

## **MODEL OF INVESTMENTS IN THE AGRICULTURAL REAL PROPERTY MARKET**

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**Abstract.** The paper presents model of the so-called strategic investment card as a complex approach to implementation of investment in agricultural real properties. The model was financial-economic and strategic conditions in the market of agricultural real property. The evaluation of the investment was defined in the aspects of economic, market, and social-environmental effectiveness as well as the so-called investment options.

**Key words:** market of agricultural immobilities, strategic investment card

### **INTRODUCTION**

The crisis that appeared in the American real property market in 2005 caused that the current situation is the worst in 17 years. The negative phenomena of that crisis also reached the Polish market causing a decrease in demand for real properties. The analysts see no indications of revival in demand for real properties in the nearest future. The increase by 79% in the number of implemented collection procedures against real properties is in turn the consequence of the crisis in the mortgage loans market. The crisis was the most severe in the segments of residential and industrial real properties. It was less severe in the segment of agricultural real properties. Nevertheless, the whirls in the real property market force the investors to improve the methods for evaluation of investment profitability.

Agricultural real properties<sup>1</sup> have become, as of the early 1990s, an attractive form of capital investment as a consequence of continually increasing prices, which was

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<sup>1</sup> Agricultural immobilities in special cases can consist with only land uses, usually also from plotting on soils – both building how and vegetable [Łaguna 2001].

influenced by numerous factors. The main factors include natural, spatial-organisational, technical, land improvement and spatial ones. The basic attributes influencing the value of agricultural real properties were the area of the real property, availability of technical infrastructure, neighbouring real properties, access to means of transportation, location and fertility value [Łaguna 2001].

Implementation of investment projects in agricultural real property requires now a comprehensive approach to the issues related to assessment of economic effectiveness and valuation of risk involved in the studied market. The process should focus in particular on the measures of effectiveness of a given project covering, in addition to economic effectiveness, also the social and environmental effects as well as benefits resulting from the so-called investment options.

The paper aims at presenting a model for evaluation of effectiveness of investments in agricultural real properties entities considering the practical aspects related to financial-economic and strategic conditions. In the project treating to defining in figure of strategic investment card investment model method in study was used was (Fig. 1).

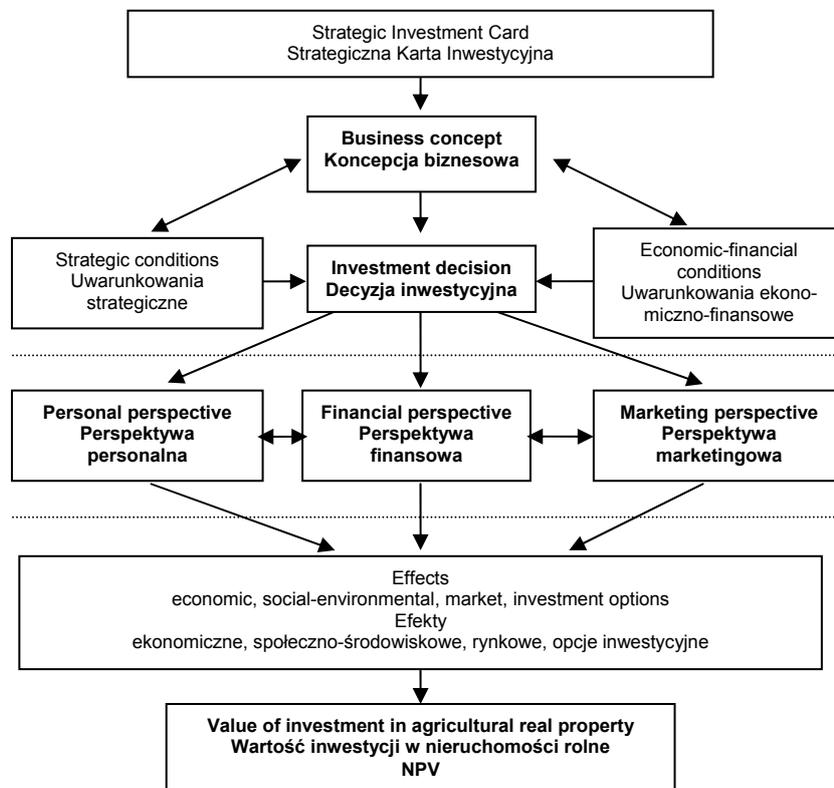


Fig. 1. Model of the Strategic Investment Card  
Source: own work based on: Kozłowski [2007].

Rys. 1. Model strategicznej karty inwestycyjnej  
Źródło: opracowanie własne na podstawie: Kozłowski [2007].

