

# Barriers, Determinants, Financial Support Mechanisms in Green SME Areas

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## SUMMARY

*In the present paper the authors investigated barriers, determinants and financing sources (own and external capital) of planned and performed pro-ecological activities/investments in SMEs. The variables were aggregated on the basis of data from the European Commission and the authors' own research in Polish enterprises of the SME sector, through purposeful selection (enterprises declaring pro-environmental activity). The authors distinguished an overarching determinant of pro-ecological activity in the SME sector, unique compared to large-scale enterprises: the convergence of pro-ecological activeness and cost reduction of own basic activity.*

*Keywords: Ecological Activities; SMEs; Barriers and Determinants of Pro-ecological Activity; Financing Sources of Ecological Activities; European Union Funding*

*Journal of Economic Literature(JEL) codes: L25, Q56*

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## INTRODUCTION

The sector of small and medium-sized enterprises (SMEs) is a driver of national economies in the European Union. In the year 2013 the number of registered economic entities in this sector was 21.6 million, which in total balance constitutes 98% of all registered ones. Thus, in the European Union the value added of SMEs is 3.666 trillion EUR, which constitutes 51.8% of added value and 28% of produced GDP of the European Union (European Commission 2013; Muller et al. 2103). This summary of the size of the SME sector in the European economy unequivocally confirms its vital economic importance, and thus its large impact on the natural environment and social welfare. However, in the practice the primary business sources of environmental threats are attributed to large-scale enterprises. It is considered that it is mainly large manufacturing enterprises that constitute a source of threats to and pollution of the lithosphere, hydrosphere and atmosphere. Thus, legal, financial and technological mechanisms are dedicated to and implemented in this group of enterprises.

While referring to the above distinguished measures confirming the size and power of influence of European SMEs on economic development, one cannot omit their influence on the natural environment. A unique characteristic of SMEs is their focus on executing basic goals of their operations. Therefore, the authors opinion is that the relationships between executing basic goals of their operations and their "green activeness" are vital.

The goals of SMEs' activity in the European Union are heterogeneous (European Commission 2013; Muller et al. 2103, Zadura-Lichota & Tarnawa 2014). First of all they take a financial dimension as well as an investment one - directly connected with capital acquisition and choice of optimum financing sources. It is also vital to choose the area of operation and thus financing, investing capital in solutions which are frequently innovative: product, technological, marketing and organizational solutions. A goal should also be distinguished here convergent with the following: management of organization's capital - controlling current assets, current liabilities and receivables. Sub-objectives of SME operations in turn include searching for customer, accessing financing sources, adjusting business activity to valid legislative regulations and searching for qualified employees.

## AREAS OF ENTERPRISE PRO-ECOLOGICAL ACTIVITY

Currently, in the SME sector (in accordance with the above mentioned assumption of the authors) one can notice combining basic goals of operation with their pro-ecological activeness in support of natural environment, as well as local community. In 2013 12.9% of the European SMEs indicated that a vital goal of their operation was in production and transport cost reduction

in convergence with reduced environmental pollution (EEFIG 2013; European Commission 2013). This ratio is still low. Enterprises declaring their pro-ecological activeness identify factors acting to inhibit this activity of SMEs as additional external costs related to environmental costs, limited access to external financing sources, and often a low level of environmental awareness and corporate social responsibility of the employees, cooperating entities and consumers of their value created. At the same time these enterprises indicate that environmental goals were not separated from basic goals. According to SME entrepreneurs (indicating environmental activeness) their operation in the scope of reducing environmental threats and pollution brings also economic benefits, frequently financial ones (European Commission 2013; Europe INNOVA 2012).

Thus, one can state that the main determinant of pro-ecological activity of the SME sector, unique compared to large-scale enterprises, is convergence of pro-ecological activity and reduction of basic operation costs. This concerns for example costs connected with reduction of the demand for production or services factors (e.g. energy, fuels, resources, and manufacturing materials). Other factors distinguished in the literature which may influence environmental activity – growth of the supply and demand for "green" products/services, financial and fiscal levies, legislative regulations, improved company image – are currently associated by the SME entrepreneurs with growth of production/services costs connected directly with additional environmental costs.

