USAGE OF ACB-MININD SOFTWARE IN THE CBA ANALYSIS FOR FINANCING INVESTMENT PROJECTS THROUGH EUROPEAN FUNDING IN CORRELATION WITH THE FINANCING FROM THE BANKING SYSTEM

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The extension of the European Union with the first "wave" of new members in 2004 and later with the second "wave" of members in 2007 brought new opportunities for the countries in Eastern Europe, being obvious that "effective utilisation of EU support can foster the success of their economic performance". Financing investment projects proposed by the SMEs can be realized through several financial sources internal and external, from which two of the most common external sources constitute from subsidies-grants and through banking system. One of the most important financing programme present in Romania, available for SMEs is SOP IEC, which awards grants for investments proposed by production companies. This financing program encourages its beneficiaries to combine the European grant with private funds mostly provided through the banking system. The paper analyzed the methodology used in Cost Benefit Analysis and also The ACB-MININD software which is compulsory to be used for the CBA analysis of these investment projects links for the first time elements of analysis used by the European Commission with elements of analysis used by the banking system. In this context the present article tries to analyze how the ACB-MININD software links the main elements of Cost-Benefit analysis such as NPV or IRR with elements of the bankability software which are mainly used by the banking system such as: cash-flow analysis, loan/interest payment and financial sustainability. Also are presented the links between the banking sector and the external financing sector in the field on investment projects. As final conclusions of this paper *we* will demonstrate the theoretical and practical role of cost-benefit analysis - financial component to select the best applications that will be proposed for funding under the European grant programs and to link them to the banking system in order to ensure a proper co-financing for these investment projects.
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1. Introduction

A notion which is under debate in the recent years, from economical, social and political point of views: the non-reimbursable funding/grants is quite ignored by the scientific economics community. The grant concept, which is called also external financial assistance, developed initially from free transfer of specialized goods and services to fund transfers (Moger, 1999 and Kanbur, 2003). In the same time Stiglitz (2003) observes that for a long period of time and even now the World Monetary Fund and the World Bank link their strategic grants to reimbursable funding: loans provided by the banking system. Other studies especially Lerick and Meltzer(2002) in Quarterly International Economics Report, Carnegie Mellon - Gailliot Center for Public Poverty, draw attention that in case of loans contracted through World Bank or other institutional banking lenders some of the loans were transformed into grants since some of the beneficiary countries were not able to pay them back, so their debts were finally erased.

The extension of the European Union with the first "wave" of new members in 2004 and later with the second "wave" of members in 2007 brought new opportunities for the countries in Eastern Europe, being obvious that "effective utilisation of EU support can foster the success of their economic performance" as it is considered in a KPMG(2011) report from 2011. Moreover the integration of Romania into European Union brought new opportunities for the Romanian

private enterprises both concerning the accession of their products and services to the single market and also accession of additional co-financing for funding their business infrastructure investments (Droj, 2010).
Under these circumstances most of the specialists consider that access to European funding and its efficient absorption constitute a key issue in these years both at the level of state level decision makers, at the level of financing institutions and at the level of the decision makers within the companies. Financing investment projects proposed by the SMEs can be realized through several financial sources internal and external, from which two of the most common external sources constitute from subsidies-grants and through banking system. In the recent years a very close relations seemed to be established between the banking sector and the financial aid sector.
In the same time the banking sector evolved and created specialized services which are dedicated to the above mentioned beneficiaries with the goal of supporting development, carrying out or co-financing projects implemented under the European Structural Funds. Lack of experience in this field shown by both at the level of the applicants for Structural Funds, at the level of the management authorities and, finally, at the level of the banking system which is requested to ensure additional funding creates serious obstacles to achieving a higher absorption capacity of EU structural funds in Romania. (Fundația Şoros Romania, 2009 şi Departamentul pentru Afaceri Europene, 2009)
Also can be noticed the lack of a methodology for implementation of funding programs adapted to the Romanian realities. Another major problem is that most financial programs lack correlation of economic and financial indicators of the European Commission to those requested by the banking sector, so that the beneficiaries of European structural funding are finding themselves in the situation where they are unable to access bank credit which is needed to secure co-financing or fund its cash-flows required to implement the proposed investments.
In this context the current paper is dealing with analysing the linkages between the cost benefit analysis requested by the EU management authorities and the credit analysis, performed by the banks. This constitutes a topic of major interest for both potential beneficiaries and the management bodies, and the banks so they can prepare specific to banking products. From the vast field of study concerning structural funds we proposed to approach as the main themes in this research paper the following: identification of a European funding programme operating in Romania, realization of a correlation between the performance indicators within the benefit-cost analysis requested by European and those requested by the banking sector.

