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The relationship between education and economic growth is one of the central areas of research in economics since the works of Adam Smith who investigated the relationship between investment in education and the wealth of nations. Although today there is a solid theoretical framework of the economic growth and its relationship with education (Mankiw, et al, 1992), (Barro and Sala-i-Martin, 1995), (Romer, 1990) (Aghion and Howit, 1998) the empirical evidences of this relationship are fragile (Awel, 2013).

Education can influence economic growth in various ways: by facilitating individuals to accumulate knowledge and skills that are converted in higher productivity, by creating a flexible labor force, by facilitating the technological progress and innovation.

In this paper we will investigate the long-run relationship between economic growth and education for Romania using data series that covers 1980-2012 period of time. The evolution of the educational system and especially the higher education in Romania is analyzed in many papers (Andrei, 2010a), (Andrei, 2010b), (Dragoescu, 2013a), (Dragoescu, 2013b) but we found only few papers that treats the relationship between economic growth and education considering only the number of students enrolled in higher education (Danacica, 2008), (Danacica, 2010) and (Danacica, 2011).

The relationship between economic growth and education is analyzed in (Barro, 2002), and (Barro, 2013) and the author found a causality from education to economic growth using a cross section countries. Ljunberg (2009) used data series from 1870 to 2000 and found that human capital significantly influenced the economic growth in Sweden. The influence of higher education on economic growth for 1965-2000 period...
for Taiwan is analyzed in (Lin, 2004). The author shows that higher education provided a positive and significant effect on Taiwan’s economic development.

In this paper we will follow the Mankiw (1992) approach that has included the human capital in the production function. The Cobb-Douglas production function will have the following form:

\[ Y = AK^\alpha H^\beta L^{(1-\alpha-\beta)} \]  

(1)

where \( Y \) is the total output, \( K \) is the physical capital, \( H \) is the human capital, and \( L \) is the labor force or employment and \( A \) is the total factor productivity. Dividing both sides by \( L \) we obtain:

\[ \frac{Y}{L} = A \left( \frac{K}{L} \right)^\alpha \left( \frac{H}{L} \right)^\beta \]  

(2)

The logarithm of equation (2) gives us the production function in the following form:

\[ \ln(y) = \ln(A) + \alpha \ln(k) + \beta \ln(h) \]  

(3)

where \( y \) is the output per employed person (worker), \( k \) is the capital per worker and \( h \) is the average human capital and we will use education as a measure for the human capital.

2. Data

We used annual time series for the following variables: GDP, gross capital formation, public education expenditure, the number of students enrolled in high schools (ISCED 3), the number of students enrolled in tertiary education (ISCED 5) for 1980-2012 in Romania. The data series were compiled from various sources. GDP (in constant LCU) was obtained from World Bank (2014), and EconStats (www.econstats.com) and the gross capital formation that we used as a measure of the physical capital in the production function was retrieved from Federal Reserve Bank of St. Louis (2014). The expenditure on education (as a % of GDP) was retrieved from multiple sources because neither of them cover the entire period that we analyze: Eurostat database (Eurostat, 2014), Eurydice (2013) and (Neagu, 2005). The number of students enrolled in high schools and universities was obtained from National Statistics Institute. Finally, the employment data (L) were retrieved from Federal Reserve Bank of St. Louis (2014) and Tempo database (INS, 2014).

We computed the output per employed person (\( y \)) as the ratio between GDP and the number of employed persons (\( L \)) and the capital per worker as the ratio between the gross capital formation (in constant LCU) and the number of workers (\( L \)). We considered that the expenditures on education, the number of high school students and
the number of student in tertiary education act as a proxy for the human capital. In order to obtain the average human capital we divided these values by L (the number of workers). All the data series are transformed using the natural logarithm.

Throughout the rest of the paper we will use the following notations: L_GDP_WORKER is ln(GDP / L), DL_GDP_WORKER is the first difference of the L_GDP_WORKER, L_CAPITAL_WORKER is ln(Gross Capital Formation / L) and DL_CAPITAL_WORKER is the first difference of L_CAPITAL_WORKER, L_EDU_EXP_WORKER is ln(Public education expenditure / L) and DL_EDU_EXP_WORKER is the first difference of the L_EDU_EXP_WORKER, L_SEC_WORKER is ln(Number of students in high schools / L) and DL_SEC_WORKER is the first difference of the L_SEC_WORKER and L_TERTIARY_WORKER is ln(Number of students in tertiary education/L) and DL_TERTIARY_WORKER is the first difference. Figures 1 to 5 shows the evolution of these variables during 1980 to 2012.

**Figure 1.** The evolution of the GDP per worker during 1980-2012 in Romania and the same time series in first difference

**Figure 2.** The evolution of the gross capital formation per worker during 1980-2012 in Romania and the same time series in first difference
Figure 3. The evolution of the public education expenditure during 1980-2012 in Romania and the same time series in first difference

Figure 4. The evolution of the number of high school students (ISCED 3) during 1980-2012 in Romania and the same time series in first difference

Figure 5. The evolution of the number of students in tertiary education (ISCED 5) during 1980-2012 in Romania and the same time series in first difference
As it can be seen from the above figure, all series have an increasing trend over the analyzed period and don’t seem to be stationary in levels but the same series in first difference seems to mender around 0. In order to avoid the spurious regression problem we will check if the data series have unit roots.

3. Methodology

We tested all the data series for unit roots using the ADF and Phillips-Perron tests to determine the order of integration of each series. The ADF unit root test estimate the following equation (Enders, 2004):

\[ \Delta y_t = a_0 + \gamma y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta y_{t-i} + \epsilon_t \]

If the coefficient \( \gamma = 0 \) the equation is entirely in first differences and has a unit root. The ADF and Phillips-Perron can be applied even if the error term is not a white noise.

In the next step we performed the Granger causality test between the variables that is a measure of ability of predicting the future values of a time series using past values of another time series. After we established the properties of the data series we can proceed to estimate the possible long-run relationship between them. We employed a VAR model that has become a standard approach in time series modeling, mainly because it makes no assumptions of what variables are exogenous, considering that all variables are endogenous. In order to specify the VAR models we have to decide how many lags to include in the model. We used information criteria (SBIC, AIC, HQ and FPE) as well as misspecification tests.

Having the order of integration of the data series, the next step in our work was to test for cointegration between variables using Johansen-Juselius approach (Johansen and Juselius, 1990). Since our data series are all I(1) we proceeded with a VEC model. If the general form of a VAR(p) model is given by:

\[ Y_t = B + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + \epsilon_t \]

and all variables from the vector \( Y_t = (Y_{1t}, Y_{2t}, \ldots, Y_{kt})' \) are I(1) the VAR representation can be put in an equivalent form called VEC:

\[ \Delta Y_t = \Pi Y_{t-1} + \Gamma_1 Y_{t-1} + \cdots + \Gamma_p \Delta Y_{t-1-p} + \epsilon_t \]

where \( \Pi \) is the matrix that contains information regarding the long-run effect and \( \Gamma_i \) are matrices that measures the short term impact. Analyzing equation (5) we can conclude that \( \text{rank}(\Pi) = r < k \) because \( Y_{t-1}, \ldots \Delta Y_{t-1-p} \) are stationary and \( \Pi Y_{t-1} \)
should be stationary too, i.e. the determinant of matrix Π should be zero. A matrix Π(k, k) with \( \text{rank}(\Pi) = r < k \) can be decomposed as a product of two matrices:

\[
\Pi = \alpha\beta^* 
\]

where the matrix \( \beta \) contains \( r \) cointegration vectors while the matrix \( \alpha \) contains the adjustment coefficients. We can write now the VEC model as:

\[
\Delta Y_t = \alpha\beta^* Y_{t-1} + \Gamma_1 \Delta Y_{t-1} + \cdots + \Gamma_{p-1} \Delta Y_{t+1-p} + \epsilon_t 
\]

where \( \alpha\beta^* Y_{t-1} = \mu_{t-1} \) is the stationary residual vector.

### 4. Results

We applied the ADF test for all variables in levels, considering three models: with intercept (M1), with intercept and trend (M2) and without intercept or trend (M3) and the results are reported in table 1. It can be easily observed that all variables have a unit root at 5% signification level regardless of the model used for testing. We can conclude that all variables are not stationary. The same results have been obtained using the Phillips-Perron test.

**Table 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intercept (M1)</th>
<th>Intercept and trend (M2)</th>
<th>None (M3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test statistics</td>
<td>5% critical value</td>
<td>prob</td>
</tr>
<tr>
<td>L_GDP_WORKER</td>
<td>-0.812</td>
<td>-2.960</td>
<td>0.801</td>
</tr>
<tr>
<td>L_CAPITAL_WORKER</td>
<td>-1.114</td>
<td>-2.960</td>
<td>0.697</td>
</tr>
<tr>
<td>L_EDU_EXP_WORKER</td>
<td>-0.518</td>
<td>-2.957</td>
<td>0.874</td>
</tr>
<tr>
<td>L_SEC_WORKER</td>
<td>-1.267</td>
<td>-2.960</td>
<td>0.632</td>
</tr>
<tr>
<td>L_TERITARY_WORKER</td>
<td>-2.622</td>
<td>-2.960</td>
<td>0.099</td>
</tr>
</tbody>
</table>

Next, we applied the ADF tests for the data series in first difference and the results are shown in table 2. We tested models M1, M2 and M3 as for the levels but the trend and intercept are not significant (this can be also observed visually inspecting the graphs in figure 1-5), so we choose the only results for M3 model.
The results show that all the data series are stationary in first difference and we can conclude that our variables are I(1). Similar results were obtained using the Phillips-Perron test.

A possible causal relationship between variables could be foreseen using the Granger causality test. The results of the Granger tests are presented in table 3. These results show that the numbers of students enrolled in high schools and in tertiary education are both helpful in predicting the economic growth. There is also a causal relationship from GDP to the number of students in tertiary education but at 10% significance level. The physical capital is also an important factor that explains the economic growth.

The ADF test for the variables in the first difference (Model M3)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test statistics</th>
<th>5% critical value</th>
<th>prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL_GDP_WORKER</td>
<td>-2.687745</td>
<td>-1.952066</td>
<td>0.0089</td>
</tr>
<tr>
<td>DL_CAPITAL_WORKER</td>
<td>-3.197788</td>
<td>-1.952066</td>
<td>0.0023</td>
</tr>
<tr>
<td>DL_EDU_EXP_WORKER</td>
<td>-4.444299</td>
<td>-1.952066</td>
<td>0.0001</td>
</tr>
<tr>
<td>DL_SEC_WORKER</td>
<td>-2.157453</td>
<td>-1.952066</td>
<td>0.0318</td>
</tr>
<tr>
<td>DL_TERITARY_WORKER</td>
<td>-4.648769</td>
<td>-1.952473</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Granger causality between variables

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>Prob.</th>
<th>F-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>L_CAPITAL_WORKER does not Granger Cause L_GDP_WORKER</td>
<td>31</td>
<td>0.0191</td>
<td>4.62702</td>
</tr>
<tr>
<td>L_GDP_WORKER does not Granger Cause L_CAPITAL_WORKER</td>
<td></td>
<td></td>
<td>2.73255</td>
</tr>
<tr>
<td>L_EDU_EXP_WORKER does not Granger Cause L_GDP_WORKER</td>
<td>31</td>
<td>0.1346</td>
<td>2.16812</td>
</tr>
<tr>
<td>L_GDP_WORKER does not Granger Cause L_EDU_EXP_WORKER</td>
<td></td>
<td></td>
<td>0.99407</td>
</tr>
<tr>
<td>L_TERTIARY_WORKER does not Granger Cause L_GDP_WORKER</td>
<td>31</td>
<td>0.0099</td>
<td>5.53839</td>
</tr>
<tr>
<td>L_GDP_WORKER does not Granger Cause L_TERTIARY_WORKER</td>
<td></td>
<td></td>
<td>2.92812</td>
</tr>
<tr>
<td>L_SEC_WORKER does not Granger Cause L_GDP_WORKER</td>
<td>31</td>
<td>0.0178</td>
<td>4.72443</td>
</tr>
<tr>
<td>L_GDP_WORKER does not Granger Cause L_SEC_WORKER</td>
<td></td>
<td></td>
<td>0.95214</td>
</tr>
</tbody>
</table>
Since we’ve established that our series are I(1) we will proceed to estimate the VAR model. The first step is to decide how many lags to include in the model. We used the sequential modified LR test statistic, final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). Although all these criteria indicate 4 lags we rejected this number of lags based on the missspecification of the model (the LM and Portmanteau tests for residuals autocorrelation rejected the models). We decreased the number of lags to 3 and found similar results. Finally we chose 2 lags and we tested the existence of a cointegration relationship between variables using the Johansen-Juselius method. The results of the test are shown in table 4. Both the trace and max eigenvalue tests are presented in table 4.
We have to choose a model from the five types of models shown in table 4. Since our data series in first differences have no trend (remember figures 1 to 5) we restrict our possibilities to model 1 or 2. Using Schwartz Criteria (SC) we chose model 2 that indicates that there is a single cointegrating equation between our variables. The values for SC are given in table 5. The existence of a cointegrating equation indicates that there is a long-run relationship between the variables and we can estimate a VEC model that will capture the long-run and short run relationship between our variables. The cointegration between variables is very important in validating the Granger causality tests presented earlier because if the variables are non-stationary and not cointegrated the Granger causality tests are not valid.

