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ANALYSES OF PRIVATE MARKET COORDINATION MECHANISMS IN THE HUNGARIAN DAIRY SECTOR [1]

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Abstract
Just before Hungary's EU accession (2004), the dairy sector was one of the most critical industries of the Hungarian agriculture, which is why we chose this for our empirical analysis. Results of our price transmission analysis as well as our previous study on contractual relations in the Hungarian dairy sector obviously show that only the increase of input prices will increase the prices in the production-processing stage. Independent privately owned farm organisations can not countervail the market power of their business partners; hence farmers cannot enforce their interest separately and act against the concentrated processing industry. Thus, the *main aim of our paper* is to show possible *theoretical and practical ways of establishing private (market) coordinating organisations in the (Hungarian) dairy sector*.

We use New Institutional Economics as a theoretical background in carrying out a literature review on coordinating matters as well as on bargaining power issues. As a main body of our study we summarize the strengths, weaknesses, opportunities and threats of the different coordination structures in the frame of a SWOT analysis, assuming two theoretical situations: one is when the coordination is initiated by the processor or when it is initiated by the farmers.

[1] Earlier version of the paper was presented at the Seminar on „Pathways to Rural Economic Development in Transition Countries: The Role of Agricultural Cooperatives" organized by ICA-ICARE, 05-06 September 2008, Yerevan, Armenia (see Szabó, G. G. - Popovics, 2008). Authors are grateful for the feedback and comments made by the organisers and participants of the seminar.

At the end of our paper we present a successful organisation the Hungarian Alföldi Milk Selling and Supplying Ltd. which is a good example for the vertical integration in the dairy chain based on the horizontal coordination of farmers as initiators.

Key words
Dairy sector, contractual relations, SWOT analysis, governance structure, vertical co-ordination, agribusiness, producers' group, co-operation, Transaction Cost Economics, Hungary

JEL Codes: Q13, L14, L22

1. Introduction: problem statement, objectives and procedures

Just before Hungary's EU accession (2004), the dairy sector was one of the most critical industries of the Hungarian agriculture, which is why we choose this for our empirical analysis.

Results of our price transmission analysis (Popovics, 2007a, b, 2008) as well as our previous study on contractual relations in the Hungarian dairy sector (Szabó G.G. – Bárdos, 2005a,b, 2006) obviously show that only the increase of input prices will increase the prices in the production-processing stage. *Farmers cannot enforce their interest separately and act against the concentrated processing industry*. High investment costs, expensive functional machinery, the long production cycle from the time of investment, the continuous production and the perishable dairy products are all significant risk factors and deepen the vulnerable situation of farmers.

Temporary crisis of the Hungarian dairy sector can also be traced back to the imperfections of the coordination mechanisms. One reason is the functional *disorder of the national coordination* mechanism (necessary interventions by the government), the other is the *imperfect market (private) coordination procedures* e.g. lack of cooperatives, producers' groups (Szabó G.G. – Bárdos, 2005a,b, 2006).

Depending on the above characteristics, we formulated the starting point of our analysis: *independent privately owned farm organisations can not countervail the market power of their business partners*. Accordingly, as a key element of the motivation of submitting our recent study, coordination seems an appropriate solution as it tries to solve the most critical problem: the great deficiency in pursuing the interest of producers in the chain. Thus, the *main aim of our paper* is to show possible *theoretical and practical ways of establishing private (market) coordinating organisations in Hungarian dairy sector*.

In the frame of a SWOT analysis, we assume two theoretical situations: one is when the coordination is initiated by the processor or when it is initiated by the farmer. We use New Institutional Economics as a theoretical background in carrying out a literature review on coordinating matters as well as on bargaining power issues. We also conducted case study analysis and tried to combine economics and management approaches in our research.

It is worth to mention, that our study mainly deals with the producers-processor(s) relationship keeping in mind that retailers are the main players in the field. Despite the latter fact and also the new trend of exporting larger quantity of Hungarian milk abroad, we think that market strength and countervailing power of dairy producers is indispensable for stabile and well coordinated dairy sector.

The structure of the paper is organised as follows: after *introduction*, the *second session* deals with imperfections in the coordination mechanisms of the Hungarian dairy sector. *The third session* contains a SWOT analysis of possible theoretical ways of establishing private

(market) coordinating organisations initiated by the producers as well as by the processors. *Section four* presents a brief case study on the successful Hungarian producers' group named Alföldi Milk Selling and Supplying Ltd. which is a good example for the vertical integration based on the horizontal coordination of farmers as initiators. *At the end of our paper* we draw Conclusions with their implications and also outline some ideas for future research.

2. Analyses of market coordination mechanisms and price transmission in the Hungarian dairy sector [2]

2.1. Brief introduction to the Hungarian dairy sector[3]

Contrary to global tendencies, consumption of milk and dairy products has only increased slightly in Hungary. The consumption was only 177.4 litre per capita in 2006 while the EU 15 average was 253 litre. Consumer behaviour regarding milk and dairy products is mainly influenced by disposable income available. Loyalty towards Hungarian products is not usual, consumers only stick to some old and established Hungarian trade marks and they are open to buy cheaper imported products offered and preferred by retail chains. Hungarian consumers are very price sensitive.

