Raising capital by issuing transferable membership in a consumer cooperative

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Abstract

Purpose – It is generally recognized that consumer cooperatives are at a disadvantage when raising capital as compared to conventional capitalist firms. The purpose of this paper is to explore a method for consumer cooperatives to issue transferable membership shares as financial securities and raise non-redeemable equity. The author examines if such a method can strengthen the financial viability of consumer cooperatives in the market economy.

Design/methodology/approach – The author first explain the mechanism by using diagrams of the circular flow of factors of production and the product. The author then developed a simple formal model and compare the amount of equity capital raised by a capitalist firm and a consumer cooperative.

Findings – The author found that the amount of equity that a consumer cooperative can raise by issuing shares of membership is greater than the amount of equity that a capitalist firm can raise by issuing shares of stock.

Research limitations/implications – More research effort is required to apply the theory discussed in this paper for practical use.

Social implications – Consumer cooperatives have many good features that conventional capitalist firms do not have. However, the scale and scope of consumer cooperatives have been quite limited partly because of the problem of finance. The method presented in this paper is expected to improve the financial viability of consumer cooperatives and promotes their activities in the market economy.

Originality/value – This paper regards the membership of a consumer cooperative as a kind of financial security and as a tool for procuring capital for investment. As far as the author knows, the present paper is the first one that presents such a concept.

Keywords Cooperatives, Economic philosophy/theory

Paper type Research paper

1. Introduction

1.1 Consumer cooperatives in the market economy

Consumer cooperatives have played a significant role in the capitalist economy. In particular, they have held a relatively large market share in industrial sectors such as food, medical care, housing, public utilities, credit and insurance. This may reflect the fact that consumer cooperatives have an efficiency advantage over conventional capitalist firms in handling market failure in the product market (Mikami, 2011).

For example, the quality of food is often better known to suppliers than to customers. Such asymmetry of information may give rise to adverse selection and cause the deterioration in the quality of food in market transactions. In this situation, besides agency problems under the separation of ownership and control, the safety of food seems to be better controlled when the management behaves on behalf of customers, as in consumer cooperatives, than when it behaves on behalf of investors, as in capitalist firms[1]. As another example, many public utilities are natural monopolies and, if left untouched, will create allocative inefficiency. For this reason, many natural

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monopolies are subject to government regulation (Armstrong and Sappington, 2006). Alternatively, problems with natural monopolies are sometimes attempted to be solved by replacing investor-owned monopolists with utility consumer cooperatives (Hansmann, 1996; Mikami, 2012).

Generally speaking, however, the scale and scope of consumer cooperatives' activities have been rather modest when compared to capitalist firms. Presumably, one of the most important reasons for this lies in the ability of consumer cooperatives to raise funds for investment. A capitalist firm raises capital by issuing shares of stock. The shares are not redeemable, but are transferable in the market. Financial capital thus raised by the issuance of stock constitutes the firm's equity, and provides the firm with a stable source of funds. In contrast, the methods of raising equity available to a consumer cooperative are rather limited, as we discuss in the next subsection[2].

1.2 Capital structure of consumer cooperatives

Usually, those who become members of a consumer cooperative are required to pay share capital. Paid-up share capital constitutes a core part of the equity in a consumer cooperative. For example, in Japanese retail consumer cooperatives that mainly deal in food and household goods, paid-up share capital constitutes 75.8 percent of their equity and 43.5 percent of their total assets[3]. Share capital in a consumer cooperative is not transferable, but is redeemable on demand by members. For this reason, paid-in equity from membership holders in a consumer cooperative is intrinsically not as stable a source of finance as that from stockholders in a capitalist firm.

Indeed, consumer cooperatives seem to develop more defensive financial strategies than do capitalist firms. To see this, let us focus on three indices that are frequently used to evaluate the financial stability of firms: current ratio (current assets divided by current liabilities)[4]; fixed assets to equity ratio (fixed assets divided by equity)[5]; and equity to asset ratio (equity divided by total assets)[6].

Table I shows the three ratios for retail companies and retail consumer cooperatives in Japan separately. For retail consumer cooperatives, two types of values are shown in the table; one that includes share capital in the equity, and the other that excludes share capital from the equity. The table shows that retail consumer cooperatives are not necessarily less financially stable than retail companies if share capital is accounted for as equity, but they clearly are, if share capital is not regarded as genuine equity.

