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## Takeovers and Cooperatives

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## Takeovers and Cooperatives

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# TAKEOVERS AND COOPERATIVES\*

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## Abstract

If consumers wholly or partially control a firm with market power they will charge less than the profit maximising price. Starting at the usual monopoly price, a small price reduction will have a second order effect on profits but a first order effect on consumer surplus. Despite this desirable static result, it has been argued that cooperatives are vulnerable to take-over by outsiders who will run them as for-profit businesses. This paper studies takeovers of cooperatives. We argue that cooperatives are in fact quite stable due to the Grossman-Hart problem of free riding during takeovers.

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# 1 INTRODUCTION

This paper investigates whether cooperatives are vulnerable to takeover. It has been argued that consumer ownership of firms, as exemplified in cooperatives may reduce or even eliminate monopoly distortions. Hansmann (1996) cites a number of examples where firms are owned either by those who trade with them either on input or output markets. He argues that, in many cases, this is to counter monopoly or monopsony power. This practice is very common among firms, which supply inputs to or buy produce from farms.

Refsell (1914) explains in detail how cooperative grain elevators came to dominate the mid-west. Their share of the industry expanded rapidly at the expense of for-profit rivals during the period 1903-1913. It is clear from his account that the main reason for this was a response to monopoly pricing by for-profit grain elevators. In relatively remote rural areas, it is easier to establish a local monopoly. This is not an isolated example. Cooperatives supply many inputs to farms and purchase the produce of farms in many countries. Farm cooperatives can be quite large organisations. Some of them have forward integrated into processing distribution and marketing. A number of well-known brand names have been developed by farmers' cooperatives such as Welchs, Sun-Maid and Sun Kist.<sup>1</sup>

The reason that such organisations come into existence and thrive is that in relatively remote rural areas competition is not possible due to the small scale of the market. If these businesses were organised on a for-profit basis they would have monopoly power. Farm cooperatives (at least partially) internalise the distortion and thus bring about an improvement in allocative efficiency. For similar reasons many professional associations are organised as partnerships. Examples of this can be seen

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<sup>1</sup>For further details see Hansmann (1996) Ch. 7.

in professional services such as lawyers and accountants. The reason for this is that the firm is a monopoly supplier of inputs such as client lists, which these people need to work. Partnerships reduce the distortion.

Theoretical arguments also show that consumer ownership of monopolies may be beneficial, see, Farrell (1985), Hart and Moore (1996), Kelsey and Milne (2005), Renstrom and Yalcin (2003) and Demichelis and Ritzberger (2006). In circumstances where competition is not possible, this reduces monopoly distortions without government intervention. Consider a firm that is the sole producer of a particular good. Suppose that consumers have a substantial influence over its pricing and output decisions. It is in the interest of consumer-shareholders to reduce the price below the monopoly level, since a small price reduction will result in a second order loss of profits but a first order gain in their consumer surplus. If a firm faces input markets which are imperfectly competitive, then a similar argument establishes it may be desirable to give input suppliers influence in a firm's decisions.

A number of different legal arrangements may serve to give consumers and/or suppliers influence over a firm's decisions. If the input concerned is a form of labour, the firm could be a worker cooperative or a partnership. Partnerships serve to give only those kinds of labour for which there is a market distortion influence, while other kinds of labour can be hired on a standard wage contract. Consumer cooperatives would serve to control monopoly power in output markets. Alternatively the interested parties could hold blocks of shares in a limited liability company. (The latter possibility is discussed in more detail in section 3.4.)

Despite the desirable static properties of consumer ownership of monopolies it has been argued that such a firm will not be stable in the long-run. For instance, Farrell (1985) argues that consumer-controlled monopolies may be vulnerable to takeover.

To understand his argument, consider a monopoly, which is selling below the profit-maximising price, since shareholders are also consumers. Farrell argues that a raider (who is not a consumer) could buy up shares at the current value and then make a profit by increasing the product price to the profit maximising level, thereby increasing the value of his/her shares.

