Particularities of Investment Projects in the Romanian Biodiesel Industry

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Abstract

The European biodiesel industry is currently facing major challenges with governments reducing their fiscal support for biodiesel producers and with rising prices for feedstock. These challenges have a high impact on the profitability and survival of existing investment projects in biodiesel production. In this regard identifying and assessing the main particularities of investment projects have high significance, as they help management understand industry dynamics and better cope with unfavorable events. The paper follows a structured approach towards this objective and analyzes investment projects in Romanian biodiesel based on: a thorough SWOT analysis, current financing sources for biodiesel, risk categories and their impact on profitability of investment projects.

Keywords: *biodiesel, financing, project risks, profitability, projects.*

JEL classification: L6, M10, O52

Introduction

The European biodiesel industry faces a high pressure from rising prices for oilseeds and from lower fiscal support granted by EU member states. This unfavorable development generated over the last year lower utilization rates for installed capacities for biodiesel production or even the closure of production plants (e.g. in Germany – UFOP, 2010). Based on this the management of biodiesel producers has to identify all inside-in potentials to increase competitiveness of biodiesel even in case of a negative impact from external factors (e.g. lower fiscal support).

This paper aims at supporting decision makers within investment projects to identify some of the major particularities of biodiesel projects in Romania.
In the second part the paper provides an overview of the present state of the biodiesel industry in Romania through the SWOT analysis.

The third part describes and assesses main financing sources for biodiesel production with regards to the impact on project success. The last part includes an overview of risk factors, which affect profitability of biodiesel projects and an evaluation thereof based on investor groups. These risk factors play a major role

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both at the moment of decision making regarding project implementation, as well as during the lifetime of the project.

1. Analysis of the development potential of the biodiesel industry in Romania using SWOT

The SWOT analysis (*Strengths, Weaknesses, Opportunities* and *Threats*) allows the identification of strong and weak points of an industry, and of the medium to long term opportunities and threats associated with the industry.

The importance of this analysis for the management of investment projects in biodiesel production comes from the assessment of the industry under current technological, regulatory and economic conditions, as well as from the identification of opportunities for higher profitability of projects.

The SWOT analysis of the biodiesel industry in Romania was carried out based on the potential of the local market in a European context and contains the folowing conclusions:

- ***Strenghts***
  - Currently a low level of competition, which enables new investments in extending production capacities;
  - Favourable fiscal and regulatory environment through the mandatory blending of biodiesel with regular diesel and the exemption from excise duties;
  - Considerable area harvested with oilseeds compared with other EU member states.
- ***Weak points***
  - Limitation of the maximum content of diesel blending with biodiesel to 7% for biodiesel;
  - Low efficiency of oilseed harvesting compared with results obtained from other EU countries;
  - High level of oilseed exports, which reduces the availability of feedstock for the internal production of biodiesel;
  - High initial investment in fixed assets, which limits the access of investors to the biodiesel industry;
  - Distribution of biodiesel in a pure state (B100) is currently not taking place.
- ***Opportunities***
  - Increase in the efficiency of oilseed harvesting to a level at least similar to the average obtained at EU level, which generates additional raw material quantities for biodiesel production;
  - Insufficient level of oil reserves for covering the future consume of energy in transport, which leads to promotion of renewable energies;
  - Maintaining a favourable regulatory environment for the biodiesel industry, which supports the implementation of projects;

- Development of alternative feedstock with higher efficiency in biodiesel production (e.g. oils from marine algae) at an industrial level, which reduces the dependency on oilseeds;
- Intensifying collaboration with research institutes and the academic environment from Romania with positive effects on improving the production technologies and processes from the biodiesel industry.

➢ ***Threats***

- Insufficient development of the biodiesel distribution in a pure state (B100), which leads to a low perception of the product "biodiesel" by consumers and to a slow growth of the industry;
- Growing dependency on oil producers in case of maintaining the current structure of distribution (well developed commercialization of biodiesel in blending form and a modest rise of distribution in a pure state);
- Maintaining a high level of exports of oilseeds;
- Elimination of fiscal advantages (for example introduction of excise duty tax for biodiesel) currently granted to biodiesel producers, which has a negative impact on the competitiveness of biodiesel compared to regular diesel;
- Promotion of other sources of renewable energies (e.g. of electrically run cars).