2. Considerations over the Cost Benefit Analysis and its linkage with the banking sector– Literature Review and Research methodology

One of the main goals of these European Funding programmes are to implement the European Union Cohesion policies. As its main instruments and for improvement of the competiveness of the “weaker” regions were established the European Regional Development Fund (ERDF) and the European Social Fund (ESF), otherwise known as the Structural Funds, as well as the Cohesion Fund. Through these instruments European Commission invests in thousands of projects across all of Europe’s regions to achieve its primary task: to promote economic and social cohesion by reducing these disparities between Member States and regions (European Commission, 2009).
In this context, the private companies benefit of increased opportunities for accessing European Funding which gives them a better chance for increasing their competitiveness and for extending distribution of their products and services on the entire European market and beyond. The most important production infrastructure financing programme for the Small and Medium Enterprises(SME) operating in Romania is considered to be the Sectorial Operational Programme “Increase of Economic Competitiveness” (further referred to as SOP IEC) which offers financial

support for the consolidation and modernization of productive sector through investments(Guvernul României, 2009).

Even in 2008 edition of the "*Guide to COST-BENEFIT ANALYSIS of investment projects - Structural Funds, Cohesion Fund and Instrument for Pre-Accession"* edited by the European Commission(2008) is highlighted that cost-benefit analysis can help public decision makers to identify projects that will maximize net social benefits and thus determine the order of priority infrastructure works will be made and how public policy decision making.

As it is mentioned in the above referred document the investment decisions are at the core of any development strategy, all other elements such as: economic growth and welfare depends on productive capital, infrastructure, human capital, knowledge, total factor productivity and the quality of institutions (European Commission, 2008).All these elements involve – in a certain measure – decision making regarding investing financial sources at present time in the hope of obtaining future uncertain benefits.

In order to take the decisions, the decision makers need appropriate tools for comparing costs and benefits of various types: economic, social or ecological investment projects that are ongoing over several years. Cost-benefit analysis is not an exact science, is seen as having many limitations which are generally based on approximations, working hypotheses and estimates due to missing data or due to inability providing all possible situations. The financial analysis is considered the key element of the Cost Benefit Analysis both by the financing organization and the banks (Trenca 2006, Trenca 2008 and Stancu 2006) or by other financial institutions which will ensure the co-financing of the investment. The goal of the financial analysis is to use the predictions such as cash-flows to calculate relevant indicators especially the Financial Net Present Value (FNPV) and the Financial Internal Rate of Return (FRR), respectively in terms of return on the investment cost, FNPV(K) and FRR(K).

While Cost-benefit analysis goes well beyond financial ratios considering the project, most project data on costs and benefits is provided by financial analysis. This analysis provides decision makers information on inputs and outputs, their prices and the structure of income and expenditure over the analyzed period (European Commission, 2008).

The methodology used for the determination of the financial return is the Discounted Cash Flow (DCF) approach. This implies some assumptions as are mentioned in the methodology:

- Only cash inflows and outflows are considered;
- The project cash flows it should be based on the incremental approach;
- After the aggregation of cash flows occurring during different years it is adopted an applied an appropriate financial discount rate in order to calculate the present value of the future cash flows.