Stock of cows has been decreasing in Hungary in the last years similarly to other EU countries. The total number of cows was 324,000 on 1st of December 2008 from which the number of milking cows was 226,000. The reason behind of the decreasing figure is that stocks of cows held by private farmers fluctuate continuously and companies (bigger organisations) have decreased their stocks as well in the past years. The Hungarian national milk quota for year 2007/2008 was 2,019,300 and it had been only used up to 85%. On the level of farms the quota still hampers the production although it is easier and easier to buy quota on the market. The producers' group Alföldi Milk Selling and Supplying Ltd. bought up 31% of the milk with quota of 400 million litres.

Many producers have finished milk production or only sell directly from their house due to lower milk prices and increasing quality requirements can be detected in the recent years. The geographical structure of milk production is not everywhere harmonised with processing capacity in Hungary. On site level the stock of cows is rather concentrated compared to the EU average. Processors working in Hungary buy up milk for 40-65 HUF/litre in 2009. Long or medium contracts are less and less important and processors buy 10-30% of the milk on spot markets.

Hungarian foreign trade of milk and dairy products, mainly consisting products with lower added value, is oriented towards EU member countries. Since Hungary' accession to EU Hungarian export is ten times higher. Apart from the dominance of trade to Italy, main targets are Slovenia and Romania from 2006. Buying up price of milk in Hungary is largely dependent of the export price of raw milk exported to Italy. Half of exported milk is belong to Alföldi Milk Selling and Supplying Ltd. with main target countries Italy, Romania and Slovenia. Contract price of milk was EUR cents 22-24 per litre while spot market prices were lower (20 EUR cents/litre) delivered to Italian processors. Import of dairy products is the biggest danger for Hungarian processors, especially in the niche market of products with higher added value like cheeses.

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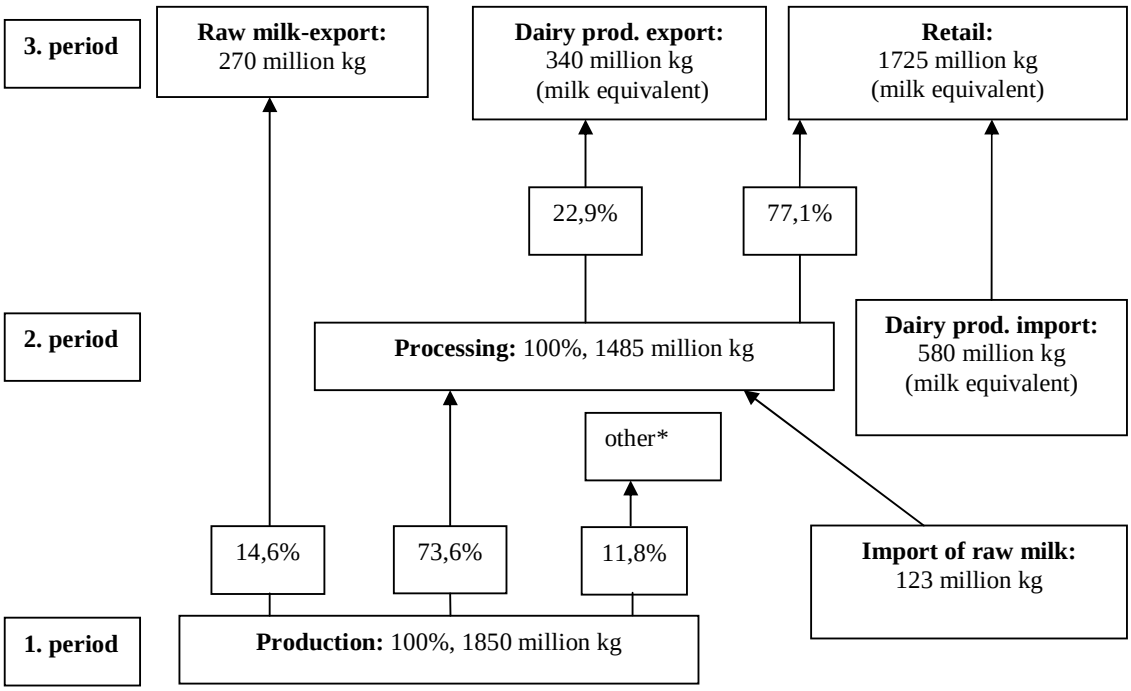
[2] Description of the Hungarian dairy chain and further references regarding the functioning of the sector including market regulations can be found for example in König - Major, 2006, Fertő, et al. 2005, 2007; Hockmann – Vőneki, 207, Popovics – Tóth, 2005; Popovics, 2007, 2008; Szabó G.G. – Bárdos, 2005a, 2006;, Vágó, 2008 in English; as well as in Babella – Matócza – Mile, 2003; Szakály, 2003, Szabó, 1999, Szabó G.G. – Bárdos, 2007 and Varga – Tunyoginé – Kemény, 2007 in Hungarian.

[3] Subsection 2.1. is mainly based on Potori – Popp, 2009.

2.2.Private (market) coordination mechanisms in the Hungarian dairy sector[4]

Since the accession to EU buying up of the raw milk can be characterised by decreasing quantity, increasing export and lower prices compared to the previous years in Hungary. 74% of the raw milk produced in Hungary had been bought by dairy processors can be found in Hungary in 2007. About 15% of the total milk produced in Hungary is exported mainly through producer owned organisations like Alföldi Milk Selling and Supplying Ltd. Channel mapping of the Hungarian dairy sector can be seen on Figure 1 below.

