General description of the SME valuation methodology used in the ECOLO system

Preface

ECOLO (Efficient Corporate Loan) is a product developed by Evatech for banks and other lenders to assess the creditworthiness of SMEs with an annual income of up to $10 million. Due to the specifics of their activities and the lack of transparency of their reporting, these enterprises cannot be reliably assessed by standard financial analysis approach used in lending to large corporate clients. The main difference between ECOLO and classical financial analysis is that the (for example, the area of warehouse and retail premises, the number of employees, the type of customers, equipment data, etc.). As well as some financial data (as a rule, the main expenditure items). The main result of the ECOLO analysis is:

- **The indicator of the quality of the input data – normality and coherence (the index of truthfulness of answers);**
- **Estimated revenue and profit (annual) corresponding to the specified business structure.**

The coverage of the analyzed businesses is wide and highly detailed. The ECOLO library contains 183 specific questionnaires for the sectors Services (60 pcs.), Trade (70 pcs.), Manufacture (51 pcs.) and Agriculture (2 pcs.) covering more than 2,500 types of business activity (clusters).

Basic Principles of ECOLO Calculations

Clusterization

The first thing the system does after a customer enters his data is to determine which cluster of activities in the selected questionnaire the respondent belongs to. Input quality indicators (normality and coherence) and revenue calculation functions, which we will discuss below, are related to clusters. At the same time, the system even considers situations when the clustering is contiguous, for example, a company corresponds to one cluster by 70%, and by 30% to another.
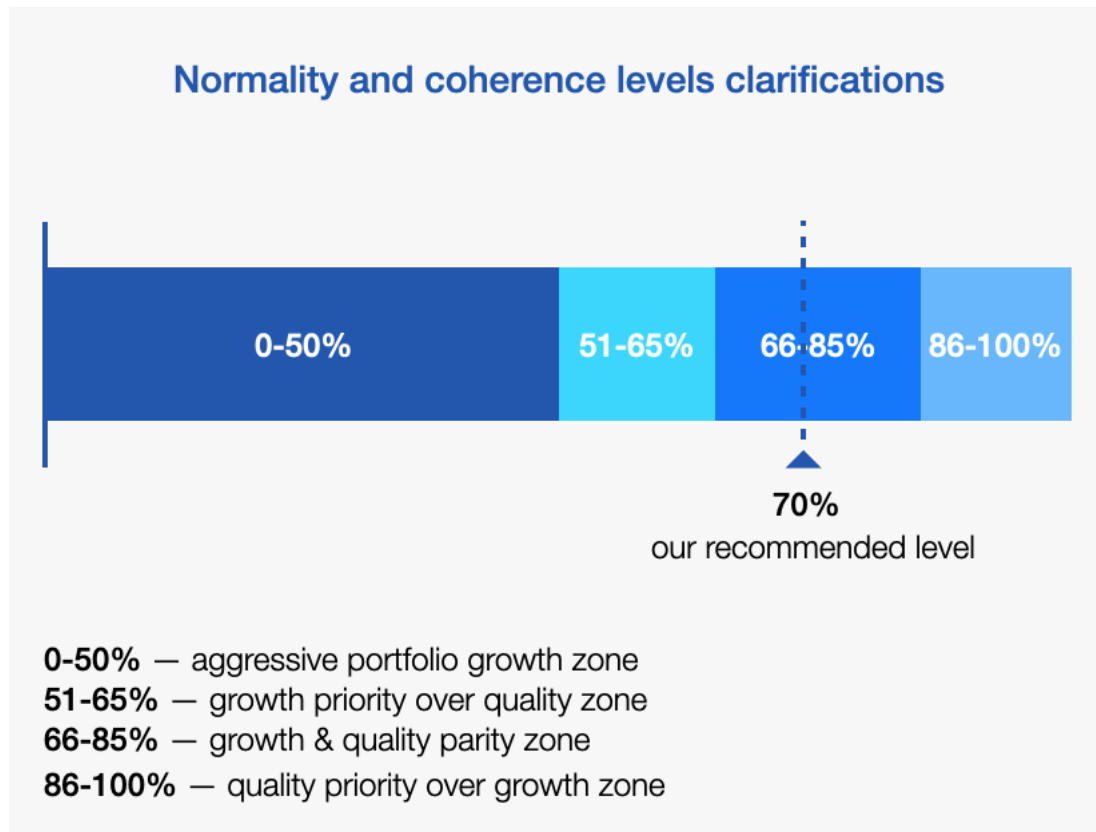
Input Quality Indicators – Normality and Coherence

