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FINANCIAL ASPECT OF GRAIN ELEVATOR FUNCTIONING IN
MODERN RUSSIA

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Abstract

The grain sub-complex is the leading sector of Russian agriculture and the agro-industrial complex. Food security of grain, as its biological value, safety, availability and adequacy for consumers, is essential for the health of the nation. Grain elevators occupy an intermediate position between grain producers and consumers; their pricing policy and services fees significantly affect the level of grain prices. There is little study of the financial aspects of grain elevators, apart from accounting and taxation. The article aims to identify and systematize the financial features of grain elevators functioning under the doctrine of food security and export orientation of modern Russia. The study results in the following findings. First, the authors identified the specifics of grain elevator finances in terms of general and specific factors, including the technological features of their functioning. Secondly, they assessed and analysed the place and role of grain elevators in the grain market, revealing their leading role in preserving the quality and volume of harvested grain. Thirdly, the study identified the main problems of grain elevators in modern Russia, namely their insufficient number, irrational distribution among owners, outdated geographical locations, worn-out funds with insufficient storage capacity. Fourthly, the researchers proposed directions for improving the activities of grain elevators from the position of optimizing their financial relations with internal and external stakeholders. The authors propose (1) to develop field-based farmer mini-elevators through franchising large elevators to farmers; (2) to encourage elevators to enter the grain exchange market. They also highlighted areas for further scientific research.

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1. Introduction

The grain complex is the leading sector of Russian agriculture and a subcomplex of the agro-industrial complex. Grain elevators, as complex mechanized and automated grain storage facilities, provide cleaning, drying and storage services for grain. Their effectiveness determines the safety of the harvested grain and its availability throughout the year for the processing industry and consumers, the level of food security of grain, flour and bread, as well as the volume of grain exports.

2. Problem Statement

To date, there are many studies on the economics of agriculture, agribusiness and the grain sub-complex (Altukhov, 2009, 2016; Serikova, 2019; Sidorenko, 2014; Zyukin et al., 2014). There are also many studies examining the food security of grain (Kretova & Tsirulnichenko, 2019) and the conditions and specifics of its exports. However, there is little research on the financial aspect of grain elevator functioning. Russian researchers often reduce the financial aspect of elevator functioning to a description of the organization and maintenance of elevator accounting as the basis for determining costs (Fedotenkova, 2018; Pronyaeva & Fedotenkova, 2014) and much less often to their taxation (Chusov, 2008). Foreign studies focus on analysing the logistics and transport costs of elevators and their impact on grain costs (Dales, 2011; Ndembe & Bitzan, 2018; Wilson & Dahl, 2011). The authors did not find any research on the finances and financial management of grain elevators. This suggests that grain elevators have not become popular targets for financial research to date. However, this is becoming a necessity, as elevators are now actively involved in financial relations. Thus, elevators can participate in grain exchanges (Gladilin, 2013), insurance, factoring, leasing, lending, state support, and state grain interventions.

3. Research Questions

The study of financial aspects of modern grain elevators in Russia involves: identifying and systematizing peculiarities of their financial organization determined by the specifics of their activity; analysing specifics of bookkeeping and accounting at grain elevators; studying peculiarities of taxation of Russian elevators; studying specifics of financial relations of an elevator with external and internal stakeholders; determining possibilities and limitations of their receiving state support; identifying possibilities for elevators to enter organized grain exchange based on Moscow Exchange; forming financial mechanisms to improve their functioning in food security and grain exports; systematizing the risks of digitalization and automation of agriculture, economics and finance. Russian researchers have a little study of these areas which need theoretical and methodological justification from the perspective of financial science.

4. Purpose of the Study

The high relevance and lack of scientific research predetermined the purpose of the study: identifying and systematizing the financial features of grain elevators functioning under the doctrine of

food security and export-orientation of modern Russia and proposing directions to improve their efficiency.

The research design includes: (1) identifying the specifics of grain elevator finance organization in Russia; (2) evaluating and analysing the place and role of grain elevators in the grain market; (3) identifying problems of grain elevator functioning; (4) forming directions for improving grain elevator functioning from the perspective of optimizing their financial relations with internal and external stakeholders.

5. Research Methods

The study relies on the methods of analysis and synthesis, induction and deduction, functional and system analysis, and simple factor analysis.