This will reduce the utility of a majority of the members of the cooperative. Although they sell their shares at a premium, the subsequent price rise will reduce their consumer surplus. It is possible that a member who only makes small purchases of the firm's output will gain. However, aggregated over all ex-ante members of the cooperative, the gains out-weight the losses. Thus total surplus is reduced. There is in addition a redistribution of wealth from the members of the cooperative to the raider. Thus there is a strong presumption that social welfare is reduced.

The members of the cooperative will typically be worse off if the takeover succeeds, however Farrell argues that they will accept the raider's offer because the output price is a public good for shareholders. As usual, free-rider problems imply that they will not internalise the benefits to others of a low price and hence will accept the offer.

Although this argument is logically correct, it does not appear to be supported by the evidence. Cooperatives, partnerships and similar organisations have dominated many lines of business over long periods of time. Thus it does not always seem to be the case that cooperatives are unstable. Nor is it necessarily true that for-profit firms tend to take over an industry. As noted above, in the twentieth century cooperatives took over much of the trade with farms in rural areas in the USA and a number of other countries.

There have been some instances where cooperatives have been restructured as for profit businesses. However these appear to be driven by changes in regulation and/or

tax law, not any intrinsic instability of cooperatives. For instance, in the recent past in the UK and Australia, building societies (mutual banks) have been replaced by for-profit banks. This change occurred because the building societies lost a long standing tax advantage. Overall we believe that these industry structures do not appear to be as unstable as Farrell's argument suggests.

Hansmann (1996) shows that mutual banks and insurance companies gained business at the expense of for profit rivals in the nineteenth century. He argues that this was because they had superior monitoring abilities, which enabled them to control moral hazard. In particular the nature of the deposit contract meant that for-profit banks have an incentive to make excessively risky investments. If successful, the bank owners take all the gain, while depositors bear the bulk of the losses if the investments fail. In a mutual bank, which could be a trust or a cooperative of depositors, there is no residual claimant. Thus nobody gains by taking undue risks. Mutual banks also had superior abilities to control moral hazard by borrowers. Throughout the twentieth century increased regulation reduced the scope for moral hazard. In particular widespread deposit insurance gave savers less reason to prefer mutual banks. As result they became less common.<sup>2</sup>

In the present paper we undertake a more detailed analysis of takeovers of cooperatives. Our model is based on a two-stage game between a raider and the members of the cooperative. In the first stage, the raider decides whether to make an offer for the members shares and how much to bid. Secondly the members simultaneously decide whether or not to accept the offer. We show that raider can only take over the firm if

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<sup>2</sup>This regulation was partly counter productive. Mutual savings and loan had a significant lower default rate during the savings and loans crisis of the 1980's. Despite this they were charged the same premiums for deposit insurance as for-profit rivals. Thus the effect of regulation was perverse, since it failed to reward mutual savings and loans for their superior ability to control moral hazard.

(s)he can increase its value by more than the benefit the median shareholder gets from the cooperative. If the median and mean members have the same preferences this implies that takeovers will only occur if they maximise total surplus. Or equivalently inefficient takeovers can only occur to the extent that there is a deviation between the preferences of the median and the mean member. We argue that our results are reasonably robust and do not depend crucially on the structure of the game.

Farrell's argument relies on a free-riding problem. Each existing shareholder will ignore the effect of his/her decision on the product price and hence will sell to a higher offer by the raider. However we believe that this argument needs to be modified, since there is a similar free-riding problem with respect to the stockmarket value of the firm, see for instance Grossman and Hart (1980). Once the latter effect is taken into account, we argue that reducing price below the profit maximising level will not make a consumer-owned monopolist particularly vulnerable to take-over.

## 2 TAKEOVERS

### 2.1 Model

In this section we develop a simple model of takeovers of a cooperative, which is the sole producer of a good or service. We show that provided the preferences of the members of cooperative are not too disperse, it is not a profitable strategy to take it over and convert it into a profit-maximising firm. In the conclusion we discuss how this result may be extended to other market distortions.

