ECONOMICAL-MATHEMATICAL MODELLING OF COMMERCIAL ACTIVITY

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Together with a shifting from traditional central adjustment of money market to liberal concepts of its self-organization, the necessity of cybernetic approach in economic researches in Ukraine increases violently. Considering basic principles of economical cybernetic theory the author built a capital accumulation model of commercial activity for close and open stationary economy and close economy with inflation processes.

The framework of the built dynamic model in close economy is introduced in Diagram 1.

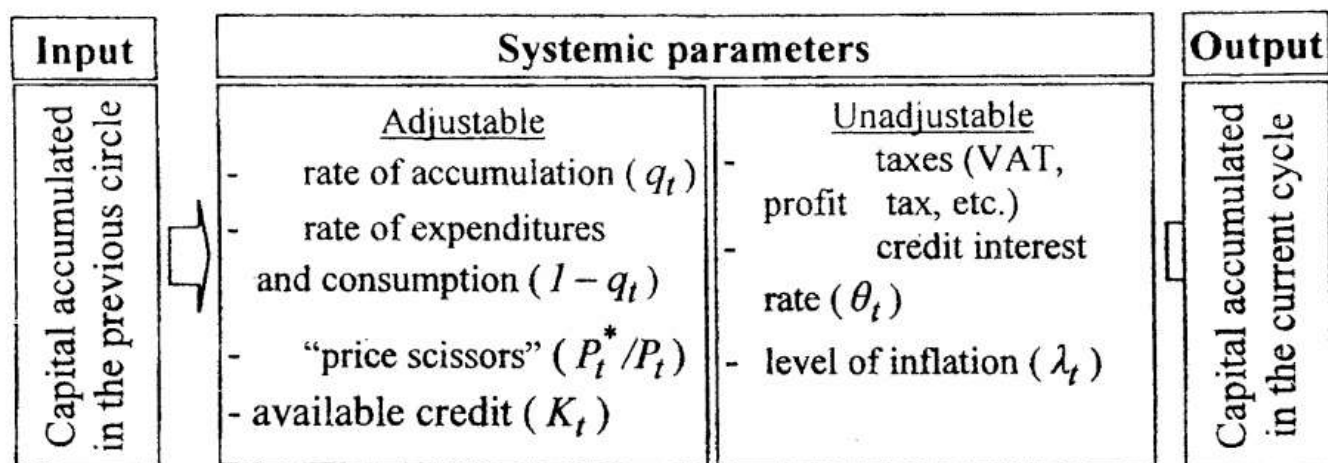| Input	Systemic parameters		Output
Capital accumulated in the previous circle	**Adjustable** - rate of accumulation (q_t) - rate of expenditures and consumption ($1-q_t$) - "price scissors" (P_t^*/P_t) - available credit (K_t)	**Unadjustable** - taxes (VAT, profit tax, etc.) - credit interest rate (θ_t) - level of inflation (λ_t)	Capital accumulated in the current cycle

Diagram 1 – Commercial Activity (the t-th cycle)
in Terms of Systemic Approach

Such a framework of capital accumulation allowed building a symbolic model as a system of difference equations the very simple view of which can be shown next way:

$$S_{t+1} = a_t S_t + b_t \quad (t = 0,...,n-1),$$

where S_t is input, S_{t+1} is output, $a_t = f_1(P_t^*/P_t, q_t, T_t^{VA}, T_t^P, \lambda_t)$ and $b_t = K_t \cdot f_2(P_t^*/P_t, T_t^{VA}, T_t^P, \theta_t, \lambda_t)$ are aggregate parameters which completely determine the system in each of the n cycles of commercial activity.

Therefore it can be easily noticed that an augment of capital occurs subject to $a_t > 1$ that allowed to calculate the minimum value

of "price scissors" and rate of accumulation for ensuring a commercial utility. Moreover the built model permitted both to explore the influence of inflation on accumulated capital and also to receive three conditions of obtaining a profit not less as a nominal one. Assuming that taxes and rate of accumulation are fixed, those conditions considered increasing of "price scissors" and available credits and decreasing of credit interest rate for each cycle.