We further notice that retail consumer cooperatives have a higher current ratio than retail companies. In addition, if share capital is included in equity, retail consumer cooperatives have a lower fixed assets to equity ratio and a higher equity to asset ratio than do retail companies. These observations may reflect the fact that consumer cooperatives restrict borrowings, refrain from investing in physical assets and reserve sufficient liquidity in attempts to alleviate the risk of default. Such defensive behavior

| | Retail companies[a] | Retail consumer cooperatives[b] | |
		Including share capital	Excluding share capital
Current ratio	108.3	141.9	
Fixed assets to equity ratio	167.6	100.1	376.0
Equity to asset ratio	31.4	57.0	15.2

Notes: Current ratio, current assets/current liabilities; fixed assets to equity ratio, fixed assets/equity; equity to asset ratio, equity/total assets
Sources: [a]Ministry of Finance (2011); [b]Japanese Consumers' Co-operative Union (2011)

Table I.
Capital structure of retail companies and retail consumer cooperatives in Japan (percent)

on the part of retail consumer cooperatives may derive from their recognition that share capital is redeemable on demand and hence cannot be fully relied on as a stable source of funds.

Table II shows the three ratios for medical/welfare companies and medical consumer cooperatives in Japan. Similarly to the example in Table I, we observe that medical consumer cooperatives exhibit more cautious financial strategies than do medical/welfare companies.

1.3 Investor membership

In an attempt to strengthen the financial viability of cooperative firms, a new membership status called investor membership has been introduced into the legislation applicable to cooperatives in Europe. The Statute for a European Co-operative Society, enacted 2003, allows cooperative firms, including consumer cooperatives, to accept investor members. These members do not use the services of the cooperatives, but only provide financial capital to the cooperatives for dividends. Shares held by investor members are transferable upon agreement by the general assembly or the management.

However, it is not obvious whether this mechanism works to improve the financial strength of consumer cooperatives. On the one hand, investor membership creates a new channel for raising equity capital. On the other hand, paying out dividends to investor members reduces the retained earnings of the consumer cooperative and obstructs its internal capital accumulation. Furthermore, if the services of the consumer cooperative deteriorate as a result of a decrease in surplus, some regular members may leave the consumer cooperative by withdrawing their share capital, which will further reduce its equity. These effects seem to become more conspicuous when investor members are assigned no votes or less than proportionate voting shares. In such cases, they may claim an even higher return on their investment (Cario, 2005; Taki, 2009). For these reasons, investor membership does not seem to be a fundamental solution to overcome the financial weakness of consumer cooperatives.

1.4 Introducing a market for share capital

This paper considers the effects of introducing a market for share capital on the finance of consumer cooperatives. More precisely, we explore the mechanism of issuing transferable shares of membership in a consumer cooperative and raising non-redeemable equity in the open market. Such a method has been advocated by Mikami (2010). The present paper simplifies his work and extends it to a dynamic model in which membership shares are traded in the secondary market. It then asks if transferable membership can improve the financial viability of consumer cooperatives[7].

Formally speaking, membership represents an ownership share in a consumer cooperative. It is the counterpart of stock, which represents an ownership share in a

| | Medical/welfare companies[a] | Medical consumer cooperatives[b] | |
		Including share capital	Excluding share capital
Current ratio	141.6	170.0	
Fixed assets to equity ratio	253.1	243.8	1,201.6
Equity to asset ratio	24.8	29.2	5.9

Sources: [a]Ministry of Finance (2011); [b]Japanese Consumers' Co-operative Union (2011)

capitalist firm. A consumer cooperative issues shares of membership and sells them to customers. This is similar to the practice of a capitalist firm that issues shares of stock and sells them to investors. Furthermore, if they wish, customers buying memberships can resell their shares to other customers in the same manner as investors resell their stock to other investors. Because membership holders are the owners of the consumer cooperative and shares of membership are transferable in the open market, capital raised by issuing membership forms the equity of the firm and is non-redeemable. This is similar to the mechanism of a capitalist firm. That is, in a capitalist firm, because stockholders are the owners of the firm and shares of stock are transferable in the open market, capital procured by issuing stock constitutes the equity of the firm and is non-redeemable.