Table 5
The Schwartz criteria

<table>
<thead>
<tr>
<th>Rank or No. of Cointegrating equations</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
</table>

We estimated the VEC model and the long run and obtained the cointegration vector $\beta$ which is presented in table 6.
Table 6

The cointegration parameters (t-statistics are in [ ])

<table>
<thead>
<tr>
<th>Cointegrating Equation</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>L_GDP_WORKER(_{-1})</td>
<td>1.000000</td>
</tr>
<tr>
<td>L_CAPITAL_WORKER(_{-1})</td>
<td>-0.769921</td>
</tr>
<tr>
<td></td>
<td>[-8.06690]</td>
</tr>
<tr>
<td>L_EDU_EXP_WORKER(_{-1})</td>
<td>0.960190</td>
</tr>
<tr>
<td></td>
<td>[ 5.94387]</td>
</tr>
<tr>
<td>L_TERTIARY_WORKER(_{-1})</td>
<td>-0.697189</td>
</tr>
<tr>
<td></td>
<td>[-9.08009]</td>
</tr>
<tr>
<td>L_SEC_WORKER(_{-1})</td>
<td>0.490077</td>
</tr>
<tr>
<td></td>
<td>[ 3.45738]</td>
</tr>
<tr>
<td>C</td>
<td>-9.857592</td>
</tr>
<tr>
<td></td>
<td>[-12.0101]</td>
</tr>
</tbody>
</table>

Inspecting t-statistics we can note that all coefficients are highly significant. The cointegrating equation can be written as follows:

\[
\text{L\_GDP\_WORKER}_t = 9.86 + 0.77\text{L\_CAPITAL\_WORKER}_t - 0.96\text{L\_EDU\_EXP\_WORKER}_t + 0.69\text{L\_TERTIARY\_WORKER}_t - 0.49\text{L\_SEC\_WORKER}_t
\]  

(8)

The cointegrating equation shows that a 1% increase in the number of students enrolled in tertiary education leads to a 0.69% increase in GDP meaning that tertiary education has a significant positive effect on economic growth. This is in accordance with other results (Danacica, 2008, 2010, 2011). An interesting result is that an increase in the public education expenditure leads to a decrease of the GDP. This result can be explained by the fact that increased education expenditure leads to an increased number of students who are potential workers thus the number of employed population decreases contributing to the decreasing of GDP.

Figure 6 shows the residual from the estimated cointegrating relationship. Visually inspecting the graph, one can note that the residual is stationary.

\[
\mu_t = \text{L\_GDP\_WORKER}_t - (9.86 + 0.77\text{L\_CAPITAL\_WORKER}_t - 0.96\text{L\_EDU\_EXP\_WORKER}_t + 0.69\text{L\_TERTIARY\_WORKER}_t - 0.49\text{L\_SEC\_WORKER}_t)
\]  

(9)
Figure 6. The residual from the cointegrating relationship

The error correction equations are:

\[ \Delta L_{\text{GDP\_WORKER}}_t = 0.36\mu_{t-1} - 0.17\Delta L_{\text{GDP\_WORKER}}_{t-1} - 0.05\Delta L_{\text{GDP\_CAPITAL\_WORKER}} + 0.2\Delta L_{\text{GDP\_EDU\_EXP\_WORKER}}_{t-1} - 0.09\Delta L_{\text{TERTIARY\_WORKER}}_{t-1} + 0.46\Delta L_{\text{SEC\_WORKER}}_{t-1} \]

\[ \Delta L_{\text{CAPITAL\_WORKER}}_t = -0.07\mu_{t-1} + 0.12\Delta L_{\text{GDP\_WORKER}}_{t-1} + 0.30\Delta L_{\text{GDP\_CAPITAL\_WORKER}} + 0.39\Delta L_{\text{GDP\_EDU\_EXP\_WORKER}}_{t-1} - 0.13\Delta L_{\text{TERTIARY\_WORKER}}_{t-1} + 0.40\Delta L_{\text{SEC\_WORKER}}_{t-1} \]

\[ \Delta L_{\text{EDU\_EXP\_WORKER}}_t = -0.63\mu_{t-1} + 0.26\Delta L_{\text{GDP\_WORKER}}_{t-1} - 0.20\Delta L_{\text{GDP\_CAPITAL\_WORKER}} + 0.19\Delta L_{\text{GDP\_EDU\_EXP\_WORKER}}_{t-1} - 0.11\Delta L_{\text{TERTIARY\_WORKER}}_{t-1} - 0.18\Delta L_{\text{SEC\_WORKER}}_{t-1} \]

\[ \Delta L_{\text{TERTIARY\_WORKER}}_t = -0.27\mu_{t-1} - 0.38\Delta L_{\text{GDP\_WORKER}}_{t-1} - 0.16\Delta L_{\text{GDP\_CAPITAL\_WORKER}} + 0.10\Delta L_{\text{GDP\_EDU\_EXP\_WORKER}}_{t-1} + 0.58\Delta L_{\text{TERTIARY\_WORKER}}_{t-1} + 0.12\Delta L_{\text{SEC\_WORKER}}_{t-1} \]

\[ \Delta L_{\text{SEC\_WORKER}}_t = -0.38\mu_{t-1} - 0.21\Delta L_{\text{GDP\_WORKER}}_{t-1} - 0.25\Delta L_{\text{GDP\_CAPITAL\_WORKER}} + 0.37\Delta L_{\text{GDP\_EDU\_EXP\_WORKER}}_{t-1} - 0.29\Delta L_{\text{TERTIARY\_WORKER}}_{t-1} + 0.76\Delta L_{\text{SEC\_WORKER}}_{t-1} \]

These equations show the short term dynamics of the system.

The matrix \( \alpha' = (-0.36 -0.07 -0.63 -0.27 -0.38)' \) contains the adjustment coefficients in response to disequilibria in the cointegration equation. The speed of adjustment of the GDP to imbalances in the long-run is highly significant (t-stat=-5.56). The negative sign of \( \alpha \) indicates that the GDP per worker is an endogenous variable which corresponds to the theoretical framework and it also shows that the model is dynamically stable.

The impulse-response function of the \( L_{\text{GDP\_WORKER}} \) to \( L_{\text{EDU\_EXP\_WORKER}}, L_{\text{TERTIARY\_WORKER}} \) and \( L_{\text{SEC\_WORKER}} \) (the variables that are used as proxies for the human capital) are shown in figure 7. An impulse in
education expenditure causes a drop in GDP in the first three years then follows an increase in the long-run. An impulse in the number of students enrolled in tertiary education cause an increase in GDP in the long run. Also, a shock in the number of high school students contributes to a sharp increase of the GPD in short term in the long run the value stabilizes around equilibrium.

Figure 7. The impulse-response function of the GDP

5. Conclusions

At this moment there are few studies that treats the long-run relationship between economic growth and education in Romania (Andrei, 2010c), (Danacica, 2011). In this paper we examined the long run relationship between economic growth and education in Romania during 1980-2012. We started with the Cobb-Douglas production function augmented with the human capital. As a measure for the economic growth we considered the evolution of the GDP and as a proxy for the human capital we considered the public education expenditures, the number of students in high schools and the number of students enrolled in higher education. We tested the data series for unit roots in levels and in first differences and found that
they are I(1). Using the Johansen-Juselius method we tested if there is a cointegration relationship between the variables and the test showed us that we have one cointegration equation. This means that on the long run there is a link between economic growth and education. We estimated the VEC model and from the analysis of the adjustment parameters we concluded that the tertiary education has a positive influence on the economic growth. Our results are in line with other studies (Barro, 2002), (Danacica, 2011), (Ljundberg, 2009).

References

THE LONG-RUN RELATIONSHIP BETWEEN EDUCATION AND ECONOMIC GROWTH. THE CASE OF ROMANIA

Professor Bogdan Oancea, PhD
PhD Candidate Dragoeescu Raluca Mariana

Abstracts

The relationship between education and economic growth is one of the central areas of research in economics but the empirical evidences of this relationship, especially the long-run relationship are scarce. In this paper we use a VECM approach to analyze the long-run relationship between education and economic growth in Romania during 1980-2012. We used
data for GDP, gross capital formation, public education expenditure, the number of students enrolled in high-schools (ISCED level 3) and number of students enrolled in tertiary education (ISCED level 5). The data series were checked for stationarity using ADF and Philips-Peron tests. We showed that the data series are I(1) and using a vector error correction model we find that the variables are cointegrated. We estimated the cointegration equation using Johansen-Juselius procedure and show that education has a significant impact on economic growth. Data processing was done using Eviews.

**Keywords:** education, economic growth, cointegration, unit roots, causality.
PENSIONABLE SERVICE AND SIMILAR LEGAL INSTITUTES IN THE RECOGNITION OF CERTAIN TYPES OF SOCIAL SECURITY BENEFITS

Assoc. Prof. Galina Yolova, PhD

The introduction and establishment of the institute of pensionable service as an underlying fact in social security law is a legal hypothesis that bears significance for the legal theory and legislation in several major aspects, namely:

1) its separate legal construction made in distinction from the institute of length of service used in the former legislation constitutes the basis for establishing derivative legal institutes. As it has been pointed out before\(^1\) the concept of length of service which takes into account only the work experience under employment contracts and in this sense refers solely to workers and employees is quite unsuited for use in the field of social security law. It does not account for the specifics of the social security relations and the related and therefore relevant periods of payment of social security contributions under the social security scheme\(^2\);

2) it reflects the periods of existence of the social security relations and in this sense gives certain categories of persons the status of being socially secured;

3) it is an absolute prerequisite for obtaining short-term social security benefits requiring a minimum length of pensionable service,

4) it determines the amount of the contributory pensions cumulatively with the pensionable income criterion, and last but not least,

5) it is relevant to the provision of certain non-contributory benefits at the level of the minimum pensionable service required.

In that sense, the subject of this study is to analyze a number of specific cases of digression from the general social security law concept in terms of its interpretation in connection with the disbursement of certain social security benefits.

In the framework of the concept clarified herein, the purpose of this paper is to put forward specific suggestions for improvement of the social security laws and regulations, given the legislative imperfections as regards some special cases of application of the institute of pensionable service due to the specifics of the legal technique used.

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2 The Supreme Administrative Court has also had occasion to deal with the comparison between length of service and pensionable service in Judgment No. 5875-04-IV/2004.
1. Characteristics and elements of the pensionable service

In the most common sense, and with a view to the attempted legal definition contained in Art. 37, Para. 1 of the Ordinance on Pensions and Pensionable Service (OPPS), the term pensionable service is defined as the period of time during which the person secured has worked under employment relationship or other equated relationship and has paid simultaneously or has had the obligation to pay social security contributions. In the case of the self-secured persons this is the period in which social security contributions have been paid as per periods and risk categories.

Regardless of which of the two main types it refers to\(^3\): pensionable service of employees (having the widest scope and including all types of social security contributions and benefits) or pensionable service of self-secured persons (providing for a limited amount of the pensions received in proportion to the limited range of social risks), it is important to clarify that the pensionable service requires the cumulative existence of two components, namely: work experience under employment contract or administrative act for appointment, and paid or payable social security contributions.

In this sense, the following time periods are recognized as pensionable service: 1. the time period during which the persons have worked full-time, according to the statutory working hours. When the person has worked part-time, the pensionable service is recognized proportionally to the statutory working hours, if social security contributions have been paid or were payable on the respective proportion of the minimum wage; 2. the time period during which social security contributions were paid or were payable on received, accrued but unpaid, and non-accrued remuneration, where this remuneration must not be less than the minimum pensionable income for the respective job, as well as the time period for which the due contributions from self-employed individuals have been paid. As regards persons for whom no minimum pensionable income is stipulated and who have worked full time as per the statutory working hours, the pensionable service is recognized if social security contributions have been paid or were payable on the remuneration received in the amount of the minimum wage at least. If the person has worked part-time, the pensionable service is recognized in proportion to the statutory working hours, if social security contributions have been paid or were payable on the respective proportion of the minimum wage.

With respect to this second component of the concept, however, two legislative exceptions have been provided:

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1) contributions were due, but were not regularly paid by the social security contributor, although the person secured has paid their due share. In this case, the respective time period is recognized as pensionable service despite the irregular payments made by the social security contributor.

2) the contributions due were paid at a later time. In this case, the period for which those were paid is recognized as pensionable service, however only at the time of granting the pension.

Furthermore, by employing the technique of the legal fiction, the legislator specifies explicitly and exhaustively the time periods which are recognized as pensionable service, despite the absence of any of the two elements of the legal institute, i.e. either lack of actual service rendered (work performed) by the person secured, or lack of payment, respectively lack of obligation to pay contributions. These periods are: 1. the period of paid and unpaid maternity/paternity leave; 2. the period of paid and unpaid leave for temporary working incapacity; maternity leave for pregnancy and childbirth and adoption of a child aged 2 to 5 years; unpaid leave up to 30 working days in one calendar year; 3. the period during which the person has received unemployment benefits; 4. the period during which persons who are self-employed and secured against disability due to general illness, old age and death and against general illness and maternity, received monetary benefits for temporary working incapacity, pregnancy, childbirth and care for infants and adoption of a child aged 2 to 5 years, as well as the periods of temporary working incapacity, pregnancy, childbirth and care for infants and adoption of a child aged 2 to 5 years, during which the person was not entitled to monetary benefits; 5. the period during which the person has not worked due to illegal exclusion from work or dismissal, or was dismissed and subsequently reinstated in accordance with the relevant special laws, or was unemployed due to dismissal, which dismissal was subsequently overthrown as illegal by the competent authorities: from the date of dismissal to the date of reinstatement, but no later than 14 days from the entry into force of the decision of the competent authority establishing the illegality of the dismissal; the time during which the person remained unemployed as a result of his/her dismissal due to detention by the authorities, but was not indicted, or was acquitted, or the criminal proceedings were terminated, or the custodial sentence was declared wrongfully passed because the person in question did not commit the act or the act did not constitute a crime; 6. the period during which the person under occupational rehabilitation scheme did not work because he/she was not given an appropriate job by the social security contributor according to the prescriptions of the health authorities; for this period the social security contributions on the due remuneration are paid by the social security contributor; 7. the period during which the person received benefits for the time he/she was unemployed under the Labour Code, the Civil Servants Act and the Higher Education Act.
2. Similar legal institutes in social security law concerning some cases of social security benefits

A special case is the so-called **actual service**, required for payment of certain contributory or non-contributory pensions, in particular:

1) pension for pensionable service and old age in reduced amount, payable upon existence of 15 years of actual service (Art. 68, Para 3 SSC), and

2) the category of personal pensions in the form of pension for mothers of large families and pension for care of a disabled person.