Therefore, what is often sought after is a binary relationship between environmental effects (EEFIG 2013; Trianni & Cagno 2012) and economic effectiveness. Examples of such relationships are presented below:

- Cost reduction through the decrease in emission charges as a result of reduction of greenhouse gases emission in CO<sub>2</sub> equivalent;
- Reduction of production costs and SME infrastructure through application of energy-saving technologies;
- Reduction of the increase in the cost of rare resources acquisition through the increase in the quantitative use of resources;
- Growth of economic effectiveness as a result of more effective use of the nature resources and limiting waste;
- Higher quality of products through the growth of the qualitative resource use;
- Growth of the demand for specific products through meeting environmental tastes of customers.

At the same time it should be stressed that these activities promote execution of the European and national environmental policy, and are accepted not only by the SME sector enterprises but also socially. These activities foster sustainable production at the microeconomic level and sustainable creation of value added at the macroeconomic level (Kuceba et al. 2014; Pabian et al. 2013).

In the abstract grasp the portfolio of the areas of pro-ecological activities of enterprises is currently unlimited. However, focusing on the preferred by SMEs environmental activity - convergent with the improvement of economic measures including financial ones, the following areas of activity can be distinguished (European Commission 2013; Muller et al. 2103):

- minimizing energy intensity of business activity at simultaneous reduction of capital intensity,
- minimizing industrial waste, municipal waste (particularly hazardous waste),
- savings on the use of raw materials/production components (materials),
- savings on the use of water and waste water,
- waste recycling through reuse of materials or their processing and use,
- sales of metal and non-metallic scrap (e.g. polyester) to external processing companies,
- use of Renewable Energy Resources (Kuceba 2011; Popczyk 2014; Popczyk et al. 2014).

While evaluating the directions of pro-ecological activity of SMEs in the European Union we can refer to studies conducted by TNS Political & Social research unit at the request of the Directorate-General for Enterprise and Industry, the coordinator of which was the European Commission (European Commission 2013). In the group of European enterprises from the SME sector the greatest importance – as reported by 80% of the examined entities – is attributed to energy-saving activities. Vital directions of pro-ecological activity convergence with carrying out the basic goals of SMEs are actions connected with material management, in particular minimizing waste (75%) and materials saving (65%) and directly connected with reverse logistics - recycling, reuse or processing (56%). Low percentage measures were attributed to innovative prosumer activity (Kuceba 2011; Sanz 2014), with just 25% connected with production of energy in Renewable Energy Sources (e.g. electricity, heat or cooling) for the enterprise's own needs (European Commission 2013; Muller et al. 2103).

The European Commission indicates also barriers against pro-ecological activity in the European sector of SMEs. In the present paper the authors distinguish the barriers which obtained more than 50% of indication (European Commission 2013; Muller et al. 2103) in particular the following ones: environmental activity cost, limited access to external financing sources, high cost of adjustment to legislative pro-ecological regulations, low levels of expert knowledge (this concerns tools, technologies, methods, financial and legislative support mechanisms) in the scope of the above areas of pro-ecological activeness. It should be stressed that these barriers are fully compatible with the inhibition factors of pro-ecological activity indicated by enterprises which already indicate environmental activeness in one or more of the above-mentioned areas.

Thus, it is important to concentrate legislative and financial mechanisms as well as those connected with knowledge transfer and diffusion in order to support "green activeness" of SMEs. In this respect the cognitive focus concerns distinguishing external financing sources of pro-ecological activeness of SMEs, particularly funds resulting from the cohesion policy in the structures of the European Union.

## FINANCING SOURCES OF PRO-ECOLOGICAL ACTIVITIES OF ENTERPRISES IN THE SME SECTOR

It is common to divide financing sources of basic activity in the SME sector into an enterprise's own financing sources and external financing sources. In the first group we can distinguish first of all own savings of entrepreneurs, funds borrowed from the family, capital growth through introduction of partners or transforming a company into a partnership or consolidation with another company. In the group of external financing in turn one can distinguish loans (credit, leasing, factoring, loan

funds) and funds (venture capital, private equity or business angels). In the group of external financing of the SME sector (in new member states of the EU, inter alia Poland, Estonia, Lithuania...) in the scope of eco-solutions and eco-innovations we can also distinguish structural funds, e.g. the Cohesion Fund (CF) - supporting development of European transport networks and environment protection in the EU countries – and the European Regional Development Fund (ERDF).