2. Financing sources of investment projects in the biodiesel industry

Financing of investment projects in biodiesel takes place through:

- Own capital of the investor and financing through funds with own capital character;
- Borrowed capital from banks and from capital markets through issuance of bonds;
- Alternative forms of financing through government sources or supplied by the EU.

Independently of financing, projects in biodiesel production require initially the allocation of own resources by investors. This is a necessary condition for the access to borrowed capital and to other sources of own capital (e.g. issuance of stock on capital markets). Usually financing of own projects relies on 50% own investor capital and 50% borrowed capital (Andrews Kurth Attorneys LLP, 2010). The contribution of own capital is rising, due to the risk aversion of suppliers of borrowed capital regarding the uncertainties affecting investment projects in biodiesel.

The detailed planning of an investment project and the assessment of its viability are essential steps along the lifetime of a project. From this perspective biodiesel production is, as a consequence of its short history and the lack of a reliable database for evaluation, a type of investment with a high level of uncertainty.

Own capital is divided, for the analysis of project financing in biodiesel, in: 1. initial own capital of the investor 2. attracted capital of type "private equity" and "venture capital" 3. attracted capital through issuance of shares in case of listing of the firm producing biodiesel on the stock market 4. mix of capital through combination of the above mentioned types.

Own capital of the type "private equity"/"venture capital" is the acquisition of shares in the investment project by third parties for establishing a new project or extending a current project. In case of a "private equity" investment financiers search for successfully implemented projects, while in case of "venture capital" the focus is on developing innovative technologies. Due to uncertainties regarding the development of the biodiesel industry such investments are predominantly in existing projects ("private equity"). The main advantage of this financing type is the supply of externally attracted funds without constraints typically encountered in case of borrowed funds (e.g. obligation to service debt within a predefined time frame for a loan). In addition the flexibility offered by private equity financing compared with borrowed capital enables the survival of the investment project even under unfavorable economic conditions on the biodiesel market (e.g. a temporary increase in the feedstock price).

Regarding borrowed capital, financing relies on long term banking loans for project financing. This type of financing has as characteristic the guaranteeing of the loan through the assets held by the biodiesel producing firm and the servicing of the loan from the cash flows generated by the project (Raiffeisen Bank, 2010).

The advantage of this financing type is the distribution of the project risks between the investor and the financiers, as financiers have a limited recourse only on the assets and the cash flows generated by the project.

Due to the uncertainties regarding the safety and the size of the income from commercializing biodiesel, borrowed capital is a limited funding source for biodiesel projects.

In addition to the above described financing types structural and cohesion funds provided by the EU offer support for the development of investment projects through the *Operational Program for Growing the Economic Competitiveness* – Priority Line 4 *"Growing the energy efficiency and the provision of security in the context of combating climatic changes"*(Guide for European Financing, 2010).

This alternative financing type enables the sustainable development of the energetic system through the support granted to new projects or the modernization of existing projects in renewable energies.

The program offers financing for investments in renewable energies, including biodiesel, for own consume of energy by the investor or the supply of energy to distributors/final consumers.

The financial support encompasses expenses related to: a) acquisition and preparation of the production site b) construction of the production unit and of storage spaces c) acquisition of equipment d) connection of utilities to the production site.

4. Risk factors with impact on the profitability of investments in biodiesel

Risk factors are, for the biodiesel investor, exogenous variables with a negative impact on the profitability obtained from the project. These factors occur in case of an unfavorable development of the investment conditions, and jeopardize the profitability of a project or even its survival.

Figure 1 includes the approach used for identifying and evaluating the risk factors in the biodiesel industry at a step level.