It is evident that this relatively new concept is set as a requirement for receiving personal pensions, while the contributory pensions, with the exception of the reduced pension, are governed by the requirement for pensionable service in general, including the recognized pensionable periods without actual employment.

The concept of actual service is legally defined in paragraph 2 of OPPS, am. SG issue 84 of 2009, as "the time actually served under employment contract or act for appointment; the time during which the person worked without being party to an employment contract, and the time during which the person was fully self-secured."

Thus, the above-mentioned statutory provision lays out three possible cases:

1) the actual time worked under employment contract, act of appointment or equivalent legal relationship, without the fiction of recognizing additional periods. It is clear that this case takes into account only the actual time worked, resp. the amount of labour, and does not concern the fact of being socially secured or other relevant social security status of the individual at the time of receipt of the benefit.

2) the periods of work without employment relationship, where the person hired should have received remuneration at least in the amount of the minimum monthly wage prescribed for the respective calendar period, but not exceeding the duration of the contract. The said category of persons is governed by the legal technique for calculating the length of service (Art. 38, Paras. 5 and 6 OPPS) whereby the time during which the persons work without employment contract and receive a monthly remuneration equal to or greater than one minimum monthly wage for Bulgaria after deduction of the operating expenses, and during which social security contributions have been paid or were payable, is recognized as pensionable service, however not longer than the duration of the contract. Here it is further clarified that a for person working without an employment relationship who is subject to social security, the pensionable service for the period of work without an employment relationship is
determined by dividing the remuneration received (after deducting the operating expenses) by the average daily minimum wage for the country.

3) the period of own social security contribution covering the months and years in which the self-secured person has paid social security contributions by periods and risk categories.

The introduction of the concept and its recognition in terms of the various aspects mentioned above raises several specific issues concerning the set of facts required for granting contributory and non-contributory benefits, respectively. This is particularly pronounced in the case of the pension for old age and pensionable service. Introduced as a classic case of contributory pension, this pension is in essence a potestative right exercisable upon occurrence of specifically defined events, mainly concerning the persons subject to compulsory social security, and constituting the basic and emblematic form of social security. It is stipulated in Articles 68 – 70a and § 5-8 SSC, as well as Articles 15 – 21a OPPS, and has the following main characteristics:

• the occasion for its application is permanent incapacity for work, in respect of which there are two basic presumptions: first, that recovery is not expected, and second, the legal presumption of old age, which may be a function or the cause of incapacity.

• its payment takes place over a long, indefinite period of time, within the time frame defined by the occurrence of the secured event and the secured person's death.

• it uses specific differentiating criteria that are not taken into account in the determination of other pensions, namely age and gender of the person secured.

There are three prerequisites for the existence of the right to pension for pensionable service and age:

1) the status of being socially secured – in that sense, the persons entitled to pension are all compulsorily secured persons, incl. regular military personnel, officers, sergeants and civilians under the Ministry of Interior Act and the Execution of Penalties Act; 2) a certain age – according to this criterion, the right to pension for pensionable service and age is acquired at the age of 63 for men and 60 for women. It is prescribed that the said age will increase from December 31, 2011 by 4 months for both women and men until reaching 63 years for women and 65 for men; 3/ a minimum length of pensionable service which is 34 years for women and 37 for men. From December 31, 2011 this required length of pensionable service will increase at the first day of each calendar year by 4 months for women and men until it reaches 37 years for women and 40 years for men.

The absence of the abovementioned conditions is grounds for receiving a pension in the so-called minimum amount. This pension is granted in case the length of
the pensionable service and the age of the person secured are less than required, but
the person secured has at least 15 years of actual service and has reached the age of
65 (valid for both men and women). From December 31, 2011 the required age will
increase by 4 months at the first day of each subsequent calendar year until reaching
67 years.

In deviation from the general rules, the regular military personnel, the civil serv-
ants under the Ministry of Interior Act and the Execution of Penalties Act, the civil
servants under the Postal Services Act, the civil servants providing security of the
judiciary under the Judiciary Act, and investigators and junior investigators acquire
the right to receive pension upon termination of their employment, regardless of their
age, provided that they have at least 27 years of pensionable service, of which two
thirds are actual military service, respectively service as civil servants under the
above Acts.

In that sense, the introduction of the actual service requirement in the absence of
the prerequisites for obtaining a full pension, and in particular the absence of ade-
quate social security status, seems like serious digression from the principle of auton-
omy of the institutes of social security law. This legal solution takes into account only
the circumstance of the work experience characteristic of labour law, and constitutes a
mechanism for receiving a contributory benefits in the absence of contribution and
prior involvement of the person concerned in the payment of social security contrib-
utions, which otherwise are requirements that are touted as being of the highest priority
for obtaining social security benefits.

On the other hand, a minimum actual service is required for receiving non-
contributory pensions (by mothers with many children and care of a disabled person),
where these pensions are in essence non-contributory payments with regard to which
it is important to emphasize the following points, namely: in principle, such payments
do not require existence of employment relationship under employment contract or
act for appointment, i.e. legal relationship with a social security contributor and the
resulting status of being socially secured, given the absence of parameters typical of
work-related pensions (pensionable service, age, labour categories), and that the
amounts of these non-contributory benefits are defined as a percentage of the old-age
pension and paid from the republican budget: the Non-Work Related Pensions fund.

Pension for mothers of large families is granted if the following conditions are
met:

1) at least 65 years of age

2) annual income per family member less than the sum of the guaranteed mini-

3) at least 3 years of actual pensionable service
On the other hand, personal pension for care of a disabled person is granted if the following conditions are met:

1) the sick family member cared for has been disabled for the entire 10-year period, with work capacity reduced by over 90 percent, and has been in need of assistance – this is established through a decision of the Territorial or National Expert Medical Committee, certifying that the sick person has for the entire 10-year period been permanently disabled with type and degree of disability over 90 percent, and has been constantly in need of assistance;

2) the beneficiary has annual income less than the sum of the guaranteed minimum income established for Bulgaria for the past 12 months, and

3) 3 years of actual pensionable service.

It is obvious that for both types of personal pensions the introduction of the requirement for actual service is flawed in at least two aspects:

1) it is a digression from the principle of non-contributory and discriminatory in terms of stricter requirements for receiving these pensions in distinction from, say, the social pension for old age.

2) on the other hand, given the social importance of the functions of the beneficiaries, it is unjustified to require actual instead of pensionable service, reduced as per the legal fiction by the relevant periods, incl. periods for child-raising, pregnancy and childbirth.

Another concept used by the legislator and relevant to the grant of pension is the concept of "service as teacher". It was introduced through Article 19 OPPS and defined as the pensionable service obtained by working as teacher or supervisor in schools and other educational institutions. It is further stipulated that the term “service as teacher” includes the pensionable service of principals and assistant principals of schools and other educational institutions if they have achieved the compulsory length of service as teachers.

The pensionable service of persons with jobs as per the list approved by the Minister of Education and Science in coordination with the Director of the National Social Security Institute is also recognized as "service as teacher", if such persons meet the requirements for holding the position of teacher or supervisor in terms of acquired education, vocational training and qualifications, and have achieved the compulsory length of service as teachers. Furthermore, the legislator recognizes as "service as teacher" also the pensionable service performed after January 1, 2007 as "supervisor" in homes for children deprived of parental care, and the pensionable service performed after 1 January 2008 as "supervisor" in other specialized institutions for social services for children, or in other institutions for social services in the community, as well as the pensionable service performed after January 1, 2009 as "peda-
gogue" or "supervisor" in establishments for children’s medical and social care and in nurseries.

The concept is a special case of the pension for pensionable service and old age which introduces additional specific criteria, namely the position occupied, participation in the contribution scheme and work load corresponding to the mandatory teaching load. By correlation, this impacts the mechanism of calculating the length of service, insofar as the pensionable service of lecturers who have worked under employment contracts in one or more schools, community educational centers or other organizations accrued until December 31, 2008, is determined by equating one month of pensionable service with one calendar month in which they have worked at least 75 hours (50 hours in the case of higher education institutions) and the social security contributions have been paid or were payable on no less than the minimum pensionable income for the relevant profession as per the main economic activity of the social security contributor. When such persons have worked less than 75, respectively 50 hours, the total number of hours worked is divided by 3, respectively 2, and the pensionable service is recognized as the resulting number of days, provided that the social security contributions have been paid or were payable on no less than the minimum pensionable income for the relevant profession as per the main economic activity of the social security contributor. After January 1, 2009 the pensionable service is recognized as prescribed in Art. 9 SSC: in accordance with the relevant contract.

We consider this case to be relatively justified, as it modifies the general preconditions for pensionable service according to the specifics of the activity carried out, and supplements the benefits provided under the supplementary social security schemes. In that sense it is expressly stipulated that the persons entitled to pensions under the specified conditions will be granted a fixed-term pension for early retirement in reduced amount from the Teachers Pension Fund until reaching the age under Art. 68, Para. 1 SSC, and after that age their pension for old age and pensionable service will be paid in the full amount from the Pensions Fund. It is evident that the said case is an additional cumulating concept concerning benefits under supplementary pension schemes, thus expanding the social security of the retired person.

3. Conclusion

Based on the analysis of the mechanism for implementation of the pensionable service within the framework of this study, we can draw the following logical conclusions:

1) there is a serious digression from the concept of the length of specialized service in the case of the classical contributory pension, which apparently is granted for actual work experience, without regard to the social security status of the person and his/her prior participation in the social security contribution,
2) there is an unjustified requirement for contribution for the purpose of receiving otherwise non-contributory benefits, and this in situations where it is in purely practical terms obviously impossible to work;

3) there is a specification of the length of service of a particular category of employed persons resulting in increased amounts of social security benefits in particular situations of recognition and payability.

The above conclusions as to the nature of the controversial in theory and in practice legal framework allow us to make the following suggestions de lege ferenda:

1) as regards the pension for service and age, the previous wording of the provisions should be restored, i.e. the required existence of actual service, but as part of the total pensionable service;

2) as regards the non-contributory pensions mentioned above, the requirement for a minimum of three years of pensionable service should be stipulated, within the field of application of the legal fiction that makes relevant also the equated periods.

This would help satisfy the legal requirement for equality among the categories of persons receiving benefits, and, in general, it would be in line with the widely proclaimed principles of solidarity, mutual assistance and social protection underlying the social security legislation.

References


SOCIAL SECURITY LENGTH OF SERVICE AND RELATED INSTITUTES IN RECOGNIZING CERTAIN KINDS OF SECURITY

Assoc. Prof. Galina Yolova, PhD

Abstract

The article analyzes the specifics of determining and recognizing social security length of service in accordance with the principles of the general and the special legal system. In the aspect of its difference from the length of employment there are drawn basic aspects of definition and its specific features with regard to its nature, recognition by period and significance in view of principal security considerations. Specifically, there is an emphasis on the recognition of the length of service with regard to certain special hypotheses on the provision of the long-term pension payments, and also in view of specific categories of non-contributory pension schemes. With regard to the latest changes in the legal framework there is made a parallel between the general institute of social security length of service and the introduction of the requirement for the so-called real length of service, concerning particular kinds of non-
contributory consideration, and the concept of teacher's length of service, connected with the pension for length of service and age, in view of which there are drawn specific conclusions and recommendations on improving the texts and principles connected with it.

**Keywords:** social security length of service, real length of service, teacher's length of service, pensions.
INTERNAL AUDIT AND RISK ASSESSMENT IN RESPECT
OF THE GOING CONCERN ASSUMPTION

Assis. Prof. Ruslana Dimitrova, PhD

Introduction

The going concern assumption principle is fundamental for the accounting profession, being an integral part of audit theory and practice. From the point of view of modern economics, the going concern assumption is necessary for the preparation and evaluation of financial statements but it is also seen as a principal concept in securing the enterprise’s sustainable future.

Over the past decade, the role and significance of internal audit for risk management has changed considerably. On the one hand, internal audit employs the risk-based approach to its practices, while on the other, it is used to assess the ways risk is managed. Internal auditors are engaged in providing consultancy services, but they also monitor how advice is followed and how measures to minimize risk and ensure stability are being implemented by the management.

It should be noted that there are few publications in the scientific literature, which discuss the role of internal audit in the analysis of risk associated with the going concern assumption.

The above circumstances serve to highlight the motives which have governed the choice of the article’s theme.