A sample structure of financing basic activity in the SME sector in Poland is presented in Figure 1. The structure of financing with the use of own and external sources has been summarized for particular groups of enterprises: micro, small, and medium-sized (Zadura-Lichota & Tarnawa 2014).

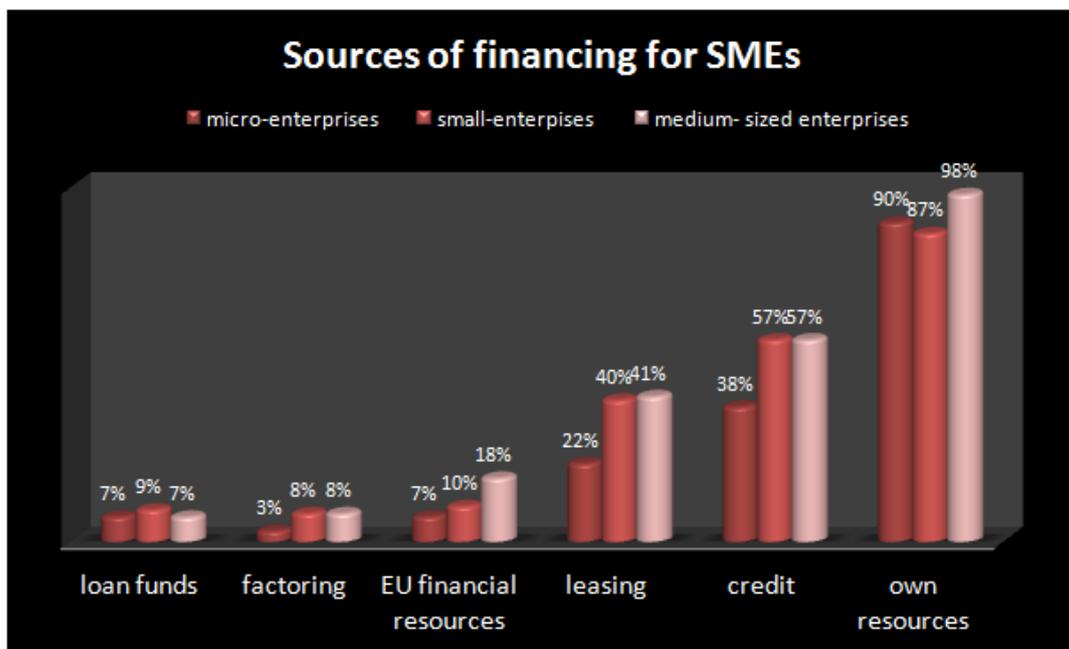


Figure 1. The structure of sources of financing basic activity of enterprises from the SME sector in Poland  
Source: elaboration based on Zadura-Lichota & Tarnawa 2014

On the basis of the graphic summary in Figure 1 it is clear that the main source of basic activity financing for SMEs is their own resources (for particular groups of enterprises no less than 90%). These indications are justified by the SME sector in the following way: in case of own capital profits are generated directly for the owner or owners (in case of partners), independence from the creditors, reduced risk of capital and property loss as well as growing trust of potential lenders or authorized officers of the EU financial resources.

Credit is used in Poland by 38% of micro-enterprises and 57% of small and medium-sized ones, and is recognized in the studied sector as easily renewable - a common source of external financing. However, their lower percentage use compared to own capital, according to the SME entrepreneurs, results primarily from the increased share of foreign capital, barriers to obtaining credit by start-ups, and hindered procedures connected with confirming creditworthiness. The group of popular financing sources of basic activity of SMEs includes also leasing instruments. 22% of