6. Findings

The specifics of organizing the finances of grain elevators

Grain elevators occupy an intermediate position in the production chain between agricultural producers and those who process grain or use it without processing during periods that do not coincide with the grain harvest (i.e. beyond the July-August of each year). Accordingly, the organization of grain elevator finances is seasonal where the peak of activity falls during the grain harvest period, as the grain can lie in the field only for the first 3–4 days without loss of quality, after which its quality declines sharply. Within this period, it should promptly deliver the grain to the elevators. Because of this seasonality, the grain elevator has an uneven focus and volume of work over time.

At peak harvest times, grain elevators actively receive grain, clean it, perform laboratory tests on the quality of the incoming grain and send it for drying, then fill it into granaries, ensure its safety and protection from pests and negative influences from the outside. During the grain storage period, the work of the elevator employees is more spread out and even in terms of time and volume. In addition, elevators need either to have their own transport, inventory and equipment (during peak periods they are actively used but at other times they are surplus and idle) or to use outsourcing of these resources from external stakeholders. There are usually two modes of transport competing: road and rail. Vehicles have different capacities, delivery speeds, and require different technological equipment for the receiving elevator. Accordingly, the transport costs of the elevators are different. The logistics of elevator and transport infrastructure need to be adapted to each other, but this is often not the case.

Pricing for elevator services is ambiguous. On the one hand, elevators are forced to price their services at the beginning of their interaction with grain producers and, on the other hand, elevator margins may decrease over time as the cost of these services may be higher than expected (planned) levels. Thus, the actual cost of elevator services depends not only on the volume of grain, but also on its initial and required quality, the cost of fixed and variable, direct and indirect expenditures for receiving, cleaning, drying, storage and release of grain. And to ensure effective pricing, an elevator must be very thorough in organizing and keeping analytical records of its costs at each stage of the service (receiving, cleaning, drying, storing and releasing grain). Because of the low commercial component of grain: grain and bread

are socially important food products, and the government closely monitors prices to prevent excessive increases, the elevator is limited in its ability to raise the cost of its services. This makes it even more necessary to organize, maintain and manage the costs of a grain elevator well, so that the price for their services is cost-effective for the elevator and not excessive for buyers of the grain stored in the elevators.

Obviously, technological factors have an impact on the organization of elevator finances. The physical limitation of the elevator's production capacity to its grain storage capacity determines the high entry threshold into the industry, large investments in fixed assets, and the inability to split elevator services to provide them simultaneously to different clients, which affects the specifics of sales and pricing. The territorial immobility of production assets (territorial specificity of the asset) predetermines the territoriality of the elevator service market, the inability to flexibly provide services to other regions without reducing the profitability of sales. The uniformity of grain quality at all stages requires the elevator to be appropriately equipped with machinery and specialists, which generates additional costs for innovation, investment and regular staff development and laboratory maintenance. Dependence on natural and climatic conditions makes the grain elevator business unstable, depending on the grain yield, which means that elevator revenues are volatile and difficult to predict, while fixed costs are constant. In these conditions, insurance and loss provisions become necessary. The complexity of the services provided requires the elevator to diversify its equipment and personnel, which implies the creation of an effective budgeting system by responsibility centres in the elevator.

Current state of the grain market and the grain elevator industry

The Russian grain market is developing: the average grain harvest has been increasing over the past five years and grain exports are growing. The 2020 results show a net harvest of 133.2 million tonnes of grain from 98.6 % of the sown area (agrosod.ru) (for comparison, the 2019 harvest was 121 million tonnes (sdelanounas.ru), the 2018 harvest was 134 million tonnes (bankstoday.net) and the 2017 harvest was 135.5 million tonnes, with 57.5 million tonnes of grain (up 20 % from 2019) (tass.ru) being sent for export. 16 regions in Russia had record harvests of grain. Russia exports grain to 138 countries around the world.

According to the site Zerno.agromir.ru, today in Russia there are 491 elevators with a total storage capacity of 120 million tons of grain, and only 40 % of these capacities meet the requirements for grain storage. This means that actually we are talking about 48 million tons of grain storage capacity, which is obviously not enough to store the harvest of 133.2 million tons (zerno.agromir24.ru). The Russian Ministry of Agriculture cites other data: elevator capacity is 156.9 million tonnes and 60 % of them meet the requirements, of which 89.2 million tonnes (57 %) come from elevators of agricultural producers, 5 million tonnes (32 %) from procurement organizations, 17.7 million tonnes (11 %) from processing organizations (Long-term Strategy for the Development of the Grain Sector, 2019). The geographical distribution of grain elevators does not fully correspond to the current conditions of production and consumption of grain and leguminous crops. This results in the increased exploitation of the road surface for domestic and export grain transport (86 % of domestic transport is by road and 61 % of export transport).