My thesis statement can be formulated as follows: Improving the risk assessment technology in respect of the going concern assumption as a prerequisite to heighten the role of internal audit in risk management.

To achieve the objectives of this paper, it is important to outline the following basic tasks:

1. Examine the role of audit in evaluating the going concern assumption.
2. Present opportunities to improve the technology for assessment of the risk associated with the going concern assumption under internal audit procedures.

1. The role of audit in risk assessment in respect of the going concern assumption

The role of audit in assessing the risk associated with the going concern assumption should be discussed from a historical perspective, namely when and why it had become the object of evaluation by internal and external auditors.
To this aim, we have reviewed relevant scientific literature discussing the origin, purpose and technology of audit, seeking to establish a relationship with the going concern assumption (Sokolov, Y. V., 1996; Bychkov, S. M., Sokolov, Y. V., 2006; Dimitrenko, I. N., Belousova, I. N., 2007; Bulyga, 2009).

**Table 1**

Assessment of the going concern assumption for the purposes of external financial audit

<table>
<thead>
<tr>
<th>Stage in the development of external financial audit</th>
<th>Purpose of external financial audit</th>
<th>Technology of external financial audit</th>
<th>Going concern assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I: From 12 century until the first half of 19th century</td>
<td>Confirmation of executed operations. Check for mistakes and irregularities or misuse</td>
<td>Thorough document inspection</td>
<td>Lack of theory or practice.</td>
</tr>
<tr>
<td>Stage II: From the second half of 19th century until 1903</td>
<td>Revealing random or deliberate mistakes in accounting. Evaluating business actual financial state and profitability.</td>
<td>Substantive examination</td>
<td>Early origins of the theory of the going concern assumption can be traced back to the German, French and Russian schools of accounting.</td>
</tr>
<tr>
<td>Stage III: From 1904 to 1933</td>
<td>Finding and reporting fraud.</td>
<td>Substantive examination and checks/verification for conformity Conducting survey and testing. Auditor sample.</td>
<td>The theory of accounting principles and its conceptual basis is evolving.</td>
</tr>
<tr>
<td>Stage V: From 1971 until present time</td>
<td>Confirming the accuracy of Annual Financial Statements and management evaluation of the going concern assumption.</td>
<td>Standardization of audit procedures; Testing accountancy. Testing internal control systems. Evaluating the management/board assessment of the company’s ability to continue as a going concern.</td>
<td>The going concern assumption is being adopted in international accounting and auditing standards.</td>
</tr>
</tbody>
</table>
Data systematized in Table 1 and external audit standards (MOC 570, 2004) show that:

- Historically, the going concern assumption was developed as a theory and practice for the purposes of accountancy to further become one of its fundamental principles;
- The going concern assumption has become the object/has been placed in the focus of external audit during periods of economic instability (i.e. difficult or uncertain economic conditions) when the need to protect investors has been particularly strong;
- External auditors check and verify the accuracy and correctness of annual financial statements/reports and assure that the going concern principle is applicable to the business entity;
- Use of the going concern principle and its assessment is specifically regulated by the accounting and auditing standards;
- Current auditing standards (MOK 570, 2015) are focused upon the going concern assumption, since it is used in the preparation of annual financial statements and the management has the responsibility to issue an assessment of the company’s ability to continue as a going concern for a period of at least 12 months.
- The going concern assumption for the purposes of external audit is valid for a period of time, usually 12 months as of the date of financial statement or balance sheet and needs to be evaluated for each reporting period.

We have also studied specialized literature which discusses the history, theory and practice of internal audit (Милър, 2007; Sridhar Ramamoorti, 2003). Results show that at a given stage of internal audit development, its risk management had such an impact that it virtually changed the very paradigm of its development to respond to the challenges of the 21st century. This calls for rethinking of professional standards and redefining the concept of internal audit (IIA, 2013). Thus, internal audit goes outside the scope of traditional approaches and enters the domain of risk management and corporate governance (Глейм, 2001). Subsequently, the nature of auditor engagement has also changed and internal auditors have become engaged in consulting activities and their plans and programs have been closely aligned with business development strategies. Stakeholders needs, represented by the company board and management, audit committees, external auditors or any third parties for effective risk management have resulted in assigning internal auditors a special role in the process of identification, assessment and analysis of risks in respect of the going concern assumption.
Although external and internal audit overlap in the assessment of the going concern assumption, the studied specialized literature and case studies provide sufficient evidence to distinguish between the role of external and internal auditors in the process against the following criteria:

**Table 2**

**Criteria for distinguishing between the role of external and internal auditors in assessing the risk in respect of the going concern assumption**

<table>
<thead>
<tr>
<th>Criteria for distinguishing between auditors functions</th>
<th>Internal Audit</th>
<th>External Audit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim of assessment</strong></td>
<td>IA aims to identify and assess the risks associated with the going concern assumption, to assure that risks have been evaluated and recommendations to management and stakeholders made to help minimize risks and ensure effective management</td>
<td>EA has the purpose to assess risks in order to give AFR users a kind of professional guarantee that said report was prepared in accordance with the going concern assumption</td>
</tr>
<tr>
<td><strong>Period of assessment</strong></td>
<td>This period can be shorter or longer than 12 months</td>
<td>For a period of 12 months from the date of AFR or balance sheet date</td>
</tr>
<tr>
<td><strong>Object of assessment</strong></td>
<td>IA assesses the impact of risk factors which determine whether the business may continue as a going concern or not; <em>Analyzes factors which have affected business operations positively or negatively.</em></td>
<td>EA verifies the correctness of financial statements, disclosures, and assessment on the part of management of appropriateness of going concern assumption</td>
</tr>
<tr>
<td><strong>Information sources for assessment</strong></td>
<td>Internal and external sources of information including operational data</td>
<td>Internal and external sources of information</td>
</tr>
<tr>
<td><strong>Professional opinion based on assessment results/data</strong></td>
<td>Internal auditors prepare an expert opinion in view of evidence gathered and assessment of risks for the period specified in the auditor’s engagement or advice provided</td>
<td>External auditors qualify their expert opinion in view of evidence obtained and assessment results for a period of 12 months as of the date of annual financial report/ balance sheet date</td>
</tr>
<tr>
<td><strong>Reporting assessment results</strong></td>
<td>The report is addressed to all stakeholders</td>
<td>The report is prepared on the basis of the nature of auditor’s engagement and obtained evidence.</td>
</tr>
</tbody>
</table>
**Making the assessment report public**

- It is defined by the nature of auditor’s engagement; It is publicized after the annual financial report has been checked and verified.
- It is not publicized – it serves to give information to the stakeholders.

**Assessment methodology**

- There is no special methodology for IA but it conforms to existing standards, regulations and industry sector laws.
- There is no special methodology for EA but it should conform to existing standards.

**Auditor’s responsibility for assessment results**

- Internal Audit gives assurance and acts as a professional guarantee without carrying any management responsibility.
- External Audit gives assurance and acts as a professional guarantee without carrying any management responsibility.

**Type of auditor engagement in terms of assessment**

- Providing assurance that risks have been correctly assessed and related processes duly controlled;
- Engagement for assessing and reporting key risks and associated control;
- Reviewing key risks and their management;
- Providing advice on the appropriateness of risk avoidance.
- EA engagement for agreed procedures;
- Inspection engagement;
- Engagement for expressing a reasonable degree of assurance;
- Engagement for expressing a limited degree of assurance;
- Engagement for compiling information;
- Audit of financial statement.

**Providing guarantee and assurance**

- Reasonable assurance; Professional in terms of engagement.
- Reasonable assurance; Limited assurance; Professional in terms of engagement.

**Communication and interaction of external and internal auditors during assessment**

- Coordination of risk assessment activity;
- Harmonization of risk assessment procedures and criteria;
- Use of results and evidence from the audit on risk assessment;
- Use of assessment results for audit purposes.

In view of the above analysis, the following **conclusion** can be made:

The internal audit role in assessing risk in respect of the going concern assumption is determined by the needs and interests of all stakeholders in the face of board, management, the audit committees and any third parties in order to effectively manage related risks, using control mechanisms and measures to minimize risk and respond to the risk appetite.
2. Opportunities for improving the risk assessment technology in respect of the going concern assumption under conditions of internal audit

The effects of the economic and financial crisis and subsequent bankruptcies have been taxing not only for entrepreneurs but for all stakeholders. They all assume/realize that a key problem under conditions of uncertainty is to manage risk related to the external environment, the activity, financial stability and sustainable development of the business entity.

In order to improve the risk assessment technology in respect of the going concern assumption under conditions of internal audit (IAASB, 2009; Панкратова, 2012) it is necessary to do the following:

- Identify the risk in respect of the going concern assumption for the purpose of internal audit

The process of risk identification in respect of the going concern assumption aims at defining the nature of risks which accompany business activities and business processes. To this aim, sufficient information should be gathered to ensure risk identification and classification for the purpose of effective risk management. From a theoretical and practical point of view, risks can be grouped on the basis of different criteria (Шапкин, 2003):

- In view of place of occurrence: risks can be internal and external;
- According to cause: objective and subjective;
- According to the type of activity: financial, operational, legal, organizational, investment, etc.;
- According to the stage of taking management decision: at the stage of taking the decision and at the stage of implementing the decision;
- In view of degree of manifestation: minimal, moderate, high, critical, and disastrous.

The above criteria can also be applied to the risks associated with the going concern assumption. This will help to identify, assess and manage risks in a more responsible and effective way. Internal auditors who are engaged in risk identification and assessment have a handful of methods at their disposal (Pickett, K., H. Spenser, 2010), which are also applicable to the going concern assumption and risks associated with it, e.g.:

- Expert methods: survey; interview; risk map/chart;
- Statistical methods: VAR; (CFAR); Stress Testing;
- Analytical methods: financial analysis; document analysis; analysis of business processes; benchmarking; factor analysis.
To achieve better coordination and interaction between internal and external auditors, it is necessary to systematize the risks in respect of the going concern assumption in view of the recommendations of international auditing standards. (ISA 570, 2015; MOC 570, 2004; IIA, 2013). These risks can be further evaluated on a ten point scale, then ranked and regrouped under the following categories: business processes, activities and divisions (See Table 3).

**Table 3**

**Classification of risks associated with the going concern assumption for the purpose of internal audit**

<table>
<thead>
<tr>
<th>Risk categories</th>
<th>Manifestation of risk factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
<td>Negative value of net assets.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change in payment scheme with clients.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adverse key financial ratios.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inability to pay creditors on due dates. Inability to comply with the terms of loan agreements. Change from credit to cash-on-delivery transactions with suppliers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inability to secure financial resource for development of the business.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Considerable losses from the business’s core activities and lack of back-up reserves.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arrears or discontinuance of dividends.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economically irrational debt instruments.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indications for filing for bankruptcy under the Trade Law.</td>
<td></td>
</tr>
<tr>
<td><strong>Operational</strong></td>
<td>Loss of key management without replacement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss of a major market, license or principal supplier.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Problems with staff qualification and shortage of raw materials.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overdependence on execution of a specific order or project implementation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Considerable reduction in production volume and volume of goods and services.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sales of raw materials and materials exceed sales of goods ready for sale or services.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss of key management without replacement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss of a major market, license or principal supplier.</td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>Non-compliance with capital or other statutory requirements.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pending legal or regulatory proceedings against the entity that may, if successful, result in claims that the entity is unlikely to be able to satisfy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Changes in law, regulation or government policy expected to adversely affect the entity.</td>
<td></td>
</tr>
</tbody>
</table>

- Developing a risk assessment scale in respect of the going concern assumption
Specialized literature (Уродовски, В. Н., А. А. Бахаева, 2011; IACOP, 2014; IPPF, 2009; Бутусов, Е., Р. Сафина, 2013) provides ample evidence on the use of different scales. To analyze risk factors associated with the going concern assumption, it is appropriate to develop a scale that can be used by both types of audit. Such a scale should be based on the assumption that risk associated with the going concern can be studied over a time period of 36 months, i.e., a period embracing a complete cycle, from occurrence to running of crises. Said scale may take into account current regulations or good practices in a given sector. It can also be based on the 5 point rank scales for assessing risk along the interval from zero to ten.

Risk ranking can be categorized into minimal, moderate, high, critical and catastrophic. The aim is to differentiate risk associated with the going concern assumption, in view of the frequency and power of its occurrence and consequences. This allows to evaluate the state of controls and upgrade them in time but it also provides an opportunity for the management to take due action and respond to risk in order to manage it more effectively and minimize it.

The advantage of such a scale is as follows: first, it can be applied by both internal and external auditors in the execution of the audit engagement; secondly, it covers periods exceeding 12 months and can be used for diagnostics and forecasts; last but not least, it works on the advice provided by internal auditors making it more specific and efficient but also more easily followed. (See Table 4)

**Table 4**

**Risk assessment scale**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Ranking</th>
<th>Score</th>
<th>Duration</th>
<th>Description of effects/consequences</th>
<th>Consequences for the stakeholders: customers, shareholders, employees</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Catastrophic</td>
<td>10</td>
<td>The consequences are beyond recovery/remedy</td>
<td>Winding down or discontinuing operations</td>
<td>Complete loss of trust on the part of all stakeholders.</td>
<td>Acquisition or bankruptcy</td>
</tr>
<tr>
<td>4</td>
<td>Critical</td>
<td>8-9</td>
<td>Could be recovered within a period of (24-36 months)</td>
<td>Winding down of business operations.</td>
<td>It results in temporary loss of trust on the part of one or more stakeholder groups.</td>
<td>Significant changes in terms of management, financial restructuring and change in strategic direction.</td>
</tr>
</tbody>
</table>
Risk is seen as minimal when its impact on the company’s financial situation and business results is negligible, having little or no effect upon the going concern assumption.