1.5 Related literature
There have not been many studies on the financing of consumer cooperatives in relation to their memberships. Enke (1945) analyzed the pricing behavior of a consumer cooperative in a monopolistic market, and mentioned a method of collecting deposits from cooperative members in an attempt to make up for the cooperative's financial losses (p. 152). Alternatively, in a cooperative game theoretic model of a consumer (or purchasing) cooperative, Sexton (1986) supposed that the consumer cooperative collects fees from its members to cover the cost of production (p. 217). More recently, Rey and Tirole (2007) considered a kind of consumer cooperative (a customer-owned manufacturing firm) that charges an entry fee to new members in order to finance public intermediate goods (p. 1064). These deposits or fees assumed in the prior studies could be interpreted as corresponding to the sales of memberships, as discussed in the present paper. A novel aspect of this study is that it regards such deposits, fees or memberships as financial securities that are traded in the open market. This creates a system of consumer cooperatives that is isomorphic to stock-issuing capitalist firms.

From a more practical point of view, Böök (1992) proposed the idea of restructuring cooperatives into co-operative joint stock companies, which he believed could alleviate their financial difficulties (Chapter 5, Section 3). Formally speaking, a co-operative joint stock company is a capitalist firm, not a cooperative, with the shares of stock being totally or partially owned by the cooperative members. In a sense, the present study may be identified as an attempt to embody Böök's co-operative joint stock company without formally transforming a consumer cooperative into a capitalist firm, instead preserving its organizational structure as a cooperative.

1.6 Structure of the paper
The rest of the paper is structured as follows. The next section gives an overview of how transferable membership works in the market economy. Sections 3 and 4 develop a formal analysis of transferable membership. Section 3 presents a model of a firm that can be organized as either a capitalist firm or a consumer cooperative. Section 4 derives and compares the amount of equity that the two types of firms raise in the stock and membership markets, respectively. Section 5 concludes the paper.

2. Transferable membership: an overview
To obtain an intuitive idea of the function of transferable membership in the market economy, this section considers a circular flow of factors of production and output between the household and production sectors.

Figure 1 illustrates the circular flow with a capitalist firm in its pure form. It shows that capital is provided directly to the firm by investors as firm owners. Such capital

Figure 1.
The circular flow of factors of production and the product between the household and production sectors: the case of a capitalist firm
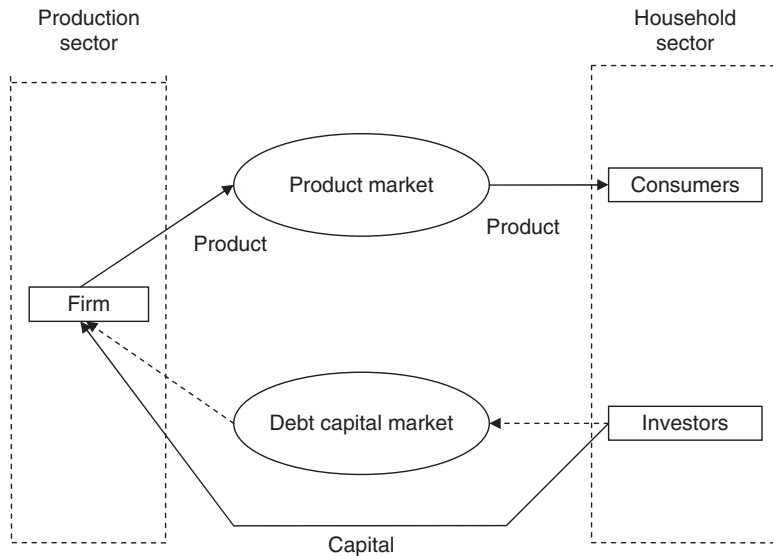
constitutes the firm's equity. Given that this equity is sufficiently large, the debt capital market need not be used for the flow of capital from the household sector to the firm. The output is delivered from the firm to the household sector through the product market. Therefore, a capitalist firm is considered an efficient form of business when the debt capital market does not function well but the product market functions well.