Figure 1: Channel mapping of the Hungarian dairy sector in 2007



Source: KSH Central Statistical Office, AKI, Agricultural Economics Research Institute, Department of Agricultural Policy
*Direct Sale + other non followable milk

It is indispensable to underline that *foreign owners of Hungarian dairy processing companies* have been *using formal contracts* including extending credits, supplying input materials, giving technical advice etc. from the beginning of their activities (from the early nineties) in Hungary thus *gaining greater control over the raw material production process* and *supporting farms with medium- and large-sized* dairy herds (Gorton and Guba, 2001). They also *introduced and enforced different quality control mechanisms* and schemes and therefore

[4] Due to our research topic and limitation of the length of the paper, in present paper we only study the private (market) coordination mechanism in the dairy sector. We do not deal with governmental and EU regulations, they are subjects of other studies.

they have got *key roles in achieving higher raw milk quality* generally in the Hungarian dairy industry (Gorton and Guba, 2001; Fertő et al., 2005, 2007).

Due to *limitations in human resources* (e.g. skills and motivation to start and run a private business) and the *shortage of financial* and *social capital*, the establishment of producers' initiated organisations was slow after the change into market economy and it is still difficult to set up such structures in Hungary.

2.3. Imperfections in the coordination mechanisms and the vulnerability of producers in the Hungarian dairy sector

The issues of profitability and the distribution of profits within the sector are of high importance. Our earlier analyses showed that producers within the sector are in a vulnerable situation, they sell milk at nearly the unit cost. Contrary, the retail price of milk we come across in the retail shops is higher than double of the farm price. This contradiction drove us to compare the prices of the different stages. When examining the inflation-corrected prices of the different stages of the food chain, it is clear that perfect market competition does not exist; instead, price moves indicate oligopolistic competition. The problem is that *price increases and decreases pass through the different stages at different rate,* causing market distortion, and increase the asymmetry within the sector. Most of the literature indeed claims that the market structure of the food industry in developed countries is oligopolistic, which is why the commercial sector has even more market power and is growing in Europe (Popovics – Tóth, 2005). To analyse the imbalance in the sector, we have conducted a price transmission analysis for the whole sector that deals with the rate of transmission of price increases and decreases between the specific stages (Popovics, 2007a, b, 2008).

We assumed that price transmission between the commercial and the production stages is imperfect, i.e. price changes in the production level do not correspond exactly to price changes in the consumer level (Fertő, 1999). Along with many empirical studies of livestock markets in developed countries, Bakucs and Fertő have examined how retail price is formed and how price transmission works in a transition country's livestock market (Bakucs – Fertő, 2005).

We would like to emphasize the *following results* that concern the functioning of the sector. The results obviously show that *price determination process moves upstream in the production-processing stage*. Consequently, it seems that the transmission of values is based on the value added, by summing up the production and processing costs. Thus, the value is *determined rather by the production than by the market*. However, the prices of the retail stage are determined in the consumer market (Mészáros – Popovics, 2004; Popovics – Tóth, 2006).

In addition, fragmenting the marketing sector for the analysis seems definitely necessary: *the characteristics of the production-processing stages are absolutely different from those of the retail stage*. In the studied period, the price transmission between the two ends of the chain, and even between the stages within the chain, is imperfect, asymmetric, and delayed in time. This finding highlights that analysing only the production-consumer price relations is not sufficient.

Our earlier analyses (Popovics, 2007a, b, 2008) proved that *two parallel effects of different directions prevail in the formation of the market price*. One is the upward price mechanism, when the change of raw milk prices induces price changes in the processing and retailing stages. However, in the oligopolistic market there is a downward price mechanism as well.

The reason for this development is the effort of the commercial sector that forces *processors and farmers in a price taker position.* Moreover, since the milk is a perishable product; therefore there is no way to retain or to stock it. Our earlier studies (e.g. Popovics –

Tóth, 2005) revealed that producers are in vulnerable positions in the chain; they can sell milk near the cost price. Therefore, the *essential problem within the dairy sector is the issue of profitability and its distribution within the chain*. In such circumstances only large-scale enterprises can survive and small producers go bankrupt. Such changes in the firm structure can have serious social consequences. Many thousands might loose their living by this transformation taking place in the Hungarian dairy sector. According to economists analysing price transmission, these complex price effects integrate different markets both horizontally and vertically (Meyer - Cramon-Taubadel, 2003; Tóth, 2003).

After the EU accession the Hungarian dairy sector underwent reforms which resulted in a steep fall in domestic dairy prices and prompted the bankruptcy of a number of producers. (Szabó, 2008).

The development of countervailing power – even only regionally - through the disposal of the milk collected by co-operatives and other producer-owned organisations can get results such as *strengthening market competition* (e.g. 'radiation effect' on prices).The *different coordination mechanisms mentioned above can improve and strengthen the bargaining power* of producers by allowing for *higher selling price* and by *eliminating price fluctuations.* Furthermore, they can have *other positive effects concerning* not only the industry, but the *whole society* as well, such as benefits from the stabilized prices and supply or cheaper food prices via more effective organisation (Szabó M., 1999). Higher degree of co-operation among producers therefore is important from the point of better coordination of the whole chain and it can enhance (consumer) welfare as well.

Regarding the whole society, the effect of *developing and strengthening trust and social capital* by co-operatives has primary importance apart from direct economic aims.

Since *coordination seems an appropriate solution* to help farmers achieving the above mentioned gains and *to solve the most critical problem of producers coming from market imperfections*, in the next part of our study we *analyse two theoretical situations*: one is when the coordination is initiated by the processor and another one which is established by the farmers.