micro-enterprises and over 20% of small and medium-sized enterprises perceive leasing as a basic source of acquiring fixed assets and thus easy access to modern and often innovative techniques and technologies. Lack of trust in the remaining population of SMEs with reference to leasing results from fears connected with timely payments of instalments and leasing interests, and limited access for enterprises beginning their operation (start-ups). Other financing sources – the EU funds, loan funds and factoring – constitute the structure of financing SMEs by no more than 10 percentage points (with the exception of the EU funds as the source of external financing of medium enterprises, which stands at 18%). In particular, the risk of financing from loan funds (including venture capital funds and private equity) or factoring in the SME sector results from the threat of high costs of financing and thus damage to the company's reputation and loss of independence. Financing SMEs from EU funds should be evaluated differently (with the consideration of the national contribution, in this case Poland). First of all financial resources from the EU funds are limited. In case

of micro- and small enterprises in the financing period 2007-2013 an unsatisfactory level of knowledge diffusion in the scope of the scale and areas of financing was observed. In Poland in the years 2007-2013 the SME sector could take part in the investment scope financing programmes of the EU within the scope of:

- The Operational Programme Innovative Economy (OPIE) - total value of the funds: 4,049, 166,032 EUR.
- The Operational Programme Infrastructure and Environment (OPIE) - total value of funds 27,913,683,774 EUR - Poland's contribution was about 11 billion EUR.
- The Operational Programme Human Capital (OPHC) - total value of funds allocated inter alia for professional activation, increase of level of education in society, minimizing social exclusion amounted to 11,773,409,338 EUR, and from this EFS 10,007,397,937 EUR, of which Poland's contribution was 1,766,401 EUR.
- The Regional Operational Programmes (ROP) - total value of funds 16,555,614,190 EUR. Within ROP 17.6% of investments of SME enterprises were financed in the years 2007-2013.

To sum up, we can state (Figure 1) that micro-enterprises (7%) and small enterprises (10%) in the previous financing period showed lower activeness and effectiveness connected with acquiring these resources compared to medium-sized enterprises (18%).

## METHODOLOGY - IDENTIFY FINANCING SOURCES OF INVESTMENTS CONNECTED WITH PRO-ECOLOGICAL ACTIVITY

In the present paper the authors have attempted to identify financing sources of investments connected with pro-ecological activity. To achieve this the authors conducted a study in the group of SMEs. The research sample comprised 55 enterprises including: 33 micro-enterprises - 60% of the research sample, 18 small enterprises - 33% of the research sample and 4 medium enterprises - 7% of the research sample. The size of the examined population of SMEs is justified by purposeful selection - all enterprises plan to introduce pro-ecological activities (declaration during training). In particular SME entrepreneurs participating in the study used training and counselling opportunities within "Individual Environmental Solutions in SMEs" and environmental marketing and possibilities of external financing of activities and eco-innovations. Training courses were co-

financed from the European Social Fund within the Operational Programme Human Capital.

The goal of the conducted study was, among others, to determine the barriers to environmental activity, identify pro-ecological activities and determine preferred instruments of financing this activity. In case of barriers of environmental activity, more than 50% of indications concerned limited access to external capital, including:

- the high cost of acquiring this capital - 42 enterprises (76%),
- financial risk resulting from the growth of basic activity cost - 38 enterprises (69%),
- lack of detailed knowledge concerning environmental investments (e.g. scale, technological solutions or return rate and time) in heterogeneous areas of SME activity - 35 (63%).

The above indications of the "target group" of the examined SME enterprises are convergent with the barriers of pro-ecological activity of examined European enterprises (see the present section). This confirms the uniqueness of this sector in perceiving inhibition sources connected with convergence of the basic activity and operating symbiotically with the environment. Focusing on environmental activities which reached over 50% in accordance with the assumptions one can identify an inclination towards investments aimed at reducing costs of SME activity, simultaneously reducing use of energy, fuels, raw materials and other materials. With reference to identifying pro-ecological activities, more than 50% of indications concern reduction of energy intensity of buildings, halls and technological processes - 38 enterprises (69%) and reduction of resources use - 32 enterprises (58%). Other actions indicated by the examined entrepreneurs include recycling, re-use, waste processing and use - 17 enterprises (13%) and the use of renewable prosumer sources - 7 enterprises (13%).

While analysing the motives of planned pro-ecological investments/activities, 39 enterprises indicated reduced cost of basic activity (71%). The other motives include building the company's brand and image - 16 enterprises (29%); increasing revenues to the business - 12 enterprises (22%); improving relationships with the local community - 9 enterprises (16%); increase in the value of products and services - 9 enterprises (16%), from these 4 medium-sized enterprises; increase of the competitive advantage - 6 enterprises (11%); and increase in employee motivation and their links with the company - 5 enterprises (9%).

