial terms being offered to members. Examples are participating preferences share and quantum discounts. It takes account of the variety between the members and may resolve the horizon problem. This seems inevitable, even though it undermines the principle of equity of members.

However, the MC will most likely continue to face problems in competing successfully with a CF. Both the low degree of indispensability of MC members in markets without shortages and the low degree of complementarity (Hart and Moore, 1990) between the post-harvest holdup problem and the specificity of assets regarding the final product renders the vertical integration aspect of an MC as an unlikely outcome from an efficiency point of view. Other solutions for the problems of MC challenge the viability of the structure of the MC. Different organizational arrangements (association, participation company) may have to be considered to address the specific problems of enterprises in agricultural and horticultural markets, such as the lack of countervailing power when the MC is abandoned. It is obvious that an integrated approach to organizational form and financial structure has in addition not only to take issues like those mentioned in footnote 3 into account, but also fiscal and judicial aspects.

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Notes

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- 1 There are nowadays substantial differences in market share, from 100% in potato starch production, 90% in credit, 85% for coops in dairy processing to \pm 38% in meat processing and purchase coops. Purchase and selling coops play a dominating role in trading and processing of agricultural products in the Netherlands. Due to economies of scale and scope in production and marketing as well as the need to decrease the costs of governance and control, there has been a big concentration tendency. In the period 1975-1993 the number of coops dropped by more than 40% to 1048 (Zwanenberg, 1993). The value of current sales is around \$ 37 billion. (The credit cooperative accounts for 744 cooperatives with annual sales around \$ 17 billion.)
 - 2 Williamson (1985) distinguishes four kinds of asset specificity: site specificity, physical asset specificity, human asset specificity and dedicated assets.
 - 3 Many aspects of MCs are not dealt with in this article, but are addressed in the literature, e.g. competitive yardstick (Nourse, 1922), stability (Sexton, 1986), entry (Sexton and Sexton, 1987), spatial dimensions (Sexton, 1990) and ethical attitudes (Zusman, 1993).
 - 4 MCs in the USA don't have this feature. A recent Dutch example in which this feature was exercised is in the dairy MC Heino Krause (NRC Handelsblad, 1994). Each member had to pay about \$ 200.000 to banks in order to relinquish a huge debt, which was mainly due to mismanagement.
 - 5 MCs in California and the Netherlands have this feature, whereas MCs in de Midwest of the USA don't. The focus of this paper is on the former MCs.

- 6 Its size varies between 80 and 150 persons and it consists of members only. 7 The notion of an organization as a system of attributes (Milgrom and Roberts, 1990) can be introduced by an example. Suppose an orchestra consists of a string and a wind section. Each section has to decide about the speed, either slow or fast, at which they are going to play. There are four possible combinations of these two decisions: (slow, slow), (slow, fast), (fast, slow) and (fast, fast), where the first component is the decision of the string section and the second component the decision of the wind section. The decisions (slow, fast) and (fast, slow) are considered terrible, whereas (slow, slow) and (fast, fast) are both enjoyable. (Technically, (slow, slow) and (fast, fast) are each a Nash equilibrium in pure strategies.) The ranking of (slow, slow) versus (fast, fast) depends on the circumstances, e.g. an old audience may prefer the former, whereas a young audience may like the latter better. There are two important aspects of this example. First, good performance by the orchestra/system requires that individual decisions fit/match/co-ordinate. The combination (slow, fast) as well as (fast, slow) don't fit internally, whereas (slow, slow) and (fast, fast) do. Second, there are several combinations of decisions which form a mutual fit. The specific circumstances, e.g. type of audience or type of market, determine which one is best.
- 8 These attractive features of an MC don't imply that an MC necessarily functions better than a CF, because its shares are not traded in the stock market. A CF with a listing on the stock market has committed itself to report regularly and according to certain standards about its state of affairs. Another attractive feature of the publicly traded CF is that additional external funds can be obtained by issuing new shares, whereas an MC often has to go thru cumbersome negotiations with the providers of external funds.
- 9 Holmstrom and Tirole (1993) model the relationship between the liquidity of a market and the informational content of prices. Markets with MCs are less liquid, because its shares are by definition not traded. Informed traders (speculators) will spend less time on monitoring in these markets because it is harder for them to disguise their private information. An implication is that the ability to design more efficient contracts to discipline managers is reduced. Notice that this doesn't affect an MC or a CF differently, because they have access to the same public information, i.e. the stock price of CFs with a listing on the stock market. However, the MC is free riding on this information, which seems to reduce the importance of the competitive yardstick argument in favor of MCs (Nourse, 1922; Sexton, 1990). Observe that this argument has probably more bite in the USA than in the Netherlands, because the market for corporate control hardly exists in the latter country.
- 10 Markets for inputs are hardly completely absent, because MCs almost never have a 100% market share.
- 11 The incentives in an MC to participate heavily in the internal control system do not only have favorable consequences for its functioning. The concluding section will point out that an often observed disadvantage of the MC is that they are rather slow and conservative in their decision making processes compared with CF. This reduces their flexibility and creates inertia with respect to their reaction to changing market circumstances. (An advantage of a slow, democratic process with conservative voters may be that the approval of a policy decision will be carried out fast and without much sabotage.) The additional problem of attracting new funds is addressed in section *Rights of Control*.
- 12 Recent court cases in the Netherlands have forbidden several exit fees, whereas cancellation clauses are allowed.