3. Possible ways of establishing private (market) coordinating organisations in the dairy sector[5]

3.1. Coordination initiated by the processor

Although the vertical integration is maintained by the possibilities of mutually achievable benefits, we have to admit that the *different aspects are of different importance for market participants*. The participants at *different levels of the chain (*producers, processors, retailers) have *different approaches* towards economic benefits; therefore, in the more and more competitive market conditions contrary to the mutual benefits, they might act as if they were enemies.

To maintain their competitiveness in the enlarged European market, individual producers have to exploit the opportunities offered by the integration. According to their financial situation and access to credits, as well as due to their human resources available they have *two possibilities of coordination*.

The simplest way is to join an already established organisation which is at a higher level of the chain. In this situation, the *expected benefits of producers* are the following (see Figure 2 below):

[5]If the processor is the initiator of the coordination, we talk about downstream coordination; if the farmer organisation initiates the integration (e.g. Alföldi Milk Ltd.) it is called upstream coordination.

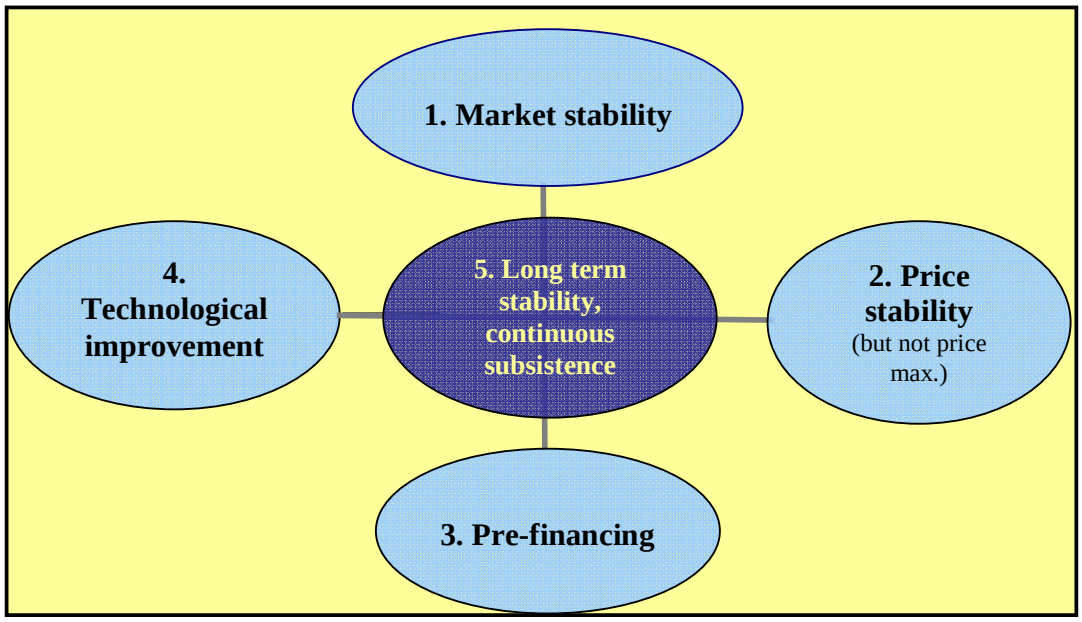


Figure 2: Possible benefits for producers originating from processor-initiated vertical integration

Source: Popovics, 2007b: p. 746

However, in this case the processors act as integrators and, although through the production system they and the farmers mutually depend on each other; because of the different balances of forces their relation stays imbalanced. The essential interest of the integrators is to continuously decrease the significant raw material costs, which often come out at 60-65% of the total costs by expert estimations. Thus, the behaviour of the integrators makes positions of farmers more vulnerable. In such a relation, the *bargaining power and interest enforcement possibilities of farmers stay weak*.

SWOT analysis of the coordination structure established by the processor (as initiator) from the farmers' point of view can be seen in Table 1.

Table 1: SWOT analysis of the coordination structure established by the processor

Strengths	**Weaknesses**
• decreasing transaction costs; • cost effectiveness of the production stage can be enhanced; • more accessible, more secure market through long term contracts; • more-or less-balanced prices guaranteed in contracts; • the processor takes part in ensuring the current assets of farmers through pre-financing • long term stability, permanent subsistence; • bad quality products are filtered out by the system; • transportation is usually organised and financed by the integrator.	• the different market power causes imbalanced relationship between the integrator and the farmers; • the integrator is interested in cost cuts (raw materials, pre-financing current assets etc.;) • price-asymmetry; • the integrator might arbitrary change the contract (causing hold-up problem); • bargaining power and the interest enforcement of farmers remain weak.
Opportunities	**Threats**
• easier technological and product development; • better flow of information; • food safety is ensured via central control and monitoring.	• milk is a perishable product, that leads to opportunist behaviour of the contracting partner; • hold-up (relationship) problem based on the vulnerability of farmers because of functional investments.

Source: Popovics, 2008: p. 68 based on Szabó G.G. - Bárdos, 2006; Szentirmay - Gergely, 2005

At first, filtering out bad quality products seems to be a drawback for the farmers, but in long-term it is a huge advantage and it is indispensable to get in and stay on the market offered retail chains.