With reference to the financing sources, paradoxically with reference to the basic activity, 47 enterprises (85%) declared co-financing of new pro-ecological investments with acquired external capital. The remaining 8 examined enterprises (15%) are planning to finance these activities from their own resources.

The planned structure of the investment capital of the above mentioned activities according to the examined enterprises is presented in Figure 2.

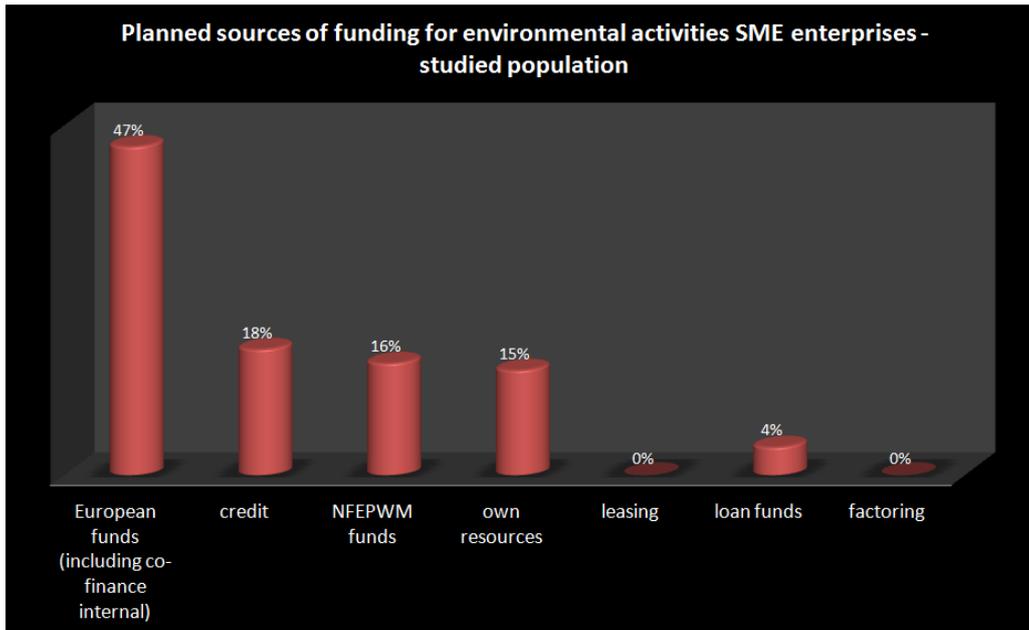


Figure 2. Structure of the planned financing sources of environmental activities in the examined population of SMEs  
Source: own elaboration

While referring to the graphic summary (Figure 2) it should be indicated that 26 (47%) of enterprises declaring implementation of investments recognized as environmental ones are going to use resources co-financed from the funds of the European Union. It should be mentioned here that the examined group of the SME entrepreneurs was trained and obtained knowledge in the scope of areas, restrictions and procedures of acquiring external financial resources, including the ones coming from the European Union. Examined enterprises also tend to apply for low-interest preferential credits dedicated in particular in Poland by Bank Ochrony Środowiska. The above form of financing environmental activities with the use of external capital distinguished 10 of the examined SME entities (18%).

Nine SME enterprises in turn 9 (16%) declares applying for funds from the National Fund of Environmental Protection and Water Management (in this Provincial Funds for Environmental Protection and Water Management - 16 entities in Poland). These are financial support resources in the form of subsidies and/or preferential loans for extending the basic activity with regard to pro-ecological investments.

Only two SME enterprises are going to use loan funds, this concerns in particular venture capital ones and private equity ones. The other group of entities in the research portfolio shows lack of interest in this form of recapitalization. The low interest in loan funds are explained by, among others: high cost of acquiring capital resources and limiting decision making and freedom of operations in the basic activity of their company.

It should be also indicated that the studies companies did not show inclination to finance eco-investments with leasing and factoring capital.