Consider a cooperative of  $M$  individuals or members,  $1 \leq i \leq M$ . For simplicity assume that  $M$  is odd, so that there is a well-defined median voter. Let  $m = \frac{M}{2} + \frac{1}{2}$ . Thus a group of individuals has a majority if and only if it contains at least



$m$  members. The co-operative makes a one dimensional decision, which involves choosing a variable  $\theta$  from a convex subset of  $\mathbb{R}$ ,  $\Theta$ . We shall concentrate on the case where  $\theta$  is the price of output. Members' preferences are assumed to be single-peaked in  $\theta$ .

In the initial situation, assume that individual  $i$  gets benefits  $\pi_0 + d_i$ , from shares in the firm. Here  $\pi_0$  denotes the current value of the firm's profits and  $d_i$  denotes the value of being able to purchase the good below the monopoly price. These benefits are experienced, whether or not the individual owns shares in the firm. We assume that the individuals are numbered so that  $d_1 < d_2 < \dots < d_n$ . Apart from ruling out indifference, this is without loss of generality. Assume that decisions are made by majority rule, so a change will be introduced if at least half the members approve.

We consider the following model of a takeover attempt. First a raider decides whether or not to offer to purchase the shares from members at price  $q$ . Then the existing shareholders decide simultaneously and independently whether or not to accept. If the raider is successful, (s)he will increase profits to  $\pi_1$  by raising price or eliminating positive externalities.

Suppose a raider offers to takeover the firm at a price of  $q$  per share. Let  $i$  denote a given member of the cooperative. Initially (s)he receives benefit  $\pi_0 + d_i$ . Assume (s)he accepts the offer and the takeover fails (s)he can continue to receive the benefit  $d_i$  hence his/her payoff is  $q + d_i$ . On the other hand if the takeover succeeds, the raider will adopt profit-maximising policies and eliminate the benefit  $d_i$ , thus  $i$ 's payoff will be  $q$ . If  $i$  rejects the offer and the takeover fails his/her payoff will be unchanged at  $\pi_0 + d_i$ . When the takeover succeeds the private benefit is eliminated however the value of the shares will increase thus  $i$ 's payoff is  $\pi_1$ . The following table summarises

the pay-off of individual  $i$  in the various possible outcomes.<sup>3</sup>

	takeover succeeds	takeover fails
$i$ accepts	$q$	$q + d_i$
$i$ rejects	$\pi_1$	$\pi_0 + d_i$

The following result says that a successful takeover is possible if and only if  $\pi_1 - \pi_0 \geq d_m$ . Hence the amount by which the raider can increase the value of the firm must be greater than the benefit which the median shareholder gets from the controlling the monopoly distortion.

**Theorem 2.1** *A necessary and sufficient condition for the existence of a subgame perfect equilibrium in pure strategies, in which the raider succeeds in taking over the firm is:  $\pi_1 - \pi_0 \geq d_m$ .*

Before we prove this theorem we present a couple of preliminary lemmas. If  $q \geq \pi_1$ , the raider can never make a positive profit, hence we may assume  $\pi_1 > q > \pi_0$ . Let  $L = \{i; \pi_0 + d_i \leq q\}$  be the set of individuals whose total benefit from the co-operative is less than the raider's offer and let  $|L|$  denote the number of individuals in this set. Of course  $L$  depends on the price  $q$  at which the raider offers to buy the shares.

**Lemma 2.1** *If  $m > |L|$ , then in any pure strategy Nash equilibrium of the subgame following the raider's offer precisely  $m - 1$  individuals accept. In particular all members of  $L$  accept the offer.*

**Proof.** First we shall check that such a profile is indeed an equilibrium. A member who accepts the offer will get pay-off  $q + d_i$ . This would fall to  $\pi_0 + d_i$  if (s)he rejected it. A member who rejects the offer will get pay-off  $\pi_0 + d_i$ . Since every individual who

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<sup>3</sup>Note that whether or not the takeover succeeds depends individual  $i$ 's decision.

rejects the offer is pivotal, this would fall to  $q$  if (s)he accepts. (Recall by construction, no member of  $L$  rejects the offer and hence  $\pi_0 + d_i > q$ .) It follows that this profile of strategies is indeed an equilibrium.