It is very important to emphasize hold-up problems in case of co-ordination offered and led by the processor. The *hold-up problem*, probably the most known example for ex post problem/cost, relevant in agriculture, "… arises when one party in contractual relationship seeks to exploit the other party's vulnerability due to relationship-specific assets" (Royer 1999, p. 49). The hold-up problem (e.g. Karantininis and Nielsen, 2004) is significant in the dairy and fruit-vegetable sectors, explaining the existence high share of co-operatives in these industries (Staatz, 1984; van Bekkum and van Dijk, 1997; Kyriakopoulos, 2000, König and Major, 2006). The *members of a marketing co-operative are not likely to fear* that after investing into relationship-specific assets, the other party (e.g. the processor or wholesaler) will change its mind and force them to accept lower prices for their products otherwise terminate their contractual relation. (Szabó G. G., 2006)

3.2. Coordination initiated by the producers

To avoid the disadvantages mentioned above and utilizing the power of self-organising, farmers establish so-called promotion-type, facilitating (e.g. marketing) co-operatives, in

order to create a countervailing power against the monopolistic commercial and industrial corporations. In this study we use the *basic USDA co-operative concept* which reflects three basic criteria: "A cooperative is a user-owned and user-controlled business that distributes benefits on the basis of use" (Barton, 1989: 1). According to the above definition *three main relations* exist between the member and the marketing co-operative: the *product*, the *capital* and the *democratic managing-control* line. The co-operative does not produce the raw material.

The *dairy co-operatives* in Western Europe are s*pecialised to process and sell the milk and milk products of their members with the* final *aim to maximise the income of the farmer-members*. The *most important types* are the milk collecting-, bargaining- and marketing-co-operatives. The first two types of co-operatives are the *first steps towards structural improvement*. The primary goal is to ensure their raw material in the market by *better bargaining power* through the increased product volume (by fighting for the highest possible price), and to *increase the market share*. The most developed marketing co-ops carry our *market research* and *develop their own brand* to secure their markets.

It is also necessary to emphasise that marketing co-operatives are usually *bottom-up (grassroots) organisations* and they are only *partial forms of integration* (Ihrig, 1937; Ollila, 1994) which give members a higher degree of freedom compared to other coordination-integration structures (Peterson - Wysocki 1997).

Similar to non-co-operative dairy processors, they use *long, medium and short term contracts* to secure the raw material for them and to be able to govern the whole marketing chain. The co-operative, *in the modern sense, is a hybrid formula*, because apart from the common property the members sign a special “contract”: the statute or bylaw, which are the formal legal guarantees that the co-operative will never act against the members, and on the other hand that members will enjoy their advantages and fulfil their duties.

Because of human factors, especially the trust between the members and the co-operative, *hold-up problems usually are not as significant as in the processor-initiated case*. However, despite the advantages mentioned above, *agency problems* still might occur in co-operatives (Szabó G.G., 2006; Fertő - Szabó, G.G. 2002). As a very closely related issue to TCE and the (democratic) decision making process, there are a number of *potential problems of the traditional (countervailing power) co-operative model* (van Bekkum and van Dijk, 1997; Nilsson, 1998*b*) according to the *agency theory* (Nilsson, 1998*a*; Cook, 1995; Vitaliano, 1983). Based on the incomplete contract assumption, the *agency theory concentrates on incentive and measurement* problems featuring the *individual* and not focuses on the transaction which is the basic unit in TCE (Mahoney, 1992; Royer, 1999). The basic source of the agency problems *of complex organisations is the separation of ownership and control*. In the case of co-ops, the separation of the management (agent) and the owner-members (principals) can arise different incentives, therefore managers sometimes carry out business according to their objectives at the expense of the owners (Royer, 1999).

The most *important agency problems can be divided into two main groups* (van Bekkum, 2001): *investment related and decision-making process agency problems. In the first group* one can find the *common property problems* including external and internal free rider problems, *horizon* and *portfolio* problems, which are connected to the member interest to invest into the co-operative. The *decision-making process agency costs are relating to monitoring* and *follow up the management activities*, as well to the *influence cost* acquiring if there are different groups with different interests in the co-op, and finally linked to *decision problem of the management* caused by large and heterogeneous membership with different priorities and opinion.

Cook (1995) employs a co-operative life-cycle model consisting from five stages, whereas on stage three he definite five problems. *The five inherent organisational problems of co-*

operatives are the following: *free rider, horizon problem, portfolio, control and influence cost* problems.

There are some possibilities for co-operatives to cope with the above listed organizational weaknesses. The co-operative *can solve* some of the *control and influence cost problems* (Cook and Iliopoulus, 1998). But the spread of *new co-operative models with alternative financing methods and new organizational structures/strategies* (van Bekkum and van Dijk, 1997; van Dijk, 1997; Nilsson,1997, 1998b) report a possible response for the recent changes in European agriculture. Even *some other forms of alternative producer governance structures* with appreciable and transferable equity shares (Sykuta and Cook, 2001) are likely to emerge, as well as *grower associations and participation companies* (Hendrikse and Veerman, 2001a). However, it should be stated, that there exist a so-called *conversation process*, e.g. co-operatives transform themselves into CF (IOF) structure, like in Ireland (Harte, 1997; Zwanenberg, 1992). In the latter cases, well defined property rights (Cook and Iliopoulus, 1998) and the transferability of the residual claims (co-operatives shares) on the secondary market can solve almost all of the above mentioned agency and property rights problems. Harte (1997) finds the above mentioned conversation process as a sure and "normal" stage of his co-operative life-cycle model.