Figure 2 illustrates the circular flow with a consumer cooperative in an ordinary situation; that is, in the absence of a membership market. It shows that the output is delivered directly from the firm to the consumers as firm owners, where the product

Figure 2.
The circular flow of factors of production and the product between the household and production sectors: the case of a consumer cooperative (without a membership market)
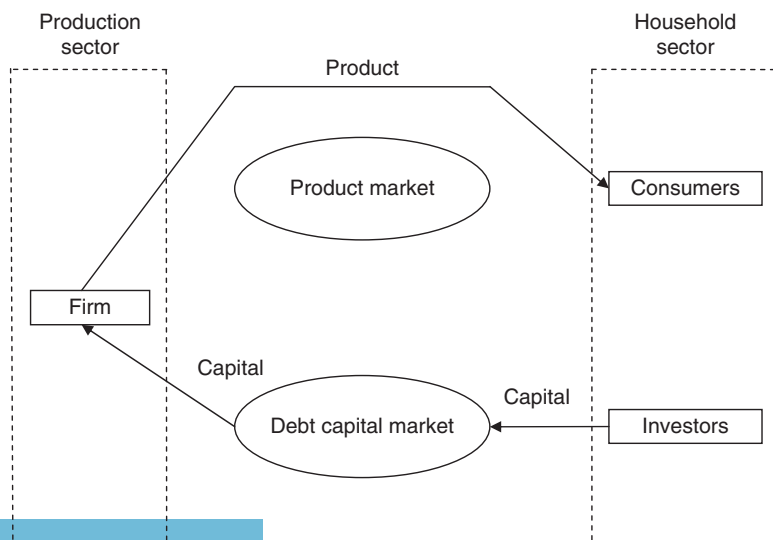
market is not used. Being unable to rely on funding from share capital, financial capital is necessarily delivered from the household sector to the firm mainly through the debt capital market. Hence, a consumer cooperative is considered efficient when the product market does not function well but the debt capital market functions well.

In reality, projects are accompanied by uncertainty, and asymmetric information prevails between lenders and borrowers. Under these circumstances, financial markets are expected to function imperfectly. Figures 1 and 2 thus capture the essence of the stylized fact: without having an effective method of raising equity capital, consumer cooperatives are intrinsically financially handicapped when compared to capitalist firms.

Figure 3, in contrast, illustrates the circular flow with a consumer cooperative in the presence of a membership market. This figure is identical to Figure 2 with respect to the flow of the output; that is, the output is delivered directly from the firm to the consumers. However, Figure 3 is different from Figure 2 with respect to the flow of capital. If a membership market is available, capital can be provided directly to the firm from consumers as firm owners. Such capital, as in a capitalist firm, constitutes the firm's equity. If the amount of equity thus acquired is large enough, the debt capital market need not be used for the flow of capital from the household sector to the firm. In that case, a consumer cooperative (like a capitalist firm) is able to avoid the inconveniences associated with using the debt capital market, in addition to (like a conventional consumer cooperative) averting market failure in the product market.

The focal question here is whether the amount of equity that a consumer cooperative raises in the membership market is comparable to the amount of equity that a capitalist firm raises in the stock market. If a consumer cooperative can raise only a modest amount of equity by selling membership shares, its financial position remains fragile when compared to a capitalist firm. If it can raise as much equity as a capitalist firm by using this method, the consumer cooperative will have equal standing with a capitalist firm with respect to financial viability. We will examine this question by using a simple formal model in the next two sections.
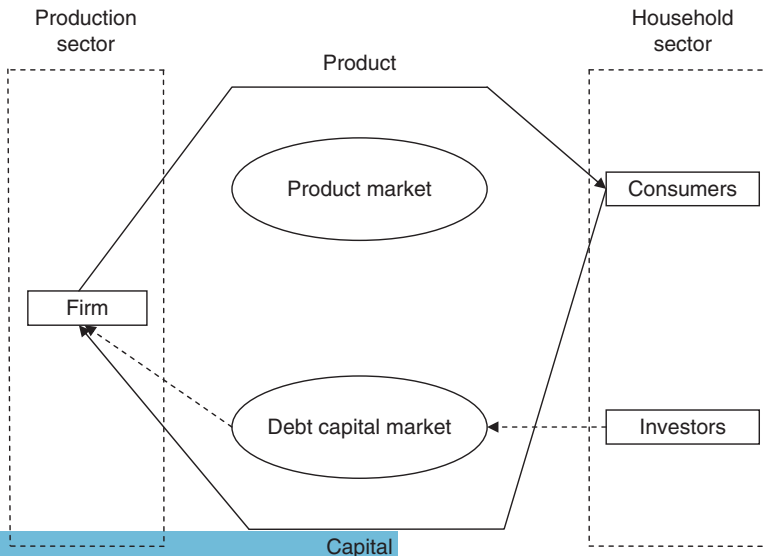

Figure 3.
The circular flow of factors of production and the product between the household and production sectors: the case of a consumer cooperative (with a membership market)

3. The model

This section develops a simple model of a firm with investors and consumers in which: the firm is organized as either a capitalist firm or a consumer cooperative, and the shares of stock (for a capitalist firm) or membership (for a consumer cooperative) are traded in the open market.