Now to demonstrate that there are no other pure strategy Nash equilibria. We shall consider all other possible profiles in turn and show that in each case at least one individual has a profitable deviation. First consider profiles in which there are  $r \geq m$  acceptances. In this case the raider will take control of the firm and raise the share value to  $\pi_1$ . Consider an individual who accepts the raider's offer. Currently (s)he receives pay-off  $q$ . If instead (s)he rejected the raider's offer, the bid would still succeed. Hence his/her payoff would be  $\pi_1 > q$ .

Secondly consider the case where there are  $r = m$  acceptances. Since  $m \geq \ell$ , there exists an individual  $\tilde{i} \notin L$  who accepts the raider's offer. Such an individual must be pivotal. If instead (s)he rejected the raider's offer, as before, his/her pay-off would be  $\pi_0 + d_i$ , which is greater than his/her current pay-off,  $q$ .

Thirdly consider a profile, in which there are  $r = m - 1$  acceptances and there exists  $\hat{i} \in L$ , who does not accept the offer. Then  $\hat{i}$ 's current payoff is  $\pi_0 + d_i$ . This would increase to  $q$  if instead  $\hat{i}$  accepted the offer.

Finally consider a profile, in which there are  $r < m - 1$  acceptances. Consider an individual,  $k$ , who currently is rejecting the raider's offer. If (s)he deviated and accepted (s)he would receive  $q + d_k > \pi_0 + d_k$ , which is his/her current pay-off. ■

**Lemma 2.2** *If  $|L| \geq m$ , then in any pure strategy Nash equilibrium of the subgame following the raider's offer precisely  $m$  individuals accept. In particular all those who accept are members of  $L$ .*

**Proof.** First we shall check that such a profile is indeed an equilibrium. In such a profile the raider succeeds in taking over the firm and hence no private benefits will

be received ex post. Thus an individual who rejects the offer will get pay-off  $\pi_1$ . If instead (s)he accepted the offer his/her pay-off would fall to  $q$ . All individuals who accept the offer are pivotal and receive pay-off  $q$ . If one of them deviated and rejected the offer (s)he would receive  $\pi_0 + d_i < q$ , since all individuals who accept the offer are in  $L$ .

Now to demonstrate that there are no other pure strategy Nash equilibria. We shall consider all other possible profiles in turn and show that in each case at least one individual has a profitable deviation.

First consider profiles in which there are  $r \geq m + 1$  acceptances. In this case the raider will take control of the firm and raise the share value to  $\pi_1$  and eliminate the private benefits. Consider an individual who accepts the raider's offer. Currently (s)he receives pay-off  $q$ . If instead (s)he rejected the raider's offer, the bid would still succeed. Hence his/her payoff would be  $\pi_1 > q$ .

Secondly consider the case where there are  $r = m$  acceptances and there exists an individual  $\tilde{i} \notin L$  who accepts the raider's offer. Note that such an individual is pivotal. If instead (s)he rejected the raider's offer as before his/her pay-off would be  $\pi_0 + d_i$ , which is greater than his/her current pay-off,  $q$ .

Thirdly consider a profile, in which there are  $r = m - 1$  acceptances. Since  $\ell > m$  there must exist an individual  $j \in L$  who rejects the offer. If instead (s)he accepted as before his/her pay-off would be  $q$ , which is greater than his/her current pay-off,  $\pi_0 + d_j$ . Note that  $j$  must be pivotal.

Finally consider a profile in which there are  $r < m - 1$  acceptances. Let  $k$  be an individual who rejects the raider's offer. He/she is not pivotal so if instead (s)he accepted the raider's offer his/her pay-off would increase from  $\pi_0 + d_k$  to  $q + d_k$ . This completes the proof. ■

**Proof of Theorem 2.1** Since individuals will not accept the offer unless it is in their interest to do so,  $L = \{i : d_i \leq q - \pi_o\}$ . For the offer to succeed it is necessary that  $q$  be sufficiently high that  $\{1, \dots, m\} \subseteq L$ .