Moreover, the grain elevator market features three types of elevators: 1) elevators accredited to cooperate with the grain exchange through the National Commodity Exchange JSC based on the Moscow

Exchange Group; 2) elevators selected by the Russian Ministry of Agriculture in various years to hold stocks of the intervention fund during the State purchasing interventions and also cooperating with the NTB JSC under the Grain Market Project; 3) all other elevators. It is logical that each group of elevators has its own characteristics of competition and pricing.

Problems of grain elevator functioning

Among the main problems in the functioning of Russian grain elevators, the most systemic are the following:

(1) quantitative and qualitative insufficiency of grain elevators. Firstly, they are few, their total capacity is insufficient, their territorial location dates back to the days of the USSR and the planned economy and does not match the grain production market of today, the transport infrastructure and logistics need restructuring. Secondly, 40-60 % of all capacities (fixed assets) of elevators are worn out. There is a high demand for investment, innovation and skilled labour in elevators. In such circumstances, the entry of elevators into the capital market and, in particular, into the grain exchange can become a tool for attracting non-bank debt financing and hedging the risks of agricultural producers and elevators in the grain market;

(2) the current structure of grain elevators does not meet the need of the economy for vertically and horizontally integrated agricultural companies. Integrated business structures have a closed production cycle and significantly save on transfer prices within their group. Integrated companies reduce the cost of grain products through transfer pricing, while the functioning of grain elevators that are not part of integrated companies leads to a significant increase in the cost of grain products for the processing industry (for flour mills and baking companies) and therefore increases the price of bread and grain for the end consumer. Furthermore, the functions of grain production and storage are often divided between the entities of the grain sub-complex. Producers have to deliver grain immediately during harvesting cheaply, while the grain is consumed during the year at higher prices, and the difference goes favouring the intermediary. If the elevator has no financial reserves for its own grain purchases, it receives only a commission for its services;

(3) farmers do not have their own grain storage facilities, thereby making their grain cultivation an uncompetitive line of business, whereas field-based mini-elevators could remedy this situation;

(4) grain elevators do not have access to the financial resources market with a low level of involvement of Russian elevators in the grain exchange market.

7. Conclusion

It is possible to overcome the noted shortcomings and problems of Russian grain elevators by (1) encouraging and enabling the development of mini-elevators and granaries for farms, including the construction of field-type mini-grain storage facilities (i.e. directly near the field for growing grain). These mini-elevators are mobile, cheaper, allow grain storage directly at the point of harvest and give the producer a time lag to find profitable contracts outside peak harvest periods. The establishment of a system of farmer-based mini-elevators requires, on the one hand, a system of public funding for investment activities by farmers to build such mini-elevators and, on the other hand, advisory and technological assistance for farmers by operating grain elevators. The latter is possible through the sale of

elevator franchises by major industry leaders to farmers, with parallel advisory support and training of staff and farmers in elevator maintenance skills. Franchises for mini-elevators will be effective if the system of state support for farmers includes investment deductions for the costs of building mini-elevators by farmers. In our view, the target for the development of the grain elevator industry is to achieve the American model of elevator ownership structure (when 60 % of elevators are owned by farmers); (2) to conduct explanatory and advisory work with grain elevator owners to encourage them to enter the exchange grain market, and to create information and communication platforms for sharing experiences of grain elevator participation in the exchange grain market. The proposed directions will contribute to solving the problem of the irrational spatial location of elevators by creating an extensive network of field-type mini-elevators among farmers. This will reduce the cost of grain elevator services in a competitive market and increase the efficiency of their functioning.

However, a number of areas need further research and development. In particular, there is an open issue of inter-regional cooperation between grain elevators, farmers, authorities and agricultural organizations in the process of combining their efforts to create a network of mini-farm grain elevators, integrating them into the technological process of the elevator industry, ensuring food security and grain export. It is also necessary to conduct a feasibility study on a system of state support measures for farmers who are building mini-elevators in the field as franchisees of large operating grain elevators. In addition, there is an open question of promoting the formation and development of horizontally and vertically integrated agricultural organizations involving grain elevators. Further development of the grain market, increasing yields and export volumes will make these areas more relevant to domestic financial science.

The current financial situation of grain elevators in Russia is unsustainable, requiring large investments in renovation of fixed assets, transport infrastructure and changes in the logistics of their territorial location.

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