## **STRATEGIC INVESTMENT CARD AS A MODEL OF INVESTMENT IN AGRICULTURAL REAL PROPERTIES**

The concept of the Strategic Investment Card (SIC) is related to the process of investment in agricultural real property (Fig. 1). It serves defining the cause and effect relation between numerous factors influencing profitability of the investment. The SIC represents defining, on the basis of the business concept, of three perspectives of the investment in agricultural real property: economic, marketing and personal at the same time defining the method for measurement of the specific perspective while valuating the effects in the economic, social and market aspects as well as the so-called investment options.

The rationale for the business concept of investment in agricultural real properties that should define elements such as:

- premises for a given project: market, marketing, social, economic, strategic,
- projection of benefits expected from a given project – increase of agricultural production, improvement of product quality, diversification of trade offer, increase of land value,
- valuation of investment options related to implementation of a given project or resignation from it; what will we achieve if we go for the project and what will happen if we do not implement it,
- valuation of risk related to project implementation in general terms – valuation of risk level or its type,
- defining the costs and time for implementation – cost of capital, schedule of work implementation,
- evaluation of profitability of the investment: economic, social, environmental and obtaining so-called investment options,

is the starting point for the strategic investment card.

The business concept of the project is determined by two most important types of conditions: economic-financial and strategic ones.

## **CONDITIONS OF IMPLEMENTATION OF INVESTMENT IN AGRICULTURAL REAL PROPERTY**

Considering investments in agricultural real property two major sources of conditions have been defined: financial-economic and strategic. The first ones result from premises and phenomena of macro and microeconomic character. The second group of conditions is linked to the goal of investor's activities and his plans for the future.

### **Financial-economic conditions**

Financial standing, financial risk, financial planning type and investment options can be treated as the major financial premises for investment in agricultural real property [Ziarkowski 2004]. The important premises of economic character include macroeconomic situation, economic-sociological phenomena and phenomena taking place in the world that frequently reach Poland with a delay of a few years.

The above premises determine the decision criteria related to investment in agricultural real property defining at the same time the investment ability and strength of the investor. Figure 2 presents the model of conditions occurring in the process of decision taking in the market of agricultural real properties.

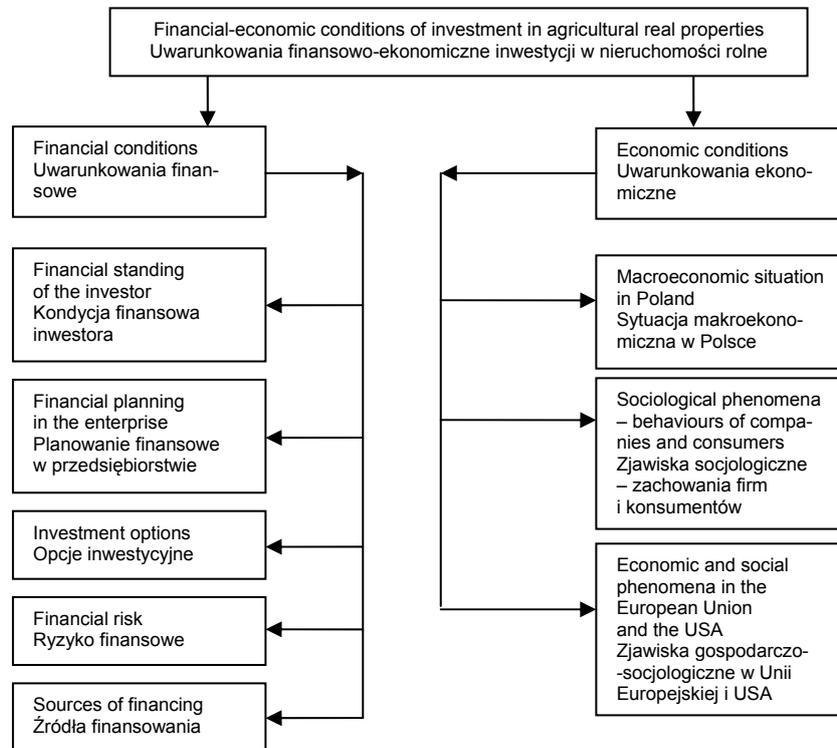


Fig. 2. Financial and economic conditions of investments in agricultural real properties  
Source: own work base on: Woźniak-Sobczak [2001].

Rys. 2. Finansowe i ekonomiczne uwarunkowania inwestycji w nieruchomości rolne  
Źródło: opracowanie własne na podstawie: Woźniak-Sobczak [2001].

The financial and economic premises of investments in agricultural real properties presented in Figure 2 determine the baseline (marginal) conditions determining the investment strategy of the given entity. Those premises influence to a large extent the choice of decision criteria concerning the investment in agricultural real properties [Pastusiak 2003].

### Strategic conditions

The assumed investors' operational strategy that determines the investment types and scenarios as well as the criteria of economic profitability assessment and the risk level represents the starting point in implementation an investment policy [Woźniak

2001]. Table 1 presents types of investment in agricultural real properties. The development strategy is the basic criterion for the categorization of investments.