Suppose that  $\pi_1 - \pi_o < d_m$ . To make a profit it is necessary that  $\pi_1 \geq q$ . By Lemma 2.1, if the raider made an offer  $q$  such that  $q - \pi_o < d_m$  she would not get enough acceptances to gain control of the firm. Hence the raider would make a loss of  $(m - 1)(\pi_o - q)$ . It follows that making such an offer is not part of any subgame perfect equilibrium.

Now suppose that  $\pi_1 - \pi_o \geq d_m$ . If the raider offers to buy the shares at price  $q = \pi_o + d_m$  then  $L = \{1, \dots, m\}$ . (We assume that indifference is resolved in favour of the raider.) By Lemma 2.2 precisely  $m$  individuals will accept the offer hence the raider will gain control of the firm and make a profit of  $m(\pi_1 - q)$ . ■

Takeovers are efficient (in the sense of maximising total surplus) if  $n(\pi_1 - \pi_o) \geq \sum_{i=1}^n d_i$  or  $\pi_1 - \pi_o \geq \bar{d}$ , where  $\bar{d} = \frac{1}{n} \sum_{i=1}^n d_i$ . If  $\bar{d} > d_m$  (resp.  $\bar{d} < d_m$ ) then too many (resp., too few) takeovers occur in equilibrium. Thus only if  $\bar{d} = d_m$  is the equilibrium is efficient. Takeovers will occur if and only if they increase total surplus. Bowen (1943) has shown that if the median voter and the mean voter have the same preferences then majority voting will result in efficient provision of public goods. Together the two results imply that an efficient cooperative can only be taken over when it is socially desirable in the sense that the raider increases the total surplus. Now assume that the firm can choose the  $d_i$ . If the firm chooses them so that  $\bar{d} = d_m$  then it will ensure that takeovers occur if and only if they are efficient.

There is a potential distortion within cooperatives. If decisions are made by a majority vote, the outcome will coincide with the preference of the median voter. However the cost will be born by the mean voter. If the median and mean voter

have very different preferences then it is possible that the median voter will use the cooperative to make implicit transfers from the mean voter to himself/herself. If such distortions occur, the cooperative is unlikely to be efficient. Thus for a cooperative to be efficient the mean and median member should have similar preferences. In this case takeovers will be possible if and only if they are efficient.

## 2.2 Sequential Offers

We believe that the argument is robust and does not depend very crucially on the details of the interaction between the raider and the cooperative. Suppose that the raider approached the co-operative members sequentially rather than simultaneously. Without loss of generality, we may assume that the raider first approaches individual 1 who accepts or rejects it. Then the raider makes a proposal to individual 2. This continues until the raider has made his/her offer to all the members. The situation is one of complete and perfect information. Thus each member knows whether or not those before him/her have accepted the offer. They also know the preferences of the members who will be approached later.

For simplicity assume that all members of the cooperative are identical and that the raider makes the same offer to all of them. The the first  $m - 1$  members would accept the offer. Subsequently members of the cooperative will realise that they are pivotal and will not accept the offer. A similar conclusion would apply even if the members were not identical, however the analysis would be somewhat more complicated in this case. In the sequential case, the offer fails because there is always a pivotal shareholder who internalises the externality.

## 2.3 Constitutions for Cooperatives

The raider is not able to take-over the firm for the reasons identified in Grossman and Hart (1980). The existing shareholders free-ride on the price of shares. By not accepting the offer, shareholders benefit from the increase in price without contributing to the costs of the takeover. Grossman and Hart (1980) argue that firms have incentives to overcome the free-rider problem by adopting constitutions, which allow raiders to either compulsorily purchase minority shares or dilute the rights of minority shareholders. Alternatively it may be desirable for government to introduce legislation allowing compulsory purchase of minority shares (as in the UK).