SWOT analysis of the coordination structure by the farmers (as initiators) from the farmers' point of view can be seen in Table 2:

Table 2: SWOT analysis of the coordination structure established by the farmers

Strengths	**Weaknesses**
• decreasing transaction costs; • cost effectiveness of the production process can be enhanced; • lower technological and market risks; • more influence on the market and on prices; • cost savings through the shortened flow of information; • rearranging some of the profit from a certain level of the marketing chain to farmers; • better interest enforcement , better bargaining position;	• inexperienced management; • inexperienced independent marketing activity; • members often have to cope with shortage of capital, therefore the investment structure is not optimal; • the current assets of the farmers have to be financed under their own capital; • members often cannot recognise that investments serve their interest – internal conflicts (horizon problem); • contact with the co-operative, transparency of its operation and practicing their managing and controlling role might cause problems for members (agency problems); • ensuring food safety, quality control • weak logistics
Opportunities	**Threats**
• accessing and retaining new markets; • high value added activities.	• shortage of capital; • technological and product developments are not materialised; • some members might gain benefits without paying-in ("free rider" symptom); • the co-operative is sometimes unable to control the quality and quantity of the supplied product; • milk is a perishable product.

Source: Popovics, 2008: p. 69 based on Szabó G.G., 2002

It is *indispensable* for the co-operatives (and any other producer owned organisations) to be able *to solve the weaknesses* and threats (including agency, horizon and free-rider problems) shown in Table 2 because they can only exploit the *opportunities afterward*.

Financing is traditionally a huge problem for co-operatives especially in case of activities with higher added value like processing, marketing etc., so financial supports from the EU are very important for newly emerged producers' group.

The case study organisation *(Alföldi Milk Selling and Supplying Ltd.) is not a co-operative but a so called producers' group existing in the form of Ltd but it* can *exploit many advantages traditionally offered by co-ops and* they *could solve most of the potential weaknesses including financing* which is traditionally a big problem for the co-ops.

3.3. Brief results of SWOT analyses of both coordination mechanisms

Analysing the statements defined in (both) SWOT analyses, we find that *depending on the initiator of the coordination*, there are *significant differences between the strengths, weaknesses, opportunities and threats*. There are common points, since transaction costs decrease and production is more cost effective in both cases. However, some factors occur as a strength in one system and as a weakness in the other, e.g. quality. We cannot decide which

organisation is more beneficial, since the factors listed might include many subjective factors that make the judgement more difficult, furthermore, the development, fulfilment and emphasizing of the specific points might cause significant differences even for two similar organisations. We can only claim that *in any organisation* the key points of the successful coordination are *financial power, quality consciousness* and *professional management*; and these factors are included *as strengths in the case of processor-initiated coordination*.

At the end of our paper we present a successful organisation the Alföldi Milk Selling and Supplying Ltd. which is a good example for the vertical integration based on the horizontal coordination of farmers as initiators.

4. Case study of Alföldi Milk Selling and Supplying Ltd.

4.1. The funding and history of the Alföldi Milk Selling and Supplying Ltd.

The Alföldi Milk Selling and Supplying Ltd. is a *special type of cooperation operating as a producers' group in form of a business enterprise in Hungary*. It is a self-organised group of farmers, which members cooperate not for production but for selling purposes, in order to create the countervailing power against monopolistic commercial and processing players in the chain, and to ensure the benefits of the members. The Ltd. had 153 owner-members, as well as 427 employees at the end of in 2007. Only producers can be members, if the members sell their cows they membership are terminated automatically. The uppermost authority is the general assembly which is usually gathered together at least 4 times a year. Votes are distributed according to shares capital, so the traditional co-operative principle: 1 member – 1 vote does not apply in their case. However, the company can gain *similar advantages* (secured market, higher milk price, less vulnerability due to hold-up problems etc.) for their *members traditionally co-ops use to offer to their members*!

The process, which in April 2005 ended in the final (official) governmental recognition of the successful producers' group, *started in 30 April 2003*, when 23 big cattle farms, most from Hajdú-Bihar County funded the firm. The *objective* was to ensure a *profit higher then the Hungarian average*, by supplementing the income with 6% government subsidy. This amount reached 30 million HUF already in the first year for the milk purchased by Friesland Hungaria Joint-stock Company, and the company's turnover reached 516 million HUF.

The owner-members of the organisation have *300 cows/farm as an average*, i.e. most members of the cooperation are large-scale farmers. However, there has not been and there is *no minimum limit for milk delivery and small-scale farmers are also welcomed*. Already in 2004, the company had serious price negotiations, and was selling milk not only to Friesland Hungaria Joint-stock Company but to other processors as well, such as SOLE Hungary Joint-stock Company. Thus, the *company managed to utilize this market counterweight and could ensure prices for the members higher than the Hungarian average in the past and they can pay an average market price despite the crisis in 2009*. They applied for and won every year the subsidy provided for suppliers, which was maximized in 20 million HUF. These successes contributed to the fact that, by the end of 2004 the cooperation had already 83 members and 252 million l milk quota, which meant 9.6 billion HUF turnover.

4.2. Value added activities added: buying up the Parmalat plant in Székesfehérvár

By the end of 2006, the company has significantly extended. It supplied 7 processing firms with milk and its quota reached 400 million litres, which was *30% of the 1.4-1.5 billion litres*

national quota. At that time the company had 153 members, its monthly turnover was near 3.2 billion HUF, which came out at 38 billion HUF per year (See Figure 3 below).