Risk is moderate when identified or felt within a specific sector or activity over a period of one year, and when it entails minimum loss of trust with one of the stakeholders groups. Such risk necessitates an immediate review or update of the business operational activity. The business is still able to continue as a going concern.

Risk is high, when recovery from its adverse effects can take up a period of one or two years. More than one area of activity is affected, which may cause realignment of production and strategic objectives/program. Furthermore, more than one stakeholder group exhibits a considerable degree of distrust. Cash flows are limited and changes in capital structure, board and operational management have occurred. The enterprise can be defined as a going concern provided there is a sound, financially backed strategy and a program for restructuring, renewal and stabilization is approved.

Risk is seen as critical when its consequences can be remedied within a period of 24 -36 months. Operations are discontinued over longer periods, stakeholders trust is seriously shattered, there is loss of markets, decapitalization, changes in the board of directors, restructuring of company operations and redesigning of business strategies. The going concern assumption can be applied if a remedial program is implemented or under way. In case of limitations which arise from filing for bankruptcy procedures, the going concern concept cannot be applied under the generally accepted accounting and auditing standards.

Risk is defined as catastrophic, when its consequences are beyond remedy because of closed down business operations, complete loss of stakeholders trust, decapitalization and market crisis, takeover or bankruptcy. The enterprise is unable to continue as a viable business.
- **Developing a risk assessment matrix for each risk factor associated with the going concern assumption.** The matrix is developed for the main business processes, identifying and assessing process associated risks in accordance with a chosen scale. If based around COSO - ERM model (COSO, 2004) the matrix could be presented by categories such as business processes, activities/operations, functions or departments and business unit overall.

- **Assessing likelihood of risk occurrence, frequency of occurrence, significance and risk consequences, in respect of the going concern assumption.**
  The purpose of this analysis is to rank the risks and choose appropriate methodology in accordance with internal audit procedures and available resources. These analytical procedures aim to identify factors associated with financial, operational and other risks related to the going concern assumption. It will be more expedient to apply a set of complementary analytical procedures that will help identify, evaluate and analyze risk factors but also gather relevant and substantial evidence for the execution of audit engagement. The findings of applied analytical procedures should be summarized and reported, to serve as recommendation basis. The following variants are possible:
  - Identified risks have no impact on the going concern assumption – in this situation, it is necessary to monitor their occurrence and development in time, i.e. internal audit is rather engaged in periodical monitoring whereby management exerts continual monitoring;
  - The risks identified have insignificant impact on the going concern assumption – in this case it is advisable to analyze the existing system of controls and if necessary, to update it, with board and management expected to develop procedures to respond to risk which will be subsequently followed and assessed by internal auditors;
  - Identified risks have a significant impact on the going concern assumption – under these circumstances, risks are identified as critical or catastrophic for the enterprise. In this context, internal auditors’ role is to present their reports to management and stakeholders and give advice on how to respond to risk and take due action to manage and minimize risks and contain negative effects on business unit development.

- **Developing an exemplary internal audit program for risk assessment, in respect of the going concern assumption**
  The purpose of such a program is to systematize the basic steps in the audit process stages providing appropriate procedures and work documents. Each program can be reviewed, updated and completed in view of the specific nature and purpose of the auditing engagement, available resources and time frame. (See Table 5)
**Table 5**

An exemplary program for internal audit risk assessment in respect of the going concern assumption

<table>
<thead>
<tr>
<th>Step</th>
<th>Method</th>
<th>Document</th>
<th>Reference</th>
<th>Auditor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning</strong></td>
<td>Evaluation of internal controls</td>
<td>Test for controls and their appropriateness</td>
<td>matrix risk – controls</td>
<td>Auditor</td>
</tr>
<tr>
<td>Risk identification</td>
<td>List of risks</td>
<td>Risk classification. Risk register</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk assessment</td>
<td>Ranking of risks</td>
<td>Scale and matrix for risk vulnerability / sensitivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of audit results</td>
<td>report</td>
<td>Advice/recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Actually Checks</strong></td>
<td>Review of strategies and programs for business development</td>
<td>Strategies and programs</td>
<td>Check lists</td>
<td></td>
</tr>
<tr>
<td>Review and analysis of accounting policies</td>
<td>Accounting policy</td>
<td>Check lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of contracts for raw materials, lease and rent terms, etc.</td>
<td>Contracts for: supplies, sales, rent, etc.</td>
<td>Check lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of contractors and payment due</td>
<td>Payment scheme</td>
<td>Check lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of credit payments</td>
<td>Types of credits and terms of credit payment</td>
<td>Check lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of legal disputes</td>
<td>Types of court/lawsuit cases</td>
<td>Check lists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The herein discussed procedures which aim to improve the technology of internal audit and risk assessment in respect of the going concern assumption can be summarized and presented in the following way: (See Diagram 1)

**Diagram 1. A summary of procedures designed to improve the risk assessment technology in respect of the going concern assumption**

In view of the above considerations, we should draw the **following conclusion**: To establish the role of internal auditors in assessing risk regarding the going concern assumption, it is necessary to apply the herein discussed techniques for improving risk assessment technology in auditing practices and develop a methodology that
takes into account both accounting and auditing standards and recommendations and good internal and external audit practices, industry sector peculiarities and the state of the country’s microeconomics.

Conclusion

Improvement of risk assessment technology in respect of the going concern assumption will help internal auditors to apply appropriate methods and procedures in their work towards a better quality and effective execution of their auditing engagements. This in turn will raise the role and significance of internal audit in the risk management process.

References

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INTERNAL AUDIT AND RISK ASSESSMENT CONNECTED WITH THE GOING CONCERN ASSUMPTION

Chief Assist. Prof. Ruslana Dimitrova, PhD

Abstract

The article presents an overview of the role of internal and external audit in risk assessment, connected with the going concern assumption. There are presented possibilities for improving the technology of risk assessment under conditions of internal audit as a basis for developing a methodology in the designated field.

Keywords: risk assessment, going concern assumption, internal audit, technology.
EFFECTS OF MARKET CONCENTRATION ON PROFITABILITY AMONG COMMERCIAL BANKS IN BULGARIA

Chief Assist. Prof. Alexander Todorov, PhD

Introduction

The market concentration is one of the basic indicators for determining the type of market structure and as such, it occupies a key position in the theory of imperfect competition. On one side the high market concentration is a prerequisite for coordinated behavior among the larger companies on a particular market which are in the position to set and maintain a price higher than the marginal costs. On the other side, the high market concentration could be in line with the greater efficiency of larger companies which have allowed them to obtain a larger market share. Because of these reasons the research of the impact of the market concentration changes is among the priorities both in theory and policy in the area of competition.

The purpose of the present study is to analyze the relation between the market concentration and profitability in theoretical and empirical plan. To illustrate empirically and evaluate the two hypotheses, information has been used about the commercial banks in Bulgaria for the period 2008-2013. Thus, the issue of banking sector competition is also referred to which has been an object of greater interest in recent years, partly conditioned by the financial crisis and the development of this sector in Bulgaria. The accomplishment of the set objective is related to the solution of the next tasks: (1) bring forward the theoretical link between market concentration and profitability; (2) draw up an empirical approach for checking the established dependences; 3) implement the approach and evaluate results.

1. Theoretical framework of research

The relation of market concentration and company’s profitability on a specific market has been defined for the first time in the so called paradigm Structure – Conduct – Performance (SCP).\(^1\) The paradigm presupposes that high market concentration is a prerequisite for coordinated behavior of the market participants. The coordi-

---

\(^1\) The model „Structure-Conduct-Performance“ is proposed at the end of the 30-s of XX-th century by the Harvard economist Edward Mason and is further developed later in the 50s of the last century by Joe Bain. Rakarova and Elenkova (2012) make a detailed presentation of him in Bulgarian; for the empirical application see Kondzhov (2003).
nation, in turn, could cause higher prices and making big profits. However, the empirical evidence for the presence of such relation is not explicit. Furthermore, the main argument against that “traditional” hypothesis consists in the fact that it is not the market power which is the main source of big profits in a specific sector, but the efficiency of the operating companies there.

The fundamental theoretical formulation of working out the relation between market concentration and profitability is based on the Cournot’s classic model. It is assumed that in a market with \( N \) number of companies which trade in a homogeneous product, the company manufactures and offers the quantities which would bring the maximum profit. In order to obtain a compact model explanation while retaining the main conclusions at the same time, the linear functions of company’s costs and market demand can be used. Each company’s costs are of the following type: \( C_i = c q_i \), where \( q_i \) is the quantity, offered by the company \( i \), where \( i = 1,2,...,N \), and \( c \) is a parameter. The function of the market demand has the following expression: \( P = a - bq \), where \( Q = \sum q_i \) and the market price, \( P \), depend on the market quantity, \( Q \).

Provided that the company \( i \) assumed the quantities of the competitive company for granted and all firms in the sector tried to make the highest profit, then the optimization problem for every company is brought to:

\[
\max_{q_i} \pi_i(q_i) = \max_{q_i} [P(Q)q_i - cq_i]. \quad (1)
\]

The first-order condition for maximum profit is:

\[
\frac{d\pi_i}{dq_i} = P + \frac{dP}{dQ} q_i - c = 0. \quad (2)
\]

The equation obtained can be transformed, where \( (P - c) \) are summed up, the whole expression is divided by \( P \), and the second expression is extended by \( (Q / Q) \). This means that:

\[
\frac{P - c}{P} + \frac{dP}{dQ} \frac{Q}{P} \frac{q_i}{Q} = 0. \quad (3)
\]

The first expression on the left side of the obtained equation can be extended by a company quantity \( q_i \). The second expression \( (dP / dQ) \cdot (Q / P) \) is a reciprocal value of price elasticity of demand. The last expression \( (q_i / Q) \) represents the company’s

---

market share \( i \), \( s_i \). Having this in mind the following can be obtained:

\[
\frac{\pi_i}{R_i} = \frac{s_i}{|\varepsilon_i|}, \tag{4}
\]

where \( \pi_i \) is company’s profit \( i \), and \( R_i \) are its sales profits, and the whole expression \((\pi_i / R_i)\) is an indicator of company’s profitability. The equation obtained allows the formulation of the hypothesis that in \textit{equilibrium under equal other conditions, the greater the firm’s market share, the higher its profitability.}^3

On the basis of equation (3) and (4) the relation between market concentration and profitability for the sector can be drawn. For that purpose the total sum of the correlation between a particular company’s profit and income should be found. This results in the following:

\[
\frac{\Pi}{R} = \frac{\sum_{i=1}^{N} (P-c)q_i}{\sum_{i=1}^{N} Pq_i} = \sum_{i=1}^{N} \left( \frac{P-c}{P} \right) q_i = \sum_{i=1}^{N} \frac{s_i^2}{|\varepsilon_D|} = \frac{H}{|\varepsilon_D|}, \tag{5}
\]

where \( H \) is the index of Herfindahl. This means that \textit{at equal other terms at sector level the average profitability has a direct positive relation with the market concentration level.}

The obtained theoretical interdependence can be put into practice in the next two ways. Firstly, referring to the deduced company’s equilibrium the relation between market share and profitability can be sought empirically. In the eventuality that such a relation is actually available, the possible explanation should be looked for not in the presence of market power, but in the greater efficiency of the companies which provide for the greater market share. Secondly, referring to the equilibrium at sector level, a positive relation between profitability and Herfindahl index should be expected. In this case the greater profitability is related to higher degree of market concentration, which could be interpreted as an indicator of coordination or exercising market power.

The theoretical ground of the last hypothesis is not deprived of criticism, most often related to the basic assumptions made. For example, in the context of Bertrand model in which the firms use price as a strategic parameter; an effective result can be achieved even with two firms only and, eventually the equilibrium price coincides

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3 It has to be noted that if a firm with great market share meets a strong elastic demand it could not take full advantage of its potential market power. In a situation like this the profitability should be low.
with the price levels in perfect competition (Rakarova, 1999). The theory of the contestable markets also suggests that even in highly concentrated markets the firms could possess strong competitive behavior, if the barriers for entry and exit are sufficiently low. The threat from contingent entry puts pressure on the established companies, thus maintaining the competition in the sector (Mladenova, et.al., 2010). Other theories, in turn, support the thesis that coordinated behaviour can be observed even in markets with low degree of concentration when companies are competing on several different markets simultaneously (Bernheim & Whinston 1990). These so called multi-market contacts create additional incentives for coordinated behaviour.

The remaining part of criticism is aimed at the direction of the causal relation between market concentration and profitability (Phillips, 1976). The efficiency hypothesis suggests that the structural characteristics of the market reflect the differences in the company efficiency rather than the competitive relations in the sector. According to this hypothesis, companies which achieve greater operating efficiency manage to obtain bigger market share which in turn leads to greater market concentration. Therefore, the indicators for market concentration can be viewed not as exogenous variables but as endogenous ones, i.e. they reflect differences in company efficiency. The market concentration as well as the other elements of the market structure could have been the result of plenty of other characteristics of firms and market such as the average company’s size, the variety of goods and services offered or the market size, itself.

Despite criticism, the empirical research in the relation between market concentration and profitability is not deprived of meaning. As Richard Schmalensee pointed out, this type of research „can show common dependencies which can produce useful stylized facts to guide theory construction and analysis of particular industries.“ (Schmalensee, 1989, p. 952).