In the present context, the raider's behaviour is undesirable to existing cooperative members and possibly society in general. It is in the interest of the cooperative to introduce a constitution, which gives strong protection to minority rights. This will make free-riding easier and consequently reduce the chances of a hostile takeover. Hansmann (1996) shows that most consumer cooperatives allocate voting rights in proportion to the fraction of the output purchased. This would be one way to protect against takeovers. We can also explain why most governments offer separate laws dealing with cooperatives and business firms. Protection against takeover may be more desirable for cooperatives.

Actual cooperatives do not act naively when faced with strategic players. Refsell (1914) documents how cooperative grain elevators were established in the mid-west despite a number of attempts by a cartel of grain dealers to prevent them. Both sides were clearly acting strategically. For instance, the for profit firms tried to organise boycotts to prevent the wholesalers in Chicago from dealing with cooperatives. In practice, shares in cooperatives are not freely traded. Members are often required to sell their shares back to the cooperative if they wish to leave. Decisions are made on

the basis of ‘one member one vote’ not one ‘share one vote’. Hence a potential raider would have to convince a majority of members not the holders of a majority of shares that (s)he was offering a good deal. These various legal restrictions make it harder to takeover a cooperative than is implied by our assumptions. Thus our model is, if anything, more favourable to the raider than institutions are in practice.

## **3 CONCLUSION**

### **3.1 Summary**

We have shown that cooperatives are not vulnerable to takeover by a raider who wishes to move the firm toward profit maximisation. In this conclusion we argue that this analysis is more widely applicable since it can be applied to other markets distortions in addition to monopoly in the product market. We consider oligopolistic industries, distortions in input markets and industries with externalities. Moreover the theory applies to a wider range of firms than just cooperatives. The firm could equally be a partnership or just a conventional for-profit firm where the shares are wholly or partly-owned by consumers or other trading partners.

### **3.2 Oligopolistic Markets**

The analysis so far has considered a cooperative, which is the only producer in its industry. If the cooperative operates in an oligopolistic industry there is a second effect which also acts to make takeovers more difficult. Reorganising a cooperative as a for-profit firm will change the objective function of the firm and this will in turn change the product market equilibrium. If firms compete Cournot-style the changes are likely to be unfavourable to the raider.



These changes may well have perverse effects on profitability. Suppose that there is Cournot competition. Then replacing a cooperative by a for-profit firm will cause that firm to charge a higher price and produce a lower quantity for any given market conditions. Rival firms will respond by producing more output which will reduce the profits of the firm. (Provided reaction curves are downward sloping, as is usual under Cournot competition.) It is possible that this effect is sufficiently strong for the cooperative to make a lower profit. In particular if the cooperative's output was between the Cournot and Stackelberg levels of output, profit will actually be reduced by converting the cooperative into a for-profit firm. For a more detailed discussion of the relation between corporate governance and product market equilibrium see Kelsey and Milne (2005). Related results on strategic delegation in oligopolistic industries can be found in Fershtman and Judd (1987) and Vickers (1985).

### **3.3 Other Market Distortions**

So far we have focused on the case where there is imperfect competition in output markets. However the analysis would apply equally well if other markets were distorted. Similar arguments have been advanced to show that industrial democracy can reduce the impact of asymmetric information (Hansmann (1996)) and externalities (Roemer (1993) and Kelsey and Milne (2002)). Consider a firm which produces a negative externality. Then starting at the profit maximising level, shareholders have an interest to reduce the externality. By similar reasoning a firm will produce more positive externalities if those controlling the firm are the beneficiaries of the externalities. Although Roemer (1993) emphasises negative externalities such as pollution or supporting repressive regimes, we believe that positive externalities may be just as important. The corporate governance literature has attached much importance to

private benefits of control. These effects could reasonably be modelled as positive externalities. Likewise the local public companies discussed in the next section, can be viewed as firms which provide positive externalities for their shareholders. Another example would be corporate social responsibility, which is studied in Besley and Ghatak (2006). In this case a firm which adopts an ethical policy, for instance not using child labour, generates positive externalities for shareholders.<sup>4</sup>