The firm uses capital as its only input (even if other inputs such as labor are introduced to the model, the essence of our analysis remains the same) and produces a non-durable consumption good. Once established, the firm continues to exist permanently. Let $K \geqslant 0$ be the amount of investment in physical capital. We assume, for simplicity, that the physical capital does not depreciate over time. The production technology is represented by a production function $f(K)$, where $f(K)$ is the quantity of output produced in each period, $f'(K) > 0$, and $f''(K) < 0$[8].

A consumer obtains utility $v > 0$ in each period by consuming one unit of the product. Let δ be the rate of time preference. Then:

$$V := v + \frac{v}{1+\delta} + \frac{v}{(1+\delta)^2} + \cdots = \frac{1+\delta}{\delta} v \tag{1}$$

shows the discounted sum of utility when one unit of the product is consumed each period.

The time structure of the model when a capitalist firm is established is described as follows: (i) the firm issues shares of stock and sells them to investors to raise equity; (ii) the firm invests the equity in physical capital; (iii) using the physical capital, the firm produces output; and (iv) the firm sells the output to consumers and pays dividends from profits to the stockholders. The firm repeats stages (iii) and (iv) during each subsequent period. Stock is transferred to or inherited by subsequent generations.

When a consumer cooperative is established, the time structure is described as follows: (i) the firm issues shares of membership and sells them to consumers to raise equity; (ii) the firm invests the equity in physical capital; (iii) using the physical capital, the firm produces output; and (iv) the firm distributes the output to the membership holders. The firm repeats stages (iii) and (iv) during each subsequent period. Membership is transferred to or inherited by subsequent generations.

4. Procurement of equity capital

This section derives and compares the amount of equity that a capitalist firm and a consumer cooperative can raise in the primary (as opposed to secondary) stock and membership markets, respectively[9].

4.1 Capitalist firm

In each period, the firm sells the product to consumers at price v. Then, the discounted sum of revenue from selling one unit of the product each period is given by V in Equation (1). The firm maximizes profit:

$$\Pi(K) = Vf(K) - K \tag{2}$$

with respect to K[10]. The first-order condition for the maximization problem is given by:

$$Vf'(K) = 1 \tag{3}$$

which determines the equilibrium investment level, K_{CF}. If $\Pi(K_{CF}) < 0$, the firm exits the market and the problem degenerates. Therefore, in what follows, we consider the case in which $\Pi(K_{CF}) \geqslant 0$[11].

According to the dividend discount model, the total market value of the stock, E_{CF}, is equal to the discounted sum of the stream of dividends paid by the firm (see, for instance, Brealey *et al.* (2001), Chapter 5). Assuming that all profits are distributed as dividends, the amount of equity E_{CF} that a capitalist firm can raise in the stock market is given by $\Pi(K_{CF})$; that is:

$$E_{CF} = Vf(K_{CF}) - K_{CF}. \tag{4}$$

4.2 Consumer cooperative
A share of membership entitles its holder to receive one unit of the product from the firm each period. Therefore, a consumer buys membership if its price is equal to or smaller than V. We assume that the firm has the initiative and sets the membership price at V.

Note that the discounted sum V is the same at any point in the infinite timeline. Bearing this in mind, a consumer buys membership with an intention to resell it to another consumer in the future[12]. Such transferability is essential for a membership share to have a market value V.

Because the firm issues $f(K)$ units of membership, the amount of equity it raises in the membership market is given by $Vf(K)$.

The firm maximizes surplus:

$$S(K) = Vf(K) - K \tag{5}$$

with respect to K[13]. The first-order condition for the maximization problem is given by:

$$Vf'(K) = 1 \tag{6}$$

which determines the equilibrium investment level, K_{CC}.

The proceeds from the sales of membership shares, E_{CC}, are therefore given by:

$$E_{CC} = Vf(K_{CC}). \tag{7}$$

4.3 Comparison
From Equations (3) and (6), we have $K_{CF} = K_{CC}$. Therefore, from Equations (4) and (7), we have the following proposition:

P1. $E_{CC} > E_{CF}$.