2. Econometric approach and data

The methodology for checking the hypotheses deduced in the preceding part, is based on econometric specification which takes into account both the firm’s market share and the degree of concentration. In order to differentiate between the two hypotheses an expression of interaction of the two variables was introduced. Particularly, the common type of the econometric model has the following expression:

---

4 Previous research implementing similar specifications were those of Leonard Weiss, 1974, David Ravenscraft, 1983 and Michael Smirlock, 1985. Their research found out that after including the market share as an independent variable in the econometric model, the coefficient before the variable which calculates market concentration lost significance.
\[ PR_{it} = a_0 + a_1 MS_{it} + a_2 H_t + a_3 MSH_{it} + \sum_{i=4}^{n} Z_{it}, \]

where:
- \( PR_{it} \) indicator for the profitability of the firm \( i \) for the period \( t \);
- \( MS_{it} \) Market share of firm \( i \) for period \( t \);
- \( H_t \) Herfindahl index for period \( t \);
- \( MSH_{it} \) expression for interaction between market share and Herfindahl index;
- \( Z \) vector of additional control variables.

The selected econometric model specification allows various interpretations of the nature of key variables impact on profitability depending on the possible hypotheses about their coefficients. For example, a combination of coefficients in which \( a_1 > 0 \) and \( a_2 = 0 \), presumes that firms which have greater market share are more efficient than their rivals. In consequence, they are more profitable than the sector averages. At the same time, the rise in concentration does not lead to higher profitability.

Conversely, the combination of coefficients, in which \( a_1 = 0 \) and \( a_2 > 0 \), presumes that the market share does not refer to profitability, while profitability above average is due to higher market concentration. In this way, the combination \( a_1 > 0 \) and \( a_2 = 0 \) supports the hypothesis about firm’s efficiency whereas the combination \( a_1 = 0 \) and \( a_2 > 0 \) supports the hypothesis about coordinated behaviour.

These two cases do not exhaust all possible combinations of the coefficients \( a_1 \) and \( a_2 \). For example, a result in which \( a_1 > 0 \) and \( a_2 > 0 \), could be interpreted in two ways. The first one could support the hypothesis that a greater profitability is due to the higher concentration of the sector, where there is uneven allocation among firms and the firms with greater market share are more profitable. The second interpretation could be that the companies which are market leaders are more efficient as the higher concentration benefits coordination between firms.

The interactive expression MSH is added for an unambiguous interpretation of such a contingent result in the econometric specification employed here. If higher market concentration causes unequal distribution of profitability benefitting the firms with greater market share via coordinated behavior, the coefficient before the interactive expression should be a positive number, i.e. \( a_3 > 0 \). If there is no coordination it should remain in force that \( a_3 \leq 0 \).\(^5\) Table 1 summarizes the different options.

\(^5\) Regarding this last possibility Michael Smirlock pointed out that the coefficient before the interactive expression could obtain a negative value in cases, when the firm’s ability to implement advantages on the basis of greater effectiveness depends on the lack of big rival companies.\(^\text{(Smirlock, 1985, p. 74)}\). This implies that \( a_1 > 0, a_2 = 0 \) and \( a_3 < 0 \), and results should be interpreted supporting the efficiency hypothesis as a determinant of profitability in the sector.
Table 1

Hypotheses for the base parameters in the econometric model

<table>
<thead>
<tr>
<th>№</th>
<th>Hypotheses for coefficients</th>
<th>Profitability is defined by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$a_1 &gt; 0$</td>
<td>$a_2 = 0$</td>
</tr>
<tr>
<td>2</td>
<td>$a_1 = 0$</td>
<td>$a_2 &gt; 0$</td>
</tr>
<tr>
<td>3</td>
<td>$a_1 &gt; 0$</td>
<td>$a_2 &gt; 0$</td>
</tr>
<tr>
<td>4</td>
<td>$a_1 &gt; 0$</td>
<td>$a_2 &gt; 0$</td>
</tr>
</tbody>
</table>

A balanced panel of annual data for 21 commercial banks in Bulgaria for the period 2008-2013 has been used for the application of the formulated econometric model. The required data is extracted from the periodical publications in BNB about the state of the bank system in the country (BNB, 2014). In the data panel all banking institutions which are not branches of foreign banks and do not undergo transformations of possession in the covered period are included.

As a profitability indicator the “return on assets”, ROA, indicator is selected. It is calculated as a percentage of pre-tax profit and total assets of every banking institution at the end of the respective year. The market share, MS, is calculated as a percentage between each bank’s assets and total assets of all institutions collectively.

On the basis of the calculated market shares the Herfindahl index is formed, $H$, as the sum of the squares of the individual market shares. In this case the Herfindahl index can take the maximum value of 100 and the minimum value of 0. This was done regarding the comparison of obtained coefficients after the regression analysis.

The loan demand growth, $G$, the size of each banking institution, $S$, and the liquidity of each bank, $L$, are included as control variables. The loan demand growth, $G$, is calculated as a percentage of change of total loans and accounts receivable, adjusted for inflation by help of the GDP deflator in relation to the previous period. The loan demand growth is expected to have a positive impact on profitability because the positive rise in demand should extend the banks’ possibilities for making profits.

In order to control the impact of scale effects, a variable was constituted reflecting the size of each bank in the following manner: $S = 1/\ln(TA)$, where $TA$ are the total assets of the respective bank, adjusted for inflation. This is a reverse size indicator, 6

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6 The banking sector has been a subject of analysis in many recent studies, though, with a particular focus on efficiency of the banking institutions. For example, Aleksandrina Pancheva studies the determinants of banking operational efficiency, where one of the determinants is namely the Herfindahl index (Pancheva, 2013). A study by Gergana Mihailova analyses the banks efficiency but implements only the method of stochastic boundary (Mihailova-Borisova, 2014).
i.e. the bigger the respective bank, the less the value of S. Thus, if the coefficient before the variable is a negative number, that could mean, the bigger the bank, the more profitable it is, and vice versa. The last control variable is an indicator for liquidity, calculated as a percentage between loans and deposits, $L$. The greater the value of loans as part of deposits, the higher the risk for the bank. In order to offset the risk, the bank is expected to obtain greater return on investments. The coefficient before this variable is expected to be a positive number.

3. Empirical results

The basic descriptive indicators for average values, minimums, maximums and the standard deviation of variables are pointed out as the first step in the empirical analysis of the data described in the previous paragraph. The results are shown in Table 2.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Average value</th>
<th>Min.</th>
<th>Max.</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>0.90</td>
<td>-4.56</td>
<td>7.22</td>
<td>1.33</td>
</tr>
<tr>
<td>MS</td>
<td>4.61</td>
<td>0.08</td>
<td>17.17</td>
<td>4.39</td>
</tr>
<tr>
<td>H</td>
<td>8.55</td>
<td>8.00</td>
<td>9.24</td>
<td>0.50</td>
</tr>
<tr>
<td>G</td>
<td>2.80</td>
<td>-2.49</td>
<td>14.54</td>
<td>5.87</td>
</tr>
<tr>
<td>S</td>
<td>0.07</td>
<td>0.06</td>
<td>0.09</td>
<td>0.01</td>
</tr>
<tr>
<td>L</td>
<td>89.98</td>
<td>38.49</td>
<td>305.66</td>
<td>29.67</td>
</tr>
</tbody>
</table>

The results obtained show that the average profitability in the sample is 0.9%, while the standard deviation is 1.33%. The variation of market shares of banks is large, too; its average value is 4.61% with standard deviation of 4.39%. The variation is far too low at Herfindahl index, which is due to the fact that this indicator is measured for each of the existing years but not for every bank. The average value here is 8.55 with standard deviation of 0.5, which indicates that the market concentration in bank sector is relatively low.

The correlation coefficients between the different variables are pointed out as the second step in the analysis. The results obtained are shown in Table 3.
Correlation coefficients between variables

Table 3

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>MS</th>
<th>H</th>
<th>G</th>
<th>S</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1,00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>0,29</td>
<td>1,00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>0,45</td>
<td>0,00</td>
<td>1,00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>0,34</td>
<td>0,00</td>
<td>0,45</td>
<td>1,00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>-0,24</td>
<td>-0,79</td>
<td>0,08</td>
<td>0,03</td>
<td>1,00</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>0,27</td>
<td>0,11</td>
<td>0,20</td>
<td>0,02</td>
<td>-0,12</td>
<td>1,00</td>
</tr>
</tbody>
</table>

Remark: The results presented are applicable for Pearson coefficient.

The results show that all independent variables are correlated with the return on assets. The highest correlation coefficient is observed at Herfindahl index 0.45, whereas as market share it is also a positive number but only 0.29. It is notable that the market share is extremely correlated with the indicator for company size. Since the latter has been defined as a reverse indicator, i.e. the high value corresponds to smaller size; the correlation coefficient in this case is a negative number. The strong correlation is explicable with the fact that the larger banks are expected to have greater market share. The correlation between the Herfindahl index and bank loans growth is average as the correlation coefficient in this case is 0.45. The reported correlation coefficients between dependent variables can be viewed as an indicator for multicollinearity which would necessitate possible diagnostic procedures and corrections of the econometric model evaluation.

The econometric model in the previous paragraph is evaluated by the help of the method of the least squares (OLS) for the aggregate sample of all 126 observations. The results obtained prior to diagnostic procedures and corrections are shown in Table 4.

Table 4

Results from the static regression analysis

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coefficient</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const.</td>
<td>-9,4194</td>
<td>3,0553</td>
<td>-3,0829</td>
<td>0,0025</td>
</tr>
<tr>
<td>MS</td>
<td>0,7527</td>
<td>0,3797</td>
<td>1,9824</td>
<td>0,0497</td>
</tr>
<tr>
<td>H</td>
<td>1,3024</td>
<td>0,3065</td>
<td>4,2499</td>
<td>0,0000</td>
</tr>
<tr>
<td>MSH</td>
<td>-0,0812</td>
<td>0,0439</td>
<td>-1,8537</td>
<td>0,0663</td>
</tr>
<tr>
<td>G</td>
<td>0,0420</td>
<td>0,0186</td>
<td>2,2591</td>
<td>0,0256</td>
</tr>
<tr>
<td>S</td>
<td>-25,6588</td>
<td>25,7036</td>
<td>-0,9983</td>
<td>0,3202</td>
</tr>
<tr>
<td>L</td>
<td>0,0065</td>
<td>0,0034</td>
<td>1,9039</td>
<td>0,0593</td>
</tr>
</tbody>
</table>

Adj. $R^2 = 0,3435$
$F = 11,3343, p = 0,0000$
$N = 126$
The results indicate that all coefficients have the expected expressions. The market share has a positive impact on profitability of banks during the studied period; and in that case $t$-statistics is 1.98, while the coefficient is different and greater than zero at significance level of 5%. The coefficient of Herfindahl index is also a positive digit at a significance level from 1%, $t = 4.25$. The coefficient of the interactive expression for the market share and concentration is different, and greater than zero at significance level from 10%, where $t = -1.85$. The control variables for loan demand growth and liquidity are positive and significant, whereas the variable for bank sizes is insignificant.

The last step in the empirical analysis includes diagnostic tests of the econometric model. First, checking for the presence of panel effects indicates the lack of random effects, $LM = 0.38$ at $p = 0.70$, as well as a lack of fixed effects, $F = 1.19$ at $p = 0.28$. Second, on the grounds of this conclusion a check for heteroscedasticity of the static model by the help of the Breusch-Pagan test which shows in that case that the problem can be viewed as insignificant, $BP = 6.63$ at $p = 0.36$. Finally, with a view to a possible multi co-linearity between different independent variables the so called variance inflation factors (VIF) of particular variables are studied. The interactive expression between market share and Herfindahl index stands out with the largest factor ($VIF = 294.2$). In order to reduce its impact the standard errors of model coefficients, the independent variables are centered, i.e. reduced by the average value and the regression analysis is repeated at dependent variable return on assets. The results are presented in Table 5.

**Table 5**

Results of regression analysis with centered variables

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coefficient</th>
<th>SE</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const.</td>
<td>0.8986</td>
<td>0.0967</td>
<td>9.2876</td>
<td>0.0000</td>
</tr>
<tr>
<td>cMS</td>
<td>0.0576</td>
<td>0.0365</td>
<td>1.5766</td>
<td>0.1176</td>
</tr>
<tr>
<td>cH</td>
<td>0.9273</td>
<td>0.2231</td>
<td>4.1560</td>
<td>0.0000</td>
</tr>
<tr>
<td>cMSH</td>
<td>-0.0813</td>
<td>0.0439</td>
<td>-1.8537</td>
<td>0.0663</td>
</tr>
<tr>
<td>cG</td>
<td>0.0420</td>
<td>0.0186</td>
<td>2.2591</td>
<td>0.0257</td>
</tr>
<tr>
<td>cS</td>
<td>-25.6588</td>
<td>25.7036</td>
<td>-0.9983</td>
<td>0.3202</td>
</tr>
<tr>
<td>cL</td>
<td>0.0065</td>
<td>0.0034</td>
<td>1.9039</td>
<td>0.0593</td>
</tr>
</tbody>
</table>

Adj. $R^2 = 0.3435$

$F = 11.3343, p = 0.0000$

$N = 126$
The results after the corrections show that the coefficients before the independent variables retain their signs as the standard errors at coefficients of market share and Herfindahl index are reduced. The market share coefficient remains significant for level of significance of 10%, but this time at one sided $t$-test. The results for coefficients before Herfindahl index and the interactive expression are analogous to those of the model prior to corrections.