Table 1. Types of investments in agricultural real properties – development criterion  
Tabela 1. Rodzaje inwestycji w nieruchomości rolne – kryterium rozwoju

Focus on one activity Koncentracja na jednej działalności	Vertical integration Integracja pionowa	Diversification Dywersyfikacja
– investment aiming at development of current agricultural production inwestycje mające na celu rozwój dotychczasowej produkcji rolnej	– qualitative investments – improvement of agricultural culture inwestycje jakościowe – poprawa kultury rolnej	– investment involving change of activity profile – agritourism inwestycje – zmiana profilu działalności, agroturystyka
– investment in sales markets inwestycje w rynki zbytu	– investment of infrastructural type inwestycje o charakterze infrastrukturalnym	– investments in products, services inwestycje w produkty, usługi
– investment of modernisation type inwestycje o charakterze innowacyjnym – modernizacja	– investments of speculative type – waiting for increase in value inwestycje o charakterze spekulacyjnym – oczekiwanie na wzrost wartości	– investments of extensive nature inwestycje o charakterze ekstensywnym

Source: own work based on own studies.  
Źródło: opracowanie własne.

The phase in which the investor currently is constitutes an important criterion influencing the type of investment in agricultural real property. If the investor were in the growth phase, he would be focused mainly on new investments thanks to which it would increase its production capacity and strengthen the technical infrastructure. At that phase the investor might generate negative cash flows and low current rate of return on the capital invested. The strategic goal is to increase revenues and sales of agricultural production.

The investor at the retention phase is focused mainly on increasing the production capacity and continuous improvement of production processes. The investments in agricultural real properties are mainly investments of modernisation and replacement character. Investor at the mature phase is focused on “harvesting” the gains from the investments made during the preceding phase. The investments in agricultural real property are of replacement type mainly and aim at retaining the potential. All projects must be characterised by precisely specified and short period of return. Maximisation of cash flows is the main objective.

The dependences occurring between the investment in agricultural real property and life phase of the investor are conditioned mainly by the financial objectives, which causes that investment projects possess different characteristics. All tangible investments are assessed according to the procedure of investment planning based on the discounted cash flows and they must be characterised by rapid and secure return on the capital invested. As a consequence the investor should be able to define the phase he is currently at and on that base define the investment strategy.

## **PROFITABILITY ASSESSMENT OF INVESTMENTS IN AGRICULTURAL REAL PROPERTIES**

The process of investment in agricultural real property economic profitability assessment should be divided into stages implementation of which would allow appropriate implementation of the investment. Four major stages are identified [Trocki i Gruzca 2007]. In addition to economic effects the investor also obtains market, social, environmental effects and so-called investment options the valuation of which is necessary for comprehensive assessment of the project of investment in agricultural real property.

### **Methodology for profitability assessment of investments in agricultural real properties**

Aiming at appropriate implementation of investment process, according to the Strategic Investment card (SIC) assumptions, four major stages allowing appropriate assessment of investment profitability have been identified.

Stage I. Defining scenarios possible for implementation as operational scenarios:

- real property purchase and conduct of agricultural production,
- real property purchase and cessation of any agricultural production while maintaining the land in good agricultural culture,
- further lease and conducting agricultural production,
- further lease and cessation of any agricultural production while maintaining the land in good agricultural culture.

Stage II. Defining the marketing concept. It is assumed that at stage II the following would be determined:

- demand for products,
- scale of demand,
- intensity of competition,
- concept of appropriate promotional activities,
- production programme,
- projections of sales prices.

Stage III. Assessment of the investment project functioning:

- projection of profit and loss account, balance sheet and cash flow;
- defining categories of costs and revenues related to the specific investment in agricultural real property. The major categories of revenues could include: the value of main product, value of side product, subsidies to the product, subsidies to the cultivated area and increase in value of the agricultural real property. The major categories of costs might include: investment outlays, rent, taxes and fees, direct costs of production indirect costs of production;
- computation of NPV and IRR as the main criteria for assessment of profitability of an investment in agricultural real property;
- financial indicators – final assessment of the investment project version.

Stage IV. Taking the decision as concerns the choice of scenario for the investment in agricultural real property.

The methodology of profitability assessment represents an element of the Strategic Investment Card model and covers the aspect of the business concept and analysis of investment conditions for investment in agricultural real property. The above methodology is the most important area in the investment process as its correctness and accuracy determine the further success of the project.

### The opinion of efficiency of Model ( SIC)

Investment in agricultural immobilities, according to the assumptions of the model (SIC) will give economic, market and social-environmental effects as effects related to the so-called investment options.