As far as credit policy is concerned there is always a need to come up with optimum variant of loaned money using. The problem that the author dealt with was a linear programming problem of receiving a maximum savings in a year if considering that an entrepreneur changed model's strategy to required one that, for instance, more convenient in conditions of new marketing situation. According to Diagram 1 model's strategy provides slow increase at the beginning of commercial activity and fast increase at the end. Therefore money accumulation is disproportionate divided in time. Required strategy may be chosen as a linear function with a fixed slope so that to obtain enough money and have an opportunity to save a part of income.
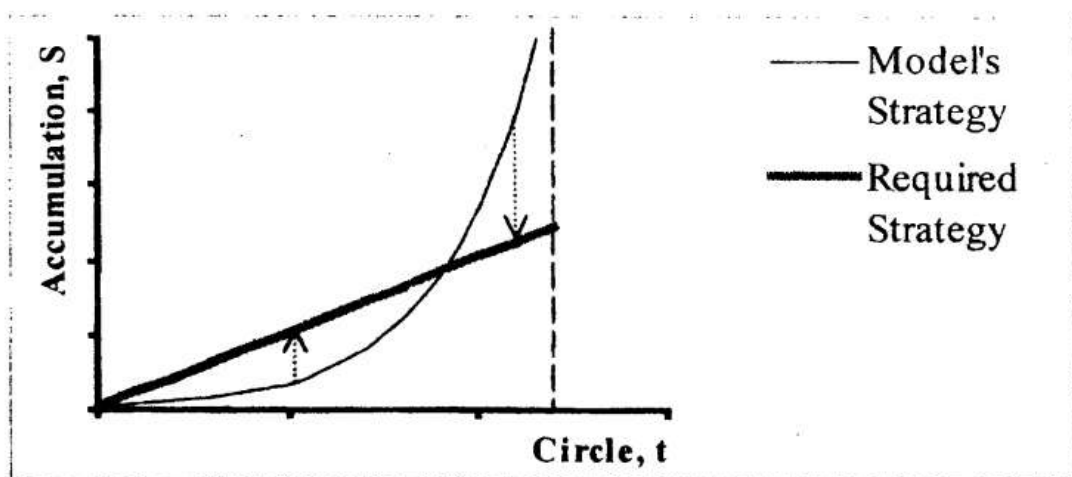

Diagram 1 – Strategies of Development

In order to renew the model for accounting foreign economic activity, it was included some auxiliary variables (parameters) which didn't change general view of the previous model, but corrected the functions f_1 and f_2. Due to this model (for commercial activity in open economy) it was introduced an example of cooperation between Ukrainian and Poland entrepreneurs with different conditions of delivery (EXW, DDP, etc.) according to the Incoterms list. Besides

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that the author showed how enormous off-shore operations through Man island increase capital accumulation. It was also solved a problem of minimum "price scissors" and "rate of accumulation" as if it was in close economy case. Bills of entry in international practice are agreed in such a way that specific profit obtained in the territory of each country will be approximately the same. Considering this fact it was received a proportion between custom import rates for both countries that assure mutually beneficial of international cooperation.

THE QUANTITATIVE METHODS OF ESTIMATION OF CORPORATE MANAGEMENT EFFICIENCY

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In condition of the shaping of market economies, in Ukraine exists one massive problem of corporative management - an absence of the checking for management corporation. For decision given problems we can use the methods of the estimation to efficiency to activity corporation that will allow to track the main trends to its activity and prevent the crisis situations.

The Theoretical analysis of the studies in the field of estimations of efficiency of corporative management allows us to draw a conclusion about presence qualitative and quantitative methods of the estimation.

The Quantitative methods of the estimation to efficiency of corporative management are founded on analysis of economic activity to corporations. Given group of the methods subdivides on methods of the estimation of market value and methods of the estimation of the financial condition (the calculation to probability bankruptcy). The Last methods in Ukrainian condition gain special urgency.

Amongst methods of the estimation to probability bankruptcy stand out the methods, founded on analysis financial data, including use some factor: Altman's Z-factor (USA), Taffler's factor (Great Britain), PAS-factor.