The results from the analysis which has been made show that there are not enough evidences which support the hypothesis for coordinated behavior, which would result in higher profitability of the larger banks. Data shows that profitability in the sector is defined by the efficiency of the operating banks or some other factors which are not included in the implemented model.

**Conclusion**

The relation between market concentration and profitability can be deduced within the frames of a static model of oligopoly in which the firms offer homogeneous product and choose the quantities as a strategic parameter (Cournot model). This relation is applicable only on sector level, i.e. between the average level of concentration and profitability. With regards to the particular firm its profitability is determined by its market share. However, in both cases the price elasticity of demand appears to be an additional factor defining profitability. The less elastic the demand met by companies, the higher the profitability.

The implementation of the theoretic model and its econometric specification in the banking sector shows that from the period 2008 to 2013 the higher profitability cannot be explained entirely with the higher concentration. The market share of the particular bank is important for profitability while at the same time there is no evidence of coordinated behavior between larger banks in the studied period. Moreover, the profitability seems to be in a positive relation with the concentration level but we should take into account the endogenous nature of concentration indicators. They depend on the firm’s market share and it is determined to a great extent by the efficiency of the specific organization. Obviously, the researched model suggests only one of the possible approaches for assessing the competition and does not take into account the competitive behavior of the firms. The future studies could be focused namely on the approaches which emphasize the firm’s market behavior or other markets.

**References**

EFFECTS OF MARKET CONCENTRATION ON PROFITABILITY AMONG COMMERCIAL BANKS IN BULGARIA

Chief Assist. Prof. Alexander Todorov, PhD

Abstract

The paper at hand presents a theoretical and empirical analysis of the relationship between market concentration and profitability using the banking sector in Bulgaria as an example. The two main hypotheses of the study are derived from a theoretical framework based on a static model of oligopoly. The first hypothesis suggests that companies with a higher market shares are expected to be more profitable, while the second hypothesis suggests that industry profitability increases with an increase in market concentration, measured by the Herfindahl index. To test these two hypotheses an appropriate econometric model is proposed. The model is estimated using a balanced panel data for commercial banks in Bulgaria for the period 2008 to 2013.

Keywords: competition, market structure, banking industry.
ASSESSMENT OF APPROACHES TO BUILDING
AN ANALYTICAL CRM SYSTEM

Assist. Prof. Yanka Aleksandrova

Introduction

Analytical CRM systems are at the point of intersection of two of the fastest developing information technologies of recent years - customer relationship management systems and business intelligence applications. Regardless of specialists different theoretical views and practical approaches towards the meaning and specific content of the "analytical CRM system", all of them unanimously define it as one of the fastest growing and promising areas in the IT industry.

A number of authors, ((Payne, Handbook of CRM, 2012; Chan, March, 2005; Payne & Frow, 2011; Peppers & Rogers, 2011; Stanimirov, E., 2010) view the analytical CRM system as part (component) of the integrated CRM system. Undoubtedly, the interaction of the analytical CRM system with the operational, collaborative and strategic CRM systems is a mandatory principle in building an analytical CRM system, but at the same time we believe that the analytical CRM system goes beyond the boundaries of the notions of "component", "module" or "part" of an integrated system and it should be treated as an independent system.

In a broader sense, analytical CRMs embrace all analytical functions, irrespective of their scope and the particular system in which those are realized. Because of that, such systems cannot be built as monolithic applications. They should possess capabilities for integrating all analytical functions and means to deliver analysis results to all interested users or parties.

The aim of the present publication is to assess the various approaches to building analytical CRM systems through an implementation of own criteria system. In order to achieve this aim, the following tasks should be formulated and executed:

1. Conduct a study on the advantages and disadvantages of available approaches towards building an analytical CRM system.
2. Develop a system of criteria for assessing the approaches under study.
3. Assessment of approaches against the applied system of criteria.
1. Approaches towards implementation of analytical CRM systems

The study of a series of review papers and reports\(^1\) in the area of analytical CRM systems, business intelligence and analytical systems shows that analytical CRM system can be realized by means of three basic approaches: as part of an operational or collaborative CRM system, as an independent business intelligence or analytical application or as part of a corporate business intelligence system;

1.1. The analytical CRM system as part of an operational or collaborative CRM system

All leading contemporary producers of operational and collaborative CRM systems support business intelligence and/or analytical functions in various degrees. These functions support mainly descriptive and diagnostic and to a lesser degree prognostic analyses as well as means of measuring key performance indicators. Often, these are offered in the form of boards of outputs (dashboards) for tracking key performance indicators, interactive charts and summaries, tools for generating consumer reports, possibility for exporting data to external systems for ex post analysis.

Some of the more important advantages of the above method of realization are presented below:

- the built-in functions are easily accessible by a wide range of users without any requirements for special skills and experience in developing analytical applications;
- the most commonly used analytical functions, consistent with the leading as well as the best practices are being integrated;
- problems with data integration from different sources are eliminated, since the analytic functions work with data supported by the CRM system;
- analytical functions are normally integrated in supported business processes.

Besides its advantages, this method of realization has several drawbacks, among which are:

- the scope of available functions is limited to those built in the system. In most cases, capabilities to generate new consumer reports, diagrams and scoreboards are set in advance;

\(^1\) The study was conducted on the reports of the company Gartner in the sectors “BusinessIntelligencePlatforms” (Sallam, Tapadinhas, Parenteau, Yuen, & Hostmann, 2014), “Sales Force Automation” (Desisto, Magic Quadrant for Sales Force Automation, 2014), “Operational Customer Engagement Center” (Maoz, 2014), “Multichannel Marketing Campaign Management” (Sarner, Beck, & Hopkins, 2014), etc. for the period 2011-2014, as well as (Lamont, CRM analytics - an array of options, 2010)
- limited scope of data being the object of analysis - covering only those supported in the database of the CRM system;
- limited business intelligence capabilities due to lack of data warehouse/storage facility.

Representatives of this development model are leading software producers involved in developing software for the purposes of automating sales force operations (Oracle Siebel CRM, SAP, Microsoft Dynamics CRM, salesforce.com and Sugar CRM), management of multichannel marketing campaigns (IBM, Teradata, SAS, Oracle Siebel CRM) and management of customer support centres (salesforce.com, Oracle Right Now, Pegasystem, Lithium Technologies).

1.2. Independent BI application

Under this development model, the analytical CRM system can be built as a separate business intelligence and analytical system, performing the functions of the analytical CRM. This approach can be applied in the following two types/varieties – as a stand-alone solution, developed by IT specialists from the particular organization, or by using analytical application packages (AAP).

The advantages of this approach, irrespective of its variety, are connected with the business intelligence technologies and analytical functions used. The business intelligence application allows for the use of technologies, which as a rule are not used in the operational and collaborative CRM systems such as data warehouse, data mining, OLAP, simulation and optimization analyses, etc. On the basis of these technologies, requirements towards analytical CRM systems are fulfilled to a greater extent, in terms of their functional completeness, scope and integrity of data.

There are however some major differences between the two varieties of this approach.

In the first place, the individual business intelligence and analytical application (IBIAP) makes it possible to fully meet consumer requirements and reflect the specifics of the business processes in the particular organization. However, to identify and keep record of these requirements can be a difficult and long process, which needs appropriate management and good knowledge of the specific activity, the decision-making tools, analytical models, etc. Quite often, users are unable to formulate their requirements properly or they are uncertain what metrics, key indicators, reports or analyses they need in order to make effective decisions. Through the use of analytical application packages, users get access to well-established metrics, best practices, reports and analyses, without having to define special requirements to those. In this way business users obtain not only the means for the realization of the analytical functions, but also the knowledge regarding their application in the process of Customer Relationship Management.
Normally, these analytical application packages support means for extraction and data integration from operational CRM systems. The analytical applications of Oracle (Oracle Analytical Applications), for instance, support adapters for integrating data from the operational systems of Oracle – Siebel CRM, PeopleSoft HCM\(^2\) and E-Business Suite Financials. In addition, the data meta-model can be modified and thus data can be mined from other sources too.

It is worth noting that the processes of mining, conversion and integration of data from heterogeneous sources demand considerable resources and time to build an IBIAP as compared with AAP. Experts evaluations show that (Rodwick, 2013) (White, 2013) time for the realization of the processes of mining, converting and loading data in an individual BI system is about 30% more than the time needed with the AAP.

The individual business intelligence and analytical applications are built around the needs of a specific organization as a result of a carefully conducted survey of the peculiarities of the business processes and user requirements. Theoretically, these applications ought to reflect more fully the peculiarities of the activity and satisfy users’ requirements to a higher degree. However, a survey conducted by Aberdeen Consulting Group (White, 2013) among organizations which use individual BI applications and analytical application packages shows that AAP offer a better analytical environment, manifesting itself in an easy access and wide use of tools for breaking up the data to the lowest detail level, scoreboards, interactive graphs, reports, etc.

According to the same survey, AAP exhibit significant advantages in terms cost and efficiency indicators. The costs per user with AAP are 35% lower in comparison with those with IBIAP. The detailed cost break-up shows that only the licensing costs with AAP are higher than those with IBIAP, whereas hardware costs, costs for professional services and maintenance are considerably lower. Particularly sensitive is the difference with regard to the costs, connected with maintenance, setting up and management of the systems, which with AAP are approximately 50% of those with IBIAP. Another important indicator illustrating the efficiency of AAP is the number of end users that can be supported by a single IT specialist. With AAP this indicator is 525, while with the IBIAP it is 271, i.e. one and the same number of end users can be supported by twice as few IT specialists as with AAP in comparison with IBIAP.

On the whole, the realization of the analytical CRM system as a separate application is a more labour-intensive and expensive approach as compared to the first one (part of an operational or collaborative CRM system), but this weakness is outweighed by the advantages with respect to ensuring a better analytical environment and scope of the data.

\(^2\) Human Capital Management.
With IBIAP, the considerable effort involved to build the application and integrate data from different sources can double the efforts of IT specialists, provided the organization has already built its corporate data warehouse. That is why availability of a corporate data warehouse and a business intelligence system can help the organization build its analytical CRM system not as an independent application, but make it part of the corporate business intelligence system.

IBIAP can be developed on the basis of platforms, provided by the leading producers of business intelligence and analytical platforms – IBM, Microsoft, Oracle, SAP, MicroStrategy, Tableau Software, QlickTech, etc. Among leaders in the area of analytical application packages are such household names as Oracle Analytical Applications, SAP Analytics, ZAP Business Analytics for Microsoft Dynamics CRM, etc.

1.3. Analytical CRM system as part of a corporate business intelligence system.

With this variant of development, the analytical CRM system is realized as part of the corporate BI system. This method of development is typical of organizations which have already built, or plan to build a corporate data warehouse and BI system.

In this case the analytical CRM system uses the data stored in the corporate data warehouse. Usually such data come from the various departments and organizational systems and their scope should embrace all necessary data for the analyses. With this approach a considerable part of the investment has already been made in connection with building the corporate data warehouse and introducing the business intelligence technologies and there could be expected shorter timeframes and lower costs of resources in the realization of the analytical system. At the same time it should be noted that during integration of data from a new department or information system in the corporate warehouse, it is often necessary to convert/transform the current data model and introduce changes in the architecture of the data warehouse or implement new BI technologies and analytical models, which have not yet been requested by end users.

The advantages of this approach arise from the business intelligence technologies used, taking into account the specifics of the business processes and users needs. The scope of the data in this method of realization is broadest, since data from all sources within or outside the organization are stored in the corporate data warehouse.

Representatives of the software producers for building an analytical CRM using this approach are Oracle Business Intelligence Applications, Microsoft BI Analytics, IBM BI, etc.
2. A criteria system designed to assess the approaches to building analytical CRM systems

Each of the above-mentioned three variants has its strengths, weaknesses and limitations of application. Companies which are planning to introduce a similar analytical CRM system must carefully weigh the capabilities provided by the different options, determine how each of them fits into the corporate strategy for customer management and organization development.

Indeed, taking into account the specific peculiarities of the subject areas can be of utmost importance in choosing a software solution for an analytical CRM system, but at the same time we could compare the presented advantages and disadvantages of each of the approaches by means of a system of assessment criteria. The herein discussed system does not take into consideration the peculiarities of a given organization, since these are unique, dynamic and require extensive research and study of the subject area. The purpose of using the criteria system is to compare the various approaches to building an analytical CRM system through numerical measurements of their strengths and weaknesses and take into account the weight of the latter in forming a comprehensive assessment approach. It should be noted that the system of criteria does not assess a concrete software solution, but rather the approach itself as a whole. Within a particular approach there are considerable differences in terms of technologies used, functionality, costs of acquisition and maintenance etc., which, for the purposes of the present publication, have been systematized in an overall assessment of the particular approach.

A study of the many and different sources in the area reveals that there is no system for assessing the approaches and therefore it is necessary to develop one. The assessment of the approaches could be carried out by means of the herein discussed system of criteria, which includes a set of criteria, weight of each criterion and numerical ratings of the approach in each of the criteria. The aim is to form a comprehensive assessment of the approaches and to draw conclusions about the most suitable one for the implementation of the analytical CRM system. As a result, eight more significant criteria have been chosen, and the weight of each criterion is arranged on a three level scale - from 1 to 3 - and reflects the author's expert assessment of its contribution to the total ranking of the approach. Level 1 corresponds to low significance of the criterion in the comprehensive assessment of the approach, 2 - average and 3 - high significance. Each approach is evaluated in 8 criteria with a rating from 1 to 3, respectively 1-low, 2-average and 3-high. Some of the criteria are presented with a negative weight, since they have a negative effect upon the comprehensive assessment. Inclusion of said negative criteria arises from the difficulties in building and managing analytical CRM systems. The sum total of the weighted ratings in all crite-
ria forms the final assessment of the approach, and the percentage of the maximum rating shows what part of the criteria of the "ideal" approach have been met.