Our theory would, in principle, apply to a firm which provides an externality direct or pecuniary for its owners. Therefore to many firms which operate in imperfectly competitive markets for either output or inputs. All that is necessary is to reinterpret the variable  $d_i$  as the net benefit individual  $i$  gets from a positive externality produced by the firm or the value to individual  $i$  of controlling a negative externality. In our model the benefits are received whether or not the individual owns shares in the firm. This assumption is clearly valid for physical externalities such as pollution. It is likely to hold for most pecuniary externalities between firms. It may or may not hold for other externalities. Consider for example ethical investment. If the investor gets a benefit directly from reducing child labour then the externality will be present whether or not the individual retains ownership of the shares. On the other hand if the externality is a ‘warm glow’ stemming from his/her own contribution it is unlikely that this will still be received if the individual’s shares are transferred to the raider.

### 3.4 Local Public Companies

In this section we argue that local public companies have many features in common with cooperatives and review the empirical evidence. Hansmann (1996) rationalises

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<sup>4</sup>Although Besley and Ghatak (2006) focus on a case where firms provide externalities for their customers, they note that their analysis could be adapted to apply to situations where shareholders get positive externalities from the firm, (ethical investment).

the existence of cooperatives as organisations which economise on monitoring costs. In addition they occur in situations where local consumers or producers with similar economic interests could control monopoly power either in input or output markets. He observes that cooperatives can act as a substitute for regulations that protect investors, consumers or producers. In some cases the introduction of such regulation reduces the incentives to form cooperatives.

It is interesting to observe a similarity in the governance of cooperatives and local public companies with local shareholders, who own shares in related companies. In both cases the owner/shareholders can attempt to economise on monitoring costs, and/or other market distortions through joint shareholdings.

Franks, Mayer, and Rossi (2005) (henceforth FMR) examine detailed data on the evolution of ownership patterns of 60 U.K. firms over the twentieth century. They show that there are significant factors that play a role at different periods of the evolution of U.K., financial markets. In the first half of the twentieth century, legal investor protection was weak, yet the regional stock-markets thrived. These local markets traded local firms and their shares were held largely by local shareholders. FMR argue that informal mechanisms of trust were used to influence boards of local directors. They observe that even though there was dispersion of ownership over time, local concentration of ownership continued to be dominant. FMR argue that the evidence on takeovers was that the same price was offered to all shareholders even in the absence of investor regulatory protection.

Later in the century, this local dominance declined as local stock-markets were replaced by the London market and institutional shareholders representing geographically dispersed shareholders became more important. Trust and local informal mechanisms were replaced by more formal legal mechanisms to deal with geographically

dispersed shareholders, dealing through delegated shareholding institutions, that increasingly implemented a market for control. FMR contrast the history of the U.K. mechanisms with German and Japanese stockmarket history, where banks and/or share promoters played key roles in monitoring on behalf of shareholders.

In the study by FMR, it would be instructive to see from U.K. data, if local public companies attracted shareholders who faced pecuniary externalities that arose from the actions of the firm, either as consumers of their output or suppliers of inputs. These overlapping interests may have been formalised by mergers and takeovers so that potential conflicts could have been resolved. Over the twentieth century, as geographic dispersion of the firms' activities grew by acquisitions and shareholders became more geographically dispersed, this pecuniary effect may have diminished. During this time, mutual or cooperative firms became less common. This could be explained by the same process of erosion in local trust mechanisms for monitoring, the increase in regulatory protection, the erosion of local pecuniary effects by increased competition, dispersion and mobility of firms and investors.

In the USA, recent empirical research by Allen and Phillips (2000) and Fee, Hadlock, and Thomas (2006), indicates that there are significant gains from ownership links between companies that have customer-supplier relationships, or other product market relationships. Allen and Phillips (2000) find that this relationship is particularly strong in high R&D industries.

If this similarity in product and input market imperfections for cooperatives and corporations is important for governance structures, then our theoretical argument for the stability of ownership, and internalisation of externalities, would operate for both cooperatives, locally owned public companies and public companies with customer-supplier relationships.

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