That is, the amount of equity that a consumer cooperative can raise by issuing shares of membership is greater than the amount of equity that a capitalist firm can raise by issuing shares of stock.

The reason for this result is quite simple. A capitalist firm raises equity in return for paying out dividends from profits, which are defined as the revenue minus capital investment K. As a result, the amount of equity that a capitalist firm can raise is bounded by the amount of profit it generates in the future. In contrast, a consumer cooperative raises equity in return for distributing the product. Therefore, the amount of equity that a consumer cooperative can raise is bounded by the total value of the product it produces in

the future. The total value of the product that a consumer cooperative delivers to its members (which is $Vf(K_{CC})$ in Equation (7)) equals the total revenue that a capitalist firm earns from selling the product to the consumers (which is $Vf(K_{CF})$ in Equation (4)). Hence, the amount of equity that a consumer cooperative raises by issuing membership is greater than the amount of equity that a capitalist firm raises by issuing stock.

5. Conclusion

This paper showed that, in theory, a consumer cooperative would not be financially weaker than a capitalist firm in the presence of a membership market. This implies that a consumer cooperative can potentially be a promising alternative to a capitalist firm when intractable market failure prevails in the product market.

Although it might look impracticable, the method of issuing transferable membership is used for capital procurement by some types of consumer cooperatives in reality.

One example is a "housing company" (*asunto-osakeyhtiö* in Finnish, which is actually a housing cooperative) in Finland. A housing company is a limited-liability business that owns a residential building and confers the right to possess the flats in the building on its shareholders (who are mostly the residents of the building). At the time of establishment, a housing company raises equity capital by issuing shares and invests the sum, together with the mortgages, in constructing a residential building. Thereafter, the shares are traded on the open market[14].

Memberships in golf clubs form a similar, but less mature, market for shares in consumer cooperatives. A golf club sells membership in advance and spends the proceeds on developing a golf course. When the construction work is over, the club grants its members the right to use the facilities. The club members can liquidate their membership by selling it in the secondary market. A similar mechanism can be found for some resort country clubs.

It appears to be important that we understand the nature of transferable membership in consumer cooperatives by studying these cases in more detail, and that we develop practical applications of the theory discussed in this paper.

Notes

1. This argument seems to hold true for the case where agency problems under the separation of ownership and control are significant. That is, if the interests of managers are more or less aligned to those of the firm owners by institutions such as the board of directors and the auditing committee and parameters such as bonuses and stock options, then food safety is considered to be better secured by consumer cooperatives (which are owned by customers) than by capitalist firms (which are owned by investors).

2. Takamura (1993, Chapter 7) examines the financial structure of consumer cooperatives and discusses the problems with their equity capital.

3. Japanese Consumers' Co-operative Union (2011). The remaining 24.2 percent of the equity consists of the accumulation of retained earnings, which are other important sources of funds for retail consumer cooperatives in Japan.

4. If the current ratio exceeds 100 percent, the firm's current assets are greater than its current liabilities, and hence, the risk of bankruptcy is small. In this sense, the greater the current ratio is, the more financially stable the firm will be.

5. A fixed assets to equity ratio that is below 100 percent means that technically the firm's fixed assets have all been financed by its equity. Therefore, the smaller the fixed assets to equity ratio is, the more financially stable the firm will be.

6. The greater the equity to asset ratio is, the more financially stable the firm will be.

7. In contrast, Mikami (2013) examines the effects of issuing transferable membership on the finance of worker cooperatives.

8. The single prime denotes the first derivative, and the double prime denotes the second derivative.

9. Although implicit in the model, we may consider a situation in which an entrepreneur establishing a firm chooses the form of business so as to secure sufficient equity for initial investment.

10. Note that Equation (2) becomes the entrepreneurial profit when establishing a capitalist firm.

11. In addition, if $\Pi(K_{CF}) < K_{CF}$, as the following analysis shows, the firm has to rely partly on debt capital to finance capital investment. Therefore, an implicit assumption here is that $\Pi(K_{CF}) \geqslant K_{CF}$.

12. This mechanism resembles the trade of stock of a capitalist firm, in which an investor buys stock with an intention to resell it to another investor in the future.

13. Note that Equation (5) becomes the entrepreneurial profit when establishing a consumer cooperative.

14. For details of the institutional framework for the housing company, see Lilleholt (1998) and Lujanen (2004).

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