**Economic effects** related to obtained funds can be defined by applying the profit or cash flow, level of investment profitability, values of NPV, IRR, DPB and increase in value of the agricultural real property. Analyses indicate that only scenario number 1 related to purchase of the real property and conducting agricultural production offers substantial economic effect related to obtaining positive values of NPV, IRR and DPB.

**Market effects** – involve such elements as share in the agricultural production market, diversification of products and services, increase of the share in Client's portfolio and geographic expansion. The basic market effects of scenario 1 implementation are:

- increase in volume of agricultural production per 1 ha of crops by 30% within 15<sup>2</sup> years;
- increase in process for agricultural products by 150% within 15 years<sup>3</sup>.

**Social-environmental effects** – creating new jobs, improvement of agricultural culture, new prospects for farm development and regional development, good natural conditions, the possibility of development of agrotourism.

**Effects related to obtained options** – possibility of using natural resources, possibility of expansion, possibility of being the market leader, development of market trends consistent with behaviour of consumers – tourism, increase in demand for agricultural products.

The major options related to the investment could include:

- projected increase in land value by 5-10% per year<sup>4</sup>,
- increased demand for agricultural products,
- increasing importance of agricultural-food industry,
- socio-economic phenomena linked to increase in demand for food from ecological regions, healthy nutrition, etc.

Option types obtained from investment in the subject farm are presented in Table 2.

The time for implementation of the options was assumed at 50 years and all of them have the growth option, which means that they can give the investor additional benefits in the future. For today, however, we are unable to estimate the value of those options.

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<sup>2</sup> The option priced on the basis of comparative analysis trends in vegetable production in perspective next 15 years.

<sup>3</sup> The option priced on basis of prognosis of growth prices products and series from simultaneous regard on agricultural products in perspective 15 years.

<sup>4</sup> The option priced on basis of opinion market immobility [Kucharska-Stasiak 2007].

Table 2. Investment growth options obtained through the investment in the studied farm  
Tabela 2. Wzrostowe opcje inwestycyjne związane z inwestycjami w nieruchomości rolne

Option name Nazwa opcji	Option characteristics Cechy opcji – zjawiska zachodzące w społeczeństwie i gospodarce	Date of execution Termin wykonania	Option direction Kierunek opcji
Economic Ekonomiczne	food from ecologically clean areas żywność z czystych ekologicznie obszarów rozwój agroturystyki wzrost cen nieruchomości rolnych	up to 50 years do 50 lat	growth wzrost
Social- environmental Społeczno- środowiskowe	movement of the population to ecologically clean areas, przemieszczanie społeczeństwa do regionów czystych ekologicznie	up to 50 years do 50 lat	growth wzrost
	striving of the society for better living quality dążenie społeczeństwa do lepszej, jakości życia	up to 50 years do 50 lat	growth wzrost
Location Lokalizacyjne	increased population expenditures on ecological tourism wzrost wydatków społeczeństwa na turystykę ekologiczną	up to 50 years do 50 lat	growth wzrost
	nearness of the eastern border – opening of the eastern market to agricultural food products tereny ekologiczne, bliskość infrastruktury, bliskość zbiorników wodnych, bliskość lasów	up to 50 years do 50 lat	growth wzrost

Source: own work based on own studies.  
Źródło: opracowanie własne.

## CONCLUSION

Investments in agricultural real properties, because of their specific characteristics, require high diligence and care during preparation. This results from the high number of conditions that have direct or indirect influence on their profitability. The Strategic Investment Card model allows determining the cause and effect relation in the investment process; it is a tool that facilitates implementation and assessment of profitability of the investment in agricultural real property.

The primary premises resulting from strategic investment card preparation include the necessity of defining the business concept and investment potential based on strategic and financial-economic conditions related to investment activity in the market of agricultural real property market. Defining the schedule for preparation of individual components of the strategic investment card is important. Preparation and implementation of investment require from the entrepreneur possession of vast and continually updated knowledge and wide information on the market and national economy. Effective and profitable investing requires appropriate preparation of the investment projects. Unsuccessful investments, bankruptcies, takeovers and mergers of enterprises confirm that extensive knowledge on the specific area is required from the manager.

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## MODEL INWESTYCYJNY NA RYNKU NIERUCHOMOŚCI ROLNYCH

**Streszczenie.** W opracowaniu przedstawiono model inwestycyjny w postaci tzw. strategicznej karty inwestycyjnej, jako kompleksowe podejście do realizacji inwestycji w nieruchomości rolne. Istota modelu sprowadza się do oceny uwarunkowań finansowo-ekonomicznych i strategicznych występujących na rynku nieruchomości rolnych. Ocenę inwestycji zdefiniowano w aspektach: efektywności ekonomicznej, rynkowej, społeczno-środowiskowej oraz tzw. opcji inwestycyjnych.

**Słowa kluczowe:** rynek nieruchomości rolnych, strategiczna karta inwestycyjna

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