Once the cluster is defined, the system performs an analysis of the quality of the input data, which is divided into two categories:

1) **Cross-comparison of the client's declared indicators with each other (normality).** ECOLO matches the data within the questionnaire, for example:
    - Number of equipment and average daily deliveries of products
    - Litres of fuel used and kilometres travelled
    - Amount of electricity consumed and number of customers
    - Etc.
2) **Checking for compliance of the indicators declared by the client with its micro-cluster (coherence).** For each cluster, the system builds check intervals according to the list of parameters that are most significant for the selected type of business and region. Intervals can be closed on both sides [min; max] or only on one side (-∞; max] or [min; ∞). If a company falls within the test intervals for the entire list of parameters, then it is 100% coherent, if not, the cumulative degree of falling into the intervals is calculated.

The list of variables to be analysed for each cluster is based on the broad Principal Component Analysis (PCA) method.

Depending on the risk appetites of lenders, appropriate minimum acceptable levels of normality and coherence may be selected (see scale below).

Normality and coherence levels clarifications

| 0-50% | 51-65% | 66-85% | 86-100% |

70%
our recommended level

0-50% — aggressive portfolio growth zone
51-65% — growth priority over quality zone
66-85% — growth & quality parity zone
86-100% — quality priority over growth zone

Basic Principles of the Income Calculation Methodology

The analysis is based on a variety of structural data[1], so to identify those that have the greatest impact on the income and profit of the cluster, the already mentioned Principal Component Analysis (PCA) is used, but in a more targeted version, since here we are determining revenues. PCA allows you to derive the revenue function, where (Y) are revenues, and variables (Xi) are the most important structural indicators for revenues, which can be either direct (example: warehouse area) or composite (example: number of tables per waiter). Corresponding significance coefficients (Wi) are applied to each variable (Xi). In simple terms, the income function looks like this:

- $Y=(W1*X1+W2*X2+W3*X3+...+Wi*Xi)*(T\ min/max)$, where (T min/max) is the regional coefficient

Below is an example of an excerpt from a table of significance coefficients (Wi) for questionnaire VM27B, covering one activity "Retail trade in fish, crustaceans and molluscs", which includes 5 clusters.

Variable	CLUSTER 1	CLUSTER 2	CLUSTER 3	CLUSTER 4	CLUSTER 5
███████	1,2269			1,3537	

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[1] At the time of the formation of the calculation algorithms, data were collected for 2,636,442 units of the SME segment

███	1,3929				1,3282
███	0,8015	0,9167	0,894	0,7783	
███	1,1054	1,106		1,1185	
███			2966,2257		1737,8674
███		1,0899			
███					1,1283

Regional coefficient system

The regional coefficient is the main tool for adapting the system to a particular region or country. Each country has its own characteristics in almost all spheres of life, and small business is no exception. However, in terms of structural components, small businesses in Italy and in another country do not differ. For example, if we open a café of one format or another, then in England, Italy, and any other country in the world, we will need the same set of employees, equipment, cutlery, utensils, etc. The main difference, depending on the region of operation, is how much expenses and income are accounted for by each of these components, in other words: how much profit does the same spoon generate in different countries? To answer this question, Evatech has introduced a system of coefficients of various financial and economic components of all types of activities for different countries, which is regularly updated and expanded. The process of identifying odds for a new market is as follows (using Italy and the Russian Federation as an example):

1) Anchor points for comparing regions for a limited number of activities are selected:
   a. Milan – Moscow
   b. Rome – St. Petersburg
   c. Turin – Kazan and so on
2) Based on open and proprietary analytical data, adaptation coefficients of anchor points are formed (sometimes client banks also provide data)
3) Anchor points are mapped to the rest of the regions in the country (in some cases up to districts and municipalities)
4) Once generated for the inner regions, the coefficients are transposed to all types of activities
5) The data is regularly updated:

a. As our analysts monitor the financial and economic situation in the countries where the system operates,
b. As the company's operations in these countries increase,

Now our coefficient system includes more than 750 thousand units, covering more than 5 countries where the ECOLO product has been successfully implemented. In addition to regional adaptation coefficients for each cluster, the system also considers a list of country-specific prices that are important for running a particular business (for example, gasoline, gas, housing and utilities prices, etc.).