According to the methodology (European Commission, 2008) the Net Present Value of a project is the sum of the discounted net flows of a project. The NPV is a very concise performance indicator of an investment project: it represents the present amount of the net benefits flow generated by the investment expressed in one single value with the same unit of measurement used in the accounting tables.

$$(1)\quad NPV = \sum_{t=0}^{n} a_t S_t = \frac{S_0}{(1+i)^0} + \frac{S_1}{(1+i)^1} + \cdots + \frac{S_n}{(1+i)^n}$$

The Internal Rate of Return (FRR) is defined as the discount rate that zeroes out the net present value of flows of costs and benefits of an investment, that is to say the discount rate of the equation below(European Commission, 2008:212):

$$(2)\quad NPV(s) = \sum [S_t/(1+IRR^t)] = 0$$

Since the goal of this study is to use the ACB-MININD software in CBA analysis for financing investment projects through European funding in correlation with the financing from the banking

system in the following chapter we will set a case study using a project proposed by a Romanian production company which tries to access SOP IEC funding in 2011.

3. Case study – Usage of ACB-MININD Software in the CBA analysis for financing investment projects through European funding in correlation with the financing from the banking system

As mentioned above we selected a test company, which intended to access European funding to co-finance its infrastructure investments. The company is a market leader in its field of activity: plastic manufacturing and intends to increase its production capacity and to improve its competitive advantages on the Romanian market. In order to realize this an ambitious investment programme was started to build a new production facility and to increase the quality of their products. The project was proposed to be financed under SOP IEC and was based on the data provided by a detailed the technical project and by the price offers. The company performed a financial analysis using the official software provided by the management authorities within the programme: ACB-MININD Software which is available online at: http://acb.minind.ro/ACB/index.php (Guvernul României, 2012). These results were later compared with the bankability analysis, in order to ensure future bankability of the project. The particularities of this software is that it requests and processes information which is delivered by the banking institutions regarding proposed co-financing or implementation loans.

In order to secure financing of its investment the selected company has to fulfil several financial criteria established by the SOP IEC Programme. According to the Guide of SOP IEC Programme, in order to obtain financing for an investment project FNPV(K) is requested to be higher than 0 and FRR(K) to be between 0 and 9. For the mentioned project the mandatory discount rate was established to 5%. The analysis was realized both on the implementation period of the project (2 years) and on the operation period of the investment realized within the project(7 years). A challenge was made to obtain both the financial sustainability of the project and also to ensure its bankability.

Figure 1 Presentation of the Financing sources (Currency: Thousands RON)

Assumptions regarding financing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
EU Funds for Financial AID									
Eligible value of the project	4020.2	6691.4							
Non – eligible value of the project	0	0							
Required Financial Aid	2543.5	3813.0							
Private finance									
Own budget	0	0							
Loans	7605.0								
Other financial flow									
Loans payment	741	741	1415	1814	1814	1814	1628	1072	104
Interest payment	914	879	739	502	447	357	268	299	166
Income Tax	110.1	110.1	175.2	179.8	216.8	221.7	253.8	260.0	272.5
Royalties	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6

Source: Made by the author

The first step was to analyse its bankability and to establish the maximum eligible loan and to analyze the loan payment using the bankability software provided by the bank. Once these information were established were introduced in the ACB-MININD Online application. The first step was to analyse its bankability and to establish the maximum eligible loan and to analyze the loan payment using the bankability software provided by the bank. These can be seen in the above figure. Once these information were established were introduced in the ACB-MININD Online application. In this circumstance all the financial sources and the equivalent financial costs are introduced in the financial analysis including the loan payment, the interest payment, royalties, income tax.