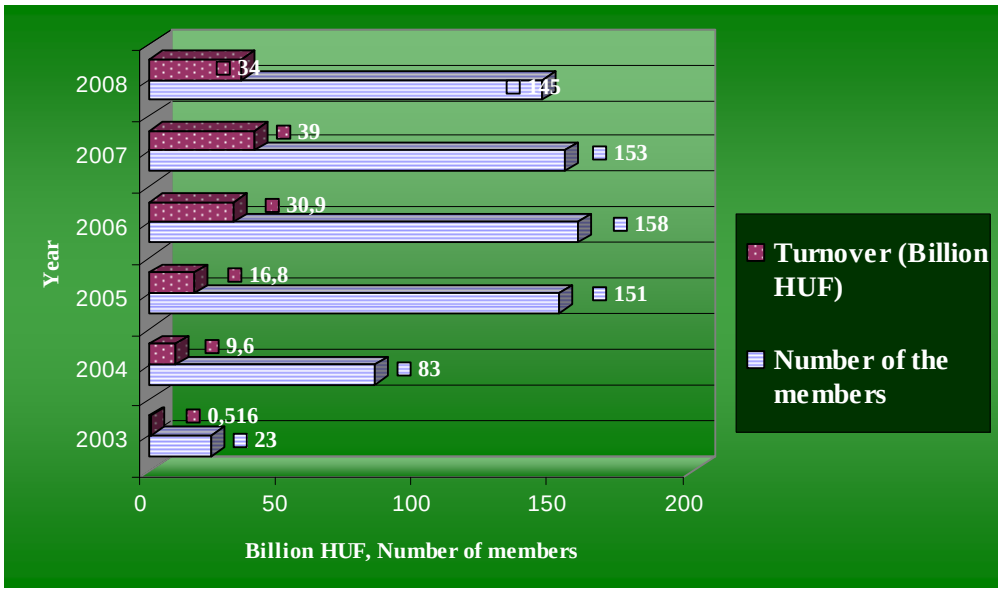


Figure 3: Dynamic growth of the Alföldi Milk Selling and Supplying Ltd.
Source: Annual reports of the Alföldi Milk Selling and Supplying Ltd.

The fast and dynamic growth both in numbers of members as well as in turnover allowed for the *possibility of a vertical integration based on horizontal co-operation* (Markovszky, 2004). This process materialised in buying-up a Hungarian processing firm earlier owned by Parmalat.The firm in Székesfehérvár was bought by Alföldi Milk Selling and Supplying Ltd. on 1st November 2005. According to Tibor Mélykúti (managing director of the company) in order to raise the sufficient own capital to buy the Székesfehérvár firm, the members of the Ltd. had *increased the shared capital with 500 million HUF*. Furthermore, more than 4 billion HUF credit was borrowed, most of which was *granted by the state through the Hungarian Development Bank* (MFB), and some were supplied from other credit institutions for a two-year loan period (Nagy, 2005).

The firm - earlier owned by Parmalat - being a farmer-oriented processing company functioned primarily as a *market regulating tool (puffer capacity)*, however in 2008 they processes *83% of their raw milk in their own plant producing higher added value*. The Székesfehérvár firm, depending on its tied-up capacity, processes not only the milk produced by the members, but *also processes milk produced by other farmers*. The members see the benefits provided by the producers' group in the fact that through better bargaining power they can get better prices in the market. They have paid 1 HUF/litre more[6] than the country average, which is a remarkable feat and strengths members commitment.

4.3. Actual situation and future developments: plans[7]

[6] The actually paid-out average price was 71.35 HUF/litre in their case compared to Hungarian average of 70.39 HUF in 2007. Presently (in the first quarter of 2009) the paid-out average price as low as 57 HUF/litre such as the average price on the Hungarian market.

[7] This section is mainly based on annual reports (Alföldi Tej Kft., 2008) and on an interview (2008) in Hungarian with Bihari Gáborné (Auditor of Alföldi Tej Kft.).

Their *share of the Hungarian milk market is about 30%,* which is very important since 1/3 of the milk marketed on market is controlled by producers.

Regarding *profitability* in 2007, the plant has become profitable with the help of the above mentioned long-term loans and with the joint work of the management and Alföldi Milk Selling and Supplying Ltd., contrary to years 2005 and 2006. The profit of the plant was higher than 300 million HUF in 2007 contrary to the loss made in 2006 (250 million HUF).

The surprisingly strong Hungarian currency (HUF) was an advantage from the point of paying back loans, however since their *export get higher and higher share* in their turnover (their actual share from the exported Hungarian milk is about 1/2), it causes losses in the last few months. Their main export markets are Italy and Romania, but they are present in Slovenia, Germany, Slovakia, Czech Republic, Bulgaria and Cyprus as well.

Regarding *domestic markets*, they are *in every big retail chain* (hype- and supermarkets) with 160 products but some wholesale chains and EU export costumers are also their clients. They are not fully satisfied with the roles of the chains e.g. their price margin is too high, the quality of their products is sometimes very bad etc.. It is very important to take into consideration that *import of dairy products*, especially different types of relatively cheap cheeses, has been increasing since 2005. The share of import in the Hungarian market is about 25-30% depending on the seasonal surplus of milk in EU as well as on the current rate of the Hungarian currency (HUF). However, it is a relatively new phenomenon that at the same time there is a shortage of milk on the EU market which caused instability in contractual relations with fixed prices.