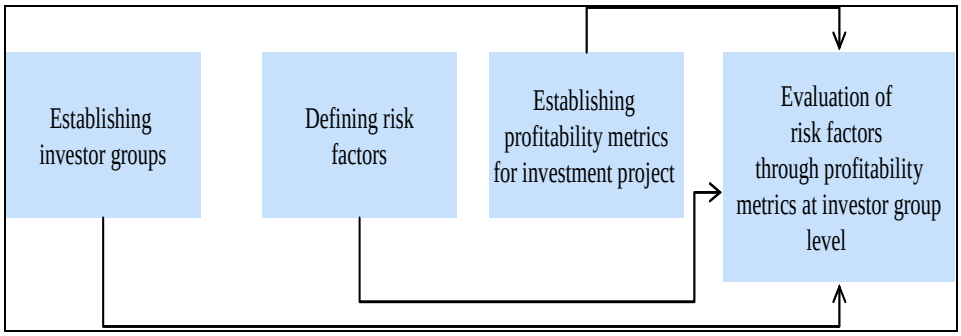

Figure 1: Approach for identifying and evaluating risk factors in the biodiesel industry

The first step for identifying risk factors affecting biodiesel projects consists of establishing the various investor groups from the industry. Based on this step investor groups are a) oil producers b) farmers c) car producers d) vegetable oil producers e) individual producers without any prior connection to the biodiesel industry.

The need for defining all investor groups from the biodiesel industry comes from assigning to each investor group its specific risk factors and performing the evaluation of risk factors based on this approach.

In addition an investor group has its own risk aversion and a different readiness compared with other groups to take on risks in investment projects.

This is because factoring in risks in the investment project aims at reaching higher earnings compared with a project having a lower risk level.

Independently of investor groups or the aversion of each group to risk factors, an essential task of the efficient management of projects is the limitation, respectively minimization, of the negative influence of risks.

In order to fulfill this task following methods to reduce the impact of risks apply:

- inclusion of risks in the planning process of the investment and evaluation of their impact on the profitability obtained from the project, with the help of prediction techniques or scenario building;

- limiting the negative effect of risks, which requires also realistic profit expectations by investors. In addition an investor establishes the maximum level for accepting risk factors until the project reaches its target profitability. Through this method potential losses from the appearance of risks are also considered;
- developing support tools to help structure decision processes affected by risk factors.

In the next step follows the identification of all risk factors impacting the profitability of investment projects based on the main activities from the value chain of biodiesel production (financing, supply, production and distribution) and on regulatory criteria. The results of this step are shown in Table 1.

The last step before the final evaluation of risks refers to establishing profitability metrics for estimating the impact of risk factors. For this purpose 2 metrics were selected: EBIT (Earnings before interest and taxes) and NPV (Net Present Value).

While EBIT expresses the profitability over a single financial year, NPV is the appropriate profitability measure over the entire lifetime of the project. Based on this, a higher impact of a risk factor takes place if its occurrence affects significantly the NPV of the project.

The negative impact on EBIT of a risk factor is limited to a single period, can have just a temporary effect and has a higher potential for mitigation.

Table 1: Main risk factors with impact on profitability of investment projects

Activities		**Risk factors**
Financing		• rise in interest rate for the loans taken to finance the investment project; • unavailability of debt for covering working capital needs; • insufficient cash flows from operations to service the repayment of debt under the conditions specified in the loan contract.
Supply	**Oilseed**	• higher price for oilseeds; • unavailability of necessary quantities of oilseed to cover the current biodiesel production; • unavailability of oilseeds with a high level of efficiency, respectively with a high conversion factor into biodiesel; • placement of supply sources at distances far from the biodiesel production plant, making transport cost of oilseeds from supply sources to the plant more expensive
	Vegetable oils	• similar risk factors with the first two factors affecting supply with oilseeds. The resemblance takes place because a higher price for oilseeds affects both

		biodiesel producers with own crushing equipment of oilseeds into oils as well as those producers acquiring vegetable oils from the market; • insufficient crushing capacities to cover the national demand for vegetable oil for biodiesel production
Production		• higher prices for chemicals used in the biodiesel production process (e.g. methanol); • higher costs for operating personnel; • higher prices for energy and natural gas; • introduction of new production technologies with higher output.
Distribution		• placement of distribution centers at distances far from the biodiesel plant, which leads to higher transport cost for biodiesel; • lower demand for biodiesel, which generates a drop in revenues and in equipment utilization; • lower price for regular diesel, which reduces the competitiveness of biodiesel; • development of new renewable energies
Regulatory		• introduction of the excise duty on biodiesel; • elimination of the compulsory blending of regular diesel with biodiesel.