Figure 2 Financial Performance Indicators (Currency: Thousands RON)

Financial Performance Indicators	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Incremental Income									
Operating income with project	23917.6	23917.6	26084.6	26142.1	26314.6	26372.1	26503.1	26642.1	26789.1
Operating income without project	23917.6	23917.6	23917.6	23917.6	23917.6	23917.6	23917.6	23917.6	23917.6
Total Incremental Income	0	0	2167.0	2224.5	2397.0	2454.5	2585.5	2724.5	2871.5
Incremental expenses									
Operating expenses with project	-14368.1	-14368.1	-15549.9	-15567.4	-15649.9	-16824.4	-15859.1	-16094.7	-16262.2
Operating expenses without project	-14368.1	-14368.1	-14393.1	-14398.1	-14408.1	-14408.1	-14408.1	-14408.1	-14408.1
Total operating expenses	0	0	-1156.8	-1169.3	-1241.8	-1416.3	-1451.0	1686.6	-1854.1
Investment costs with project	-3972.5	-6469.0	37.8	-147.4	-299.0	-252.0	-350.8	-489.4	-523.7
Investment costs without project	140.0	130.0	125.1	14.7	-75.1	-94.7	-106.1	-134.4	-162.4
Total investment expenses	-4112.5	-6599.0	-87.3	-162.1	-223.9	-157.3	-244.7	-355.0	-361.3
Residual value with project	0	0	0	0	0	0	0	0	6750
Residual value without project	0	0	0	0	0	0	0	0	0
Total residual value	0	0	0	0	0	0	0	0	6750
Cash Flow	-4112.5	-6599.0	922.9	893.1	931.3	880.9	889.8	682.9	7406.1
Financial Performance Indicators	2.83%								
VANF/C	-1114.5	THE PROJECT CAN BE FINANCED BY EUROPEAN FUNDING!							
VAN benefits	12944.2								
VAN financial costs	-14058.8								
B/C	0.9								

Source: Made by the author

As can be seen the second step was to analyse the financial performance indicators and to determine if FNPV(K) is higher than 0 and FRR(K) is between 0 and 9. Also the ratio benefits/costs its analyzed as well. The conclusion is that the project can be submitted for European financing.

Figure 3 Financial sustainability of the project (Currency: Thousands RON)

Financial Sustainability of the project	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Positive Cash flow									
Financial resource of project	10148.5	3813	0	0	0	0	0	0	0
Financial Income of project	23917.6	23917.6	26084.6	26142.1	26314.6	26372.1	26503.1	26642.1	26789.1
Total Incremental Income	34066.1	27730.6	26084.6	26142.1	26314.6	26372.1	26503.1	26642.1	26789.1
Negative cash flow									
Operating expenses with project	-14368.1	-14368.1	-15549.9	-15567.4	-15649.9	-16824.4	-15859.1	-16094.7	-16262.2
Investment costs with project	-3972.5	-6469.0	37.8	-147.4	-299.0	-252.0	-350.8	-489.4	-523.7
Loans payment	741	741	1415	1814	1814	1814	1628	1072	104
Interest payment	914	879	739	502	447	357	268	299	166
Income Tax	110.1	110.1	175.2	179.8	216.8	221.7	253.8	260.0	272.5
Royalties	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
Total negative cash flow	-20134.3	-22595.8	-17870.8	-18239.2	-18455.3	-18497.7	-18388.3	-18143.7	-17357.0
Other cash flows	-73.7	-532.0	1199	1264	1348	1370.3	1400.9	1436.6	1489.6
Total cash flow	13858.1	4602.8	9412.8	9166.9	9207.3	9244.7	9515.7	9935	10921.7
Cumulative Cash Flow	13858.1	18460.9	27873.7	37040.6	46247.9	55492.6	65008.3	74943.3	85865.0
Conclusion of the Cumulative Cash Flow Analysis	THE PROJECT IS SUSTAINABLE!								