- 13 The similarity between the complete and incomplete contract literature is that incentive considerations are the main issue. Complete contracting analyses emphasize the return aspects of financial instruments. An example is the model by Jensen and Meckling (1976) in which securities only vary in terms of income streams. The manager decides (i.e. has control rights) in all circumstances, regardless of the composition of the capital structure. This is in sharp contrast with the incomplete contracting framework, where issues of property rights and rights of control are the focus of analysis.

The complete contracting approach has implications for the financial structure of MCs. Jensen and Meckling (1976) argue that external equity is not attractive from a cost minimization point of view. External financiers know that their provision of funds will reduce the marginal costs of non-profit maximizing activities of managers. Their response is to increase the rate at which funds will be made available. This observation applies to the members of an MC because their objective function is not completely aligned with those of external financiers, as pointed out in the introductory section. The right incentives for cost minimization are provided when the cooperative members are the sole residual claimants. This is established by external funds completely consisting of debt. Debt requires a fixed amount of money which has to be paid back after some time. The remaining loss or profit is on account of the cooperative. Financial structure also affects investment. A feature of debt associated with a CF is limited liability, i.e. shareholders are not personally responsible for paying back the loan when the organization goes bankrupt. This encourages the choice of unnecessarily risky projects. Bankruptcy costs are carried by the providers of the external funds, whereas successes accrue to the owners. These considerations reduce the attractiveness of debt in favor of equity. Members of an MC have personal liability, i.e. they are to some extent personally responsible for payments in the case of bankruptcy. This limits the adoption of risky projects by MC. (This is one explanation for the stylized fact that an MC usually concentrate on one input, because it reduces the portfolio of candidate projects.) The optimal financial structure takes both cost minimization and investment selection issues into account. Both aspects point towards a higher debt/equity ratio for MCs than CFs.

- 14 Hendrikse and Veerman (1995) formulate differences and similarities between the transaction costs economics account of financial instruments (Williamson, 1988) and the incomplete contracting approach of Aghion and Bolton (1992).
- 15 Notice that the personal liability feature of an MC reduces the probability of liquidation because it reduces the wealth constraint in the ex post renegotiation process.
- 16 The Dutch cooperative pig slaughter houses provide an example. The 100% purchase requirement necessitated increasing slaughter capacity in order to process the growing pig production in the eighties, which absorbed thereby the largest part of the internally generated financial means. Investments in product and market development with high levels of asset specificity in the form of products with brand names could not be realized. Nowadays at low pork prices the MC face a tradeoff: if they pay too little for the pigs, they have to face underutilisation losses because farmers sell the pigs to the private slaughter houses, if they want to utilize capacity fully, they have to pay too much for the pigs. This results in a disastrous financial situation. This could be partly offset by reducing the 100% delivery requirement, but will result in adverse selection problems (Akerlof, 1970). Members sell the inputs with the highest quality in the open market, whereas the remaining production is delivered to the MC (NRC Handelsblad, 1992).
- 17 The low financial reserves of Irish dairy cooperatives, which is due to the poor financial situation of their members, forced them to drop their requirement of member control in order to get a listing on the stock exchange (Nationale Coöperatieve Raad, 1990). They were not able to generate sufficient capital in order to finance the expansion of scale and investments for product improvements.
- 18 Market or hybrid governance is efficient when $k < k_1$ (Williamson, 1985).
- 19 MCs are predicted in the above analysis from an efficiency point of view, with asset specificity as the main determining variable. This hypothesis contrasts sharply with an evolutionary account of MCs. MCs emerge in the framework of Arthur (1989) as historical accidents and their perseverance is due to increasing returns in the form of path dependencies. MCs which were originally chosen became gradually locked in and were improved upon little by little. The notion of long run efficiency doesn't play a role in such an analysis because natural selection processes focus on short run survival.

8 The Position of Agricultural Cooperatives in the Changing Food Industry of Europe

Petri Ollila and Jerker Nilsson

In connection with the decision to establish the internal market of the European Community, there was a wave of mergers and acquisitions in the food processing industry of Western Europe. This has meant a radical increase in the level of *horizontal integration*, i.e., concentration into a number of large conglomerates dominating many markets. Likewise, a trend towards concentration in the food retailing industry is on its way, leading to some strong Pan-European chains as well as strategic alliances.

Special arrangements to coordinate vertical stages of the food production-distribution chain have also increased. Long term contracts, franchising, quality control through several stages, etc. are increasingly found. In some fields of the food industry it also has led to *vertical integration*, i.e. common ownership in several stages. There are signs that the primary production to an increasing degree is included in vertically integrated firms. This trend towards industrialization of agricultural production is more evident in North America but is seen also in Europe (Coffey, 1993).

A specific type of vertical integration is that of *cooperative business*. A large part of the food processing industry in Western Europe is owned by agricultural cooperatives. There is, however, a considerable variation between different industries. The cooperatives are, understandably, strongest in industries in which the major portion of the raw products is produced by European agriculture. Another difference concerns the cooperatives' stage in the production chain. The stronghold of the cooperatives is, of course, mainly the first stages. Nevertheless, in some industries agricultural cooperatives dominate far downstream along the chain, even in the production of ready-made consumer products such as yogurt, bread, wine and sausages. The dairy industry is especially worth noting.

There are interesting differences between the European countries regarding the position of agricultural cooperatives, just as there are between Europe and the USA. American dairy cooperatives are almost as strong as the European ones in the first stages of the production chain, while their role decreases considerably in the later stages. They often sell the products to other processing industries, while their European counterparts take care of the processing themselves.