To sum up, with reference to the external financing sources distinguished by the examined group of entities such as co-financing from the resources of the European Union's Funds and the National Fund For Environmental Protection and Water Management, in Table 1 the Authors summarize preferred programmes of eco-investment financing (in the form of subsidies and low-interest loans) in the years 2014-2020.

Table 1

*Programmes preferred by SMEs for co-financing environmental activities from European Union funds and the National Fund for Environmental Protection and Water Management*

<b>Selected funds from the cohesion policy budget of the European Union dedicated to SMEs</b>		
<b>Total amount of subsidies for Poland for the years 2014-2020 – 82.5 billion EUR</b>		
<b>Programme Name</b>	<b>Preferred actions in Operational Programmes</b>	<b>Financing goals</b>
<b>The Operational Programme Infrastructure and the Environment</b> Total amount of subsidy in the years 2014-2020: 27,513.9 mln EUR	<b>PRIORITY I</b> (financing source the Cohesion Fund) <b>Name:</b> Promoting renewable energy sources and energy efficiency  Predicted EU contribution in the years 2014-2020 – 1.5 billion EUR Intermediary Institution - the Ministry of Economy	<input type="checkbox"/> production, distribution and use of renewable energy sources (RES), e.g. construction and modernization of wind farms, biomass or biogas installations, <input type="checkbox"/> improvement of energy efficiency in the public and residential sector, <input type="checkbox"/> development and implementation of intelligent distribution systems, e.g. building distribution networks of low and medium voltage.
	<b>PRIORITY II</b> (financing source the Cohesion Fund) <b>Name:</b> Environmental protection, in this adapting to climate change  Predicted EU contribution in the years 2014-2020 – 3,808.2 mln EUR Intermediary Institution - the Ministry of Environment	<input type="checkbox"/> development of environmental infrastructure (e.g. water treatment plants, water supply and sewage collection, installations for municipal waste management, in this their thermal processing), <input type="checkbox"/> protection and restoration of biological diversity, improvement of the urban environment quality (e.g. air pollution reduction and rehabilitation of degraded areas, <input type="checkbox"/> adjustment to climate change, e.g. securing urban against unfavourable weather phenomena, rainwater management, projects in the scope of small retention and natural disaster management systems.
<b>The Operational Programme Intelligent Development</b> Total amount of subsidies in the years 2014-2020: 8,614.1 mln EUR	Stimulating innovativeness of Polish economy	<input type="checkbox"/> creating new and developing existing links between the scientific sector and enterprises, <input type="checkbox"/> enterprise innovativeness development, including SMEs
<b>Selected programmes of NFEPWM/PFEPWM</b>		
<b>PROGRAMME 1</b> Protection and sustainable management of water resources		
<b>PROGRAMME 2</b> Rational waste management and protection of earth surface		
<b>PROGRAMME 3</b> Atmosphere protection	<b>ACTIVITIES CO-FINANCED FROM PROGRAMME 3, dedicated to SMEs</b> Improvement of energy efficiency. Part 3) Subsidies to credits for building energy efficient houses 3.2. Improvement of energy efficiency. Part 4) Energy efficiency investments in small and medium enterprises 3.3. Supporting dispersed, renewable energy sources. Part 1) STARK - Dispersed, renewable energy sources. 3.3. Supporting dispersed, renewable energy sources. Part 4) Prosumer - financing line for purchase and mounting micro-installations of renewable energy sources.	

Source: own elaboration on the basis of [www.funduszeuropejskie.gov.pl](http://www.funduszeuropejskie.gov.pl)

## CONCLUSIONS

To sum up, the attitude of the SME sector to their basic activity implementation in convergence with environmental should be analyzed in the category of prospective reduction of costs connected primarily with the reduced demand for production factors and their

waste. In this respect sources of recapitalization of investments indirectly connected with environmental activity are relevant for this group of SMEs. On the basis of the conducted research, which is supported by the indications of the purposefully selected population of enterprises (declaring their accession to integrate basic activity and environmental one), the Authors state that it is vital to stimulate environmental awareness of the SME entrepreneurs, with particular distinction of relationships between improvement of environmental measures and

economic results. In this case vital elements are environmental education, information transfer on support mechanisms of "green initiatives", as well as lobbying of

the SME enterprises in legislative bodies, e.g. in the scope of fiscal benefits.

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