The evaluation of the risk factors with an impact on biodiesel investment projects takes place in Figure 2.

From the analysis of Figure 2 results that the main risk factor with an impact on all investor groups is the introduction of new production technologies for biodiesel with higher output than current technologies. This factor has a negative impact both on EBIT, as well as on the overall profitability of the project expressed through NPV.

Other high impacting risk factors are the introduction of the excise duty on biodiesel and the elimination of the compulsory blending rate of regular diesel with biodiesel. The effect of these risk factors is lowest for fuel producers because they can redirect the demand for biodiesel towards their own products.

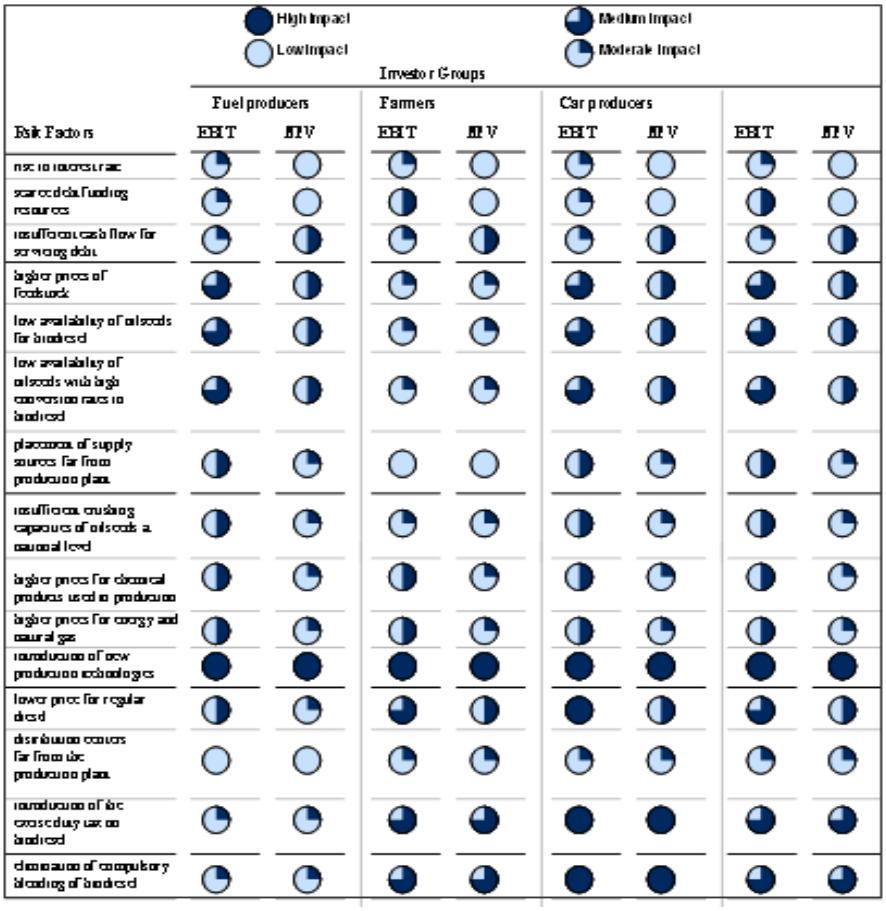

Figure 2: Evaluation of risk factors with impact on biodiesel investment projects

Conclusions

This paper dealt with some major particularities of investment projects in Romanian biodiesel production: SWOT analysis, sources of financing and risk factors affecting the profitability of projects. These particularities represent the basis for making the implementation of projects possible (sources of financing), for identifying optimization potentials for increasing the competitiveness of biodiesel (SWOT analysis) and for better coping with unexpected unfavorable events (identification and evaluation of risk factors).

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