There was a *continuous increase in the domestic trading delivery prices* in the second half of 2007, however the profitability of processing activity has not changed since the surplus has gone to the producers (Alföldi Milk Selling and Supplying Ltd., 2008). Their *main domestic processor partners* in 2007 are Sole-Mizo Joint-stock Company, Kőröstej Ltd., M and M Sajtgyártó Ltd., Pannontej Joint-stock Company, Mark-Nagisz Ltd., Fino-Food Ltd. apart from their own processing activities.

Members use *HACCP* in their raw milk production and the processing plant also employs the same *quality assurance system*.

Although it is not a co-operative, *commitment* is relatively high among the owner-members due to the above average milk price paid as mentioned above and also the investment the members had made, However last year (2007) some of them left (terminating their contracts) for a little bit higher prices, therefore the number of members was only 153 at the end of 2007 contrary to 2006 (158). Since their violation of contracts, they can not be member again which will cause of a very hard situation for those individual producers on the Hungarian milk market. There is a non-member trade as well, they have got ad hoc agreements with the processing plant.

On short term they try to recreate financial stability, increase suppliers' (producers') trust, saving liquidity of the firm and strengthening market position regarding final products and export. They also pay attention on product development including new packaging design in case of products with higher price margin in order to increase the value added.

Long term strategies include enlargement of the group in logistically optimal regions of the plant and planned export activities, development of logistics and distribution system and modernisation of product assortment of the processing plant.

4.4. Conclusions of the case study

As a main conclusion of the case study on Hungarian Alföldi Milk Selling and Supplying Ltd. presented, we have to underline that the *above structure is unique*. *First*, it is a *member-controlled business*, but not a co-operative. It has a similar structure to New Generation Co-operatives in US (Cook, 1995; Iliopoulus – Cook, 1999, Nilsson, 1997) since it has a kind of

"holding" format (the processing plant is owned by a producers' group existing in Ltd legal form) and members had made a significant up-front investment when they established the company. *Second,* the above *organisation structure is very effective* so far and can offer almost the same *advantages (like reducing transactions cost, lowering technological and market uncertainties* etc.) traditionally co-ops could secure; but also *combines efficiency in processing and marketing,* as well as *flexibility* in business (e.g. to open to export markets.) which are usually weak points in case of agricultural co-operatives. *Third,* the "owner" of the dairy processing plant and the *basis of cooperation is a producers' group* which get some supports from the state and EU (apart from using their own investments mentioned above and credits from the market) thus financing is not a big problem contrary to the practice of traditional co-ops. *Fourth, human factors* (e.g. trust, power, motivation etc.) and *management abilities strengthens the economic efficiency* of the firm. Since they pay higher milk price than the Hungarian average and secure (growing) markets for the owners therefore *commitment is relatively high.* It is very interesting fact that they are continually trying to *increase suppliers' trust* as one the key elements of their success.

5. Conclusions

Farmers are very *vulnerable* and they *cannot enforce their interest separately* and they are *not able act against the concentrated processing industry*. It must be emphasized that the *problems of farmers coming from market imperfections and co-ordination of the dairy chain cannot be solved simply by EU and/or government support*, but it seems to be vital in the case of emerging *producers' groups, like co-operatives,* to be able to set up (Meulenberg, 2000).

As a main body of our study we *summarised the strengths, weaknesses, opportunities and threats of the different coordination structures in the frame of a SWOT analysis,* assuming two theoretical situations: one is when the coordination is initiated by the processor or when it is established by the farmer.

As a conclusion, we underline the *importance of Western-European (Danish, Holland etc.) experiences* and the need for more producer-owned organisations, like co-operatives and producers' group in Hungary

However, one has to take into mind that co-operatives and other producer-owned organisations have *additional non-economic advantages as well*, for example they can contribute to *rural development and secure jobs* (by multifunctional agriculture, rural tourism, employment by the co-operative etc.) which are very important tasks especially in less favoured areas. They help to *save the environment* also with offering traceability partly due to the long and close social relationship**.** They contribute to *social benefit* (ethics, values etc.) as well as they are *socially responsible by nature* (Juliá-Iguál, J. F. - Meliá, E., 2007).

The *success story of the Alföldi Milk Selling and Supplying Ltd.* is a good example for the vertical integration based on the horizontal coordination of farmers as initiators. The existence, development and the efficient production of the business conducted by the producer owned organisation proves that *by co-operation of farmers there is a chance and opportunity to significantly improve their countervailing power and to establish ownership for farmers in the processing stage of the Hungarian dairy chain*. Higher degree of co-operation among producers is important from the point of *better coordination of the whole chain* and it can *enhance (consumer) welfare as well*.

Further studies on producer – processors relationship, as well as on developments of *producers' groups and other coordination structures* in the dairy sector would be useful to *help farmers, decision makers of agricultural policy and politicians* in order to establish a *more functioning chain with more value added activities* and a more *balanced distribution of profits* within the sector.

Regarding the whole society, the effect of *developing and strengthening trust and social capital* has primary importance apart from direct economic aims; therefore in our future research, we *try to pay attention to the human/soft side of the coordination and co-operation issues*.

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Interview

1. **Bihari Gáborné** Auditor of ALFÖLDI MILK Selling and Supplying LTD.**,** July 30, 2008

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