Source: Made by the author

In figure 3 the Financial Sustainability of the project is analyzed by using also the information provided by the credit analysis from the banking system. As observed all elements of financial sustainability were considered: since in the beginning only operational expenses were presented in this stage were included also other payments and was analyzed the real capacity of the company to ensure financing resources for loans payments, interest payments, income tax or royalties. Afterwards the project is declared sustainable both by the management authorities of the programme and by the banking system.

4. Conclusions

Since, in the past, the financial analysis performed according to CBA methodology had several inconsistencies with the bankability analysis, an important step seems to be taken by using practical bankability financial information within the ACB analysis. As can be seen from the

presented test case the authors consider that, in this context the ACB Minind application can only be the beginning of reforming the ACB methodology and in the future this approach should be further extended and common solutions accepted by all stakeholders: structural funds management authorities, banking sector and private/public beneficiaries to create common indicators or analysis methodology in order to ensure both the financial sustainability, according to EU regulations and fulfilment of bankability criteria which is requested by the banking sector in order to ensure co-financing of the projects. This research should be further continued by development of a set of common indicators based on both methodologies.

Bibliography

Departamentul pentru Afaceri Europene - *Consilier European nr. 9*, Departamentul pentru Afaceri Europene, Guvernul României, Bucharest, Romania, 2009

Droj, Laurentiu. *Financial Indicators for the Implementation of an European Funded Investment Project under SOP IEC Programme – Case Study Of A Romanian SME***,** Analele Universității din Oradea, seria Stiințe Economice, Tom XIX 2010, available online: http://anale.steconomiceuoradea.ro/volume/2010/n1/053.pdf, 2010

Fundația Soros Romania - *Accesul Autorităților Locale la Fondurile Europene*, Fundația Soros Romania, online: http://www.osf.ro/ro/index.php, 2009

European Commission, 2008, *Guide To Cost-Benefit Analysis of Investment Projects*, European Commission, Brussels, Belgium

European Commision (2009) *European Cohesion Policy in Romania.* Available at http://ec.europa.eu/regional_policy/sources/docgener/informat/country2009/ro_en.pdf

Guvernul României (2011) – Ministerul Întreprinderilor Mici şi Mijlocii, *"Ghidul Solicitantului POS CCE Axa 1 Domeniul 1.1 – Sprijin Financiar cu valoarea cuprinsa intre 1.065.000 – 6.375.000 lei acordat pentru investiții în IMM",* Bucureşti, 2011

Guvernul României, *Ghidul Utilizatorului Aplicatie pentru Calculul Indicatorilor Financiari, Bucureşti,* available online: http://acb.minind.ro/ACB/res/Ghid.pdf, 2012

Kanbur, Ravi, *The economics of International Aid,* Cornell University, online: http://www.arts.cornell.edu/poverty/kanbur/handbookaid.pdf, United States, 2003

KPMG, *EU Funds in Central and Eastern Europe – Progress Report 2007-2010*, KPMG Tanácsadó Kft, Hungary, Budapest, 2011

Lerrick, Adam şi Meltzer, Allan, *Grants: a Better Way to Deliver Aid,* publicat în Quarterly International Economics Report, Carnegie Mellon - Gailliot Center for Public Poverty, online: http://www2.gsu.edu/~poljsd/4421/4421readings/Lerrick-Meltzer.pdf, United States, 2002

Moger D., *The History of Foreign Economic Aid*, Social Science issue 610, Philadelphia, United States, 1999

Stiglitz, Joseph, *Globalization and Its Discontents,* W.W. Norton&Company, New York, United States. 2003

Stancu, Ioan - *Finanțe Ed. a IV-a*, Editura Economică, Bucureşti, 2006

Trenca, Ioan - *Metode şi tehnici bancare.Ed 3-a,* Casa cărții de ştiință Cluj-Napoca, 2006

Trenca, Ioan - *Tehnica bancară.* Ed 3-a, Casa cărții de ştiință Cluj-Napoca, 2008