The system proposed by us includes the following eight criteria:

- difficulties in building – this criterion has a negative effect on the assessment of the approach, since it assesses the time, costs, resources, skills, required for building the system;
- scope of the data – the criterion assesses to what extent the data - an object of the analysis - cover all necessary processes and events;
- adaptation to consumer needs/requirements - this criterion helps evaluate the capabilities of the analytical systems to modify the data model, the business intelligence and analytical tools (scoreboards with results, reports, interactive charts, metrics, analytical models and others) in accordance with the requirements of users and the peculiarities of the subject area;
- range of supported functions - the criterion shows the variety of means for visualization and analysis of the data, implemented business intelligence technologies, such as OLAP-cubes, data warehouses, datamining, as well as means for exporting and sharing data and analyses;
- optimization of building costs - this criterion helps evaluate whether the costs incurred in building the analytical system are appropriate in view of using the analytical system for purposes and by users that are beyond those, directly connected with the analytical CRM;
- predefined metrics, analyses and best practices - the criterion shows to what extent a certain approach provides easy access to preset and useful key indicators of presentation, analytical models, reports, best practices;
- accessibility of analytical functions - this criterion helps evaluate how easy it is for users to access the analytical functions and effort necessary to configure and use a particular analytical function, what the possibilities for sharing the data and for integrating the analytical functions in the performed business processes are;
- difficulties in system management – the criterion assesses the resource-intensity and the complexity of the processes of administering the setting-up and the customization of the analytical CRM system.

Assessment of thus formulated criteria is done using the expert assessment method (see Table 1), since there are no universal quantitative measurements, and if at hand\(^3\), these are quite different for the different software solutions. However, to

\(^3\) For example: number of IT specialists supporting a workplace; time for implementation/setting-up of the system; number of built-in analytical models/reports/scoreboards ; cost of acquiring and maintaining a workplace , etc.
determine the weight of each criterion in the comprehensive assessment is rather tricky insofar as it reflects the opinions of experts. There is no doubt that each criterion is significant, nonetheless, we believe that criteria could be graded in terms of significance. In the system we are proposing, the criteria of utmost importance for the final assessment are the difficulties in building and the scope of supported functions. These two criteria are used to rate two of the most important characteristics of the system – on the one hand it is the resources and the problems connected with its building, and on the other – the functionality of the system. Without disregarding the importance of the adaptation to consumer requirements and the use of predefined metrics, we believe that in comparison with the functional completeness, these two criteria can be categorized as criteria of average weight of influence over the final assessment. The idea is that the broad range of functions could to some extent offset the insufficient means of adaptation to consumer requirements and the built-in metrics and business processes.

Table 1
Assessment of the approaches to building an analytical CRM system

<table>
<thead>
<tr>
<th>Assessment criterion</th>
<th>Weight</th>
<th>1. Part of operational or collaborative CRM system</th>
<th>2. Stand-alone BI application</th>
<th>3. Packaged analytical applications</th>
<th>4. Part of a corporate BI system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulties in building</td>
<td>-3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Scope of data</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Adaptation to Consumer requirements</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Range of supported functions</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Optimization of building costs</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Predefined metrics, analyses and best practices</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Accessibility of analytical functions</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Difficulties in managing the system</td>
<td>-1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Limitations</td>
<td>Requires an implemented operational or collaborative CRM system, supporting analytical functions</td>
<td>None</td>
<td>AAP must support tools to engage with the data model of the systems-sources of data</td>
<td>Assumes the availability of a corporate BI system or data warehouse</td>
<td></td>
</tr>
<tr>
<td>Overall rating</td>
<td>13</td>
<td>9</td>
<td>16</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Percentage of the maximum rating</td>
<td>45%</td>
<td>31%</td>
<td>55%</td>
<td>45%</td>
<td></td>
</tr>
</tbody>
</table>

The ratings have been determined according to the possibilities which are provided by each variant, irrespective of the particular technologies chosen for its realization. The comparative analysis offers means to identify and assess the advantages and disadvantages of the approach as a whole, rather than assessing individual representatives of the latter.

In addition to the ratings of each of the criteria, the table above shows the most important limitations of each variant, which every organization must assess individually. These limitations determine whether the respective way of realization is applicable in the company.

The ratings of the approaches on each of the criteria are as follows:

- difficulties in building – in this criterion the ready-made solutions (approaches 1 and 3) have a lower degree of difficulty, respectively rating 1 for approach 1 and rating 2 for approach 3. The analytical application packages are rated at an average level of difficulty, since unlike the ready-made operational and collaborative systems they need more elaborate settings, mostly to engage external sources to the data model. Business intelligence and analytical applications developed mainly for the purposes of the analytical CRM system, or as part of the corporate BI system, are of the highest level of difficulty in the building. Their creation involves use of considerable resources to keep record of consumer demand, integration of heterogeneous data sources, choice and implementation of analytical models, metrics and reports and the use of a broad range of technologies for the management and analysis of the data;

- data scope – minimum data scope is found with the operational and collaborative systems, since analytical functions can use only the data stored in the sys-
tem. AAP on the other hand, provide opportunity to integrate data from several operational sources and because of that these have been given a higher rating. Approaches 2 and 4 provide an opportunity to secure the largest scope of data, which may include data from both internal and external systems;

- adaptation to consumer requirements – the highest rating in this criterion goes to approaches 2 and 4, which are developed as separate solutions for each individual organization. AAP offer better opportunities to modify the data model, tools for analysis, metrics and visualization of data in comparison with approach 1, which is why their ratings are 2 and 1 respectively;

- range of supported functions – in this criterion approaches 2 and 4 are rated the highest, since theoretically with them the range of the analytic functions could be broadened continually adding new technologies, analytical models, tools for visualization of data, etc.

- optimization of the costs of building – approach 1 is given the highest rating of optimization of costs, since the costs connected with it are absent or are minimal. They have already been incurred in connection with the purchase and the implementation of the operational or collaborative CRM system. The analytical functions integrated in these CRM systems are a bonus, which the consumers receive upon purchasing the ready-made solution.

With approach 4, a large part of the corporate warehouse costs have already been incurred, insofar as the approach presupposes the existence of an established corporate BI system or at least a corporate data warehouse. Through the use of approach 4 the organizations could increase return on investment made through raising the usability of the corporate BI system.

The costs connected with approaches 2 and 3 have been incurred only for the purposes of building an analytical CRM system and because of that these approaches are given the lowest rating in this criterion.

- predefined metrics, analyses and best practices. These are missing with approach 2 and 4, whereas with approaches 1 and 3 they present a significant advantage to the organizations. The producers of operational and collaborative CRM systems, as well as of AAP, develop the functions of the products offered by them on the basis of their rich experience with customers. The included metrics, analyses and reports reflect the best practices in the given sector and in this way provide the consumers with the opportunity to apply well-established knowledge and to concentrate on the use of that knowledge, but not on the means and the approaches necessary for its generation;

- accessibility of the analytical functions. With approach 1, the analytical ones are most easily accessible for the end users, the functions are built in well-
known applications which are used every day. A large part of the producers of operational and collaborative CRM systems offer also analytics built in the supported business processes, which further contributes to easier accessibility and wider usage of analytical functions. As a result, users could perform analytical functions without interrupting their current work with the system. The analytical functions are ready to use, eliminating the need for complicated settings. AAP also provide ease of access to analytical functions but as long as this is a stand-alone application, it still needs a further effort and development to integrate analysis in business processes.

In this criterion, approaches 2 and 4 receive the lowest ratings, since analytical functions are not built in the system and access to them requires considerable resource and effort. One of the reasons for the low rating provided by this criterion can be found in the survey results, cited under section 2.2.2., submitted by the company Aberdeen (White, 2013), which explicitly indicate that access to the analytical functions is easier with AAP as compared to the individually developed BI applications.

- difficulties in managing the system. In this negative criterion, approach 1 receives the lowest rating, since management of operational and collaborative systems is characterized by the lowest level of complexity. It usually does not require any special skills and is executed by the end users. In addition, the management and setting-up of AAP can be delegated to the business users, but it needs specific knowledge and skills about the built-in meta-model in order to configure and integrate data from external systems. Because of that this approach is rated with an average level of difficulty. Undoubtedly approaches 2 and 4 exhibit considerable difficulty in system management, which can be realized only by a team of highly-qualified specialists. Extensive knowledge, skills and expertise are also required in managing the data, integrating the wide range of technologies and improving the analytical models.

The comprehensive assessments presented in Table 1 indicate that it is impossible to identify a single approach, which is given a maximum rating in all criteria therefore it is irrelevant to talk of an only possible and suitable approach in building analytical CRM systems. Each of the approaches discussed above has its advantages and disadvantages, which alongside limitations, should be accounted for in choosing an appropriate method to build the analytical CRM system.

**Conclusion**

The results of this comparison and assessment gives us reasons to conclude that a mixture of several different approaches to build an analytical CRM would lead to combining the advantages of the selected approaches and compensating for their
weaknesses towards ensuring a better analytical environment, meeting consumer requirements more fully and higher degree of fulfilment of the goals and the tasks of analytical CRM.

The use of a combined approach is further emphasized by the fact that organizations often make use of several different analytical and business intelligence applications. This can be attributed to the existing variety of operating systems implemented in the organizations as well as the use of separate applications for the analysis of the data from each individual source. There are a number of applications available on the market, exhibiting different functionality and price characteristics while at the same time many companies prefer to use applications, which solve concrete tasks and offer the best functionality/cost ratio.

Having several different analytical applications available, companies are able to set a strategy for their integration into a unified system, rather than introduce an entirely new system. Usually this integration can be realized through building the analytical CRM system as a composite application based on Service-Oriented Architecture – SOA. The process of building such systems, however, requires considerable resources for planning, implementation and management.

The combination of several variants for building the analytical CRM system is further aided by the tools and technologies offered by leading producers. Each of the leaders in the area of operational CRM systems and business intelligence and analytical platforms - Microsoft, Oracle and SAP - provides opportunities for building an integrated analytical system. These opportunities manifest themselves in the provision of a platform for development of new applications designed for easy integration with the operational CRM system, provision of a platform for the development of business intelligence and analytical applications, offering AAP with built-in capabilities for data mining and analysis by operating systems and development and wide use of service-oriented architecture.

The applicability of the herein discussed system of criteria could also be developed in the following two areas:

- assessment of the advantages and disadvantages of the approaches herein discussed, in accordance with the peculiarities of the subject area. In this case the weight of each criterion could be set by each expert taking part in the assessment and thus change the impact of the criteria on the comprehensive assessment of the approach according to the views of the expert. Assessments of all experts can then be summarized to combine all viewpoints, which would provide a better foundation for choosing the building approach;

- assessment of a concrete software solution. After choosing the building approach, the same system of criteria could be used in assessing the advantages
and disadvantages of a particular software solution based on the chosen approach. In this case the system of criteria could be modified by changing the weights of each criterion once again according to the opinion of the experts. The assessment by each criterion will be made more precise, as it will be based on specific values in terms of necessary expenditure, job licences and timeframes for building and system implementation.

Works cited


APPROACHES TO BUILDING AN ANALYTICAL CRM SYSTEM

Assist. Prof. Yanka Aleksandrova

Abstract

The article assesses the advantages and disadvantages of the approaches to building analytical CRM systems using the author's own system of criteria. The results of the comparative analysis and the assessment indicate that there cannot be identified only one approach which can be classified as most suitable. Having in mind the advantages, the disadvantages and the limitations connected with the individual approaches, the author proposes building an analytical CRM system through combining different approaches and substantiates the feasibility of the combined approach through the use of service-oriented architecture.

**Keywords:** analytical CRM systems, SOA, business intelligence systems, packages of analytical applications.
TEACHING A SPECIALIZED LANGUAGE (BUSINESS GERMAN) - A REAL CHALLENGE FOR THE FOREIGN LANGUAGE TEACHER

Senior Lecturer Margarita Popova

Introduction

The concept of “specialized language”

Specialized language is the language used in a specific field or relevant to and characteristic of an industry. Specialized language is also intended to mean one that differs from the general language by specialized expressions and specific terminology. Specialized languages, together with the spoken language, dialects and regional variants, constitute the countrywide language of a nation.

Specialized languages are based on and constantly interact with the general language. The specialized language contains characteristic words and expressions, as well as foreign words (loanwords) / internationalisms primarily from the specific terminology. This language is almost unusable outside its intended field, or individual words from it may have a completely different meaning in the colloquial language. The grammar and even intonation may also differ!

Specialized languages belong to the standardized language variants. They also perform the function of group languages and spoken languages among specialists from the respective industry, however the aforementioned standardization distinguish them from other non-standardized languages of population groups in different regions and from the colloquial language. Each term used in a certain specialized language is called Terminus technicus. The totality of all terms constitutes its terminology. Many terms undergo changes as a result of the rapid development of science.

The professional language used in various scientific fields is changing also because of the increasingly growing number of foreign words seeping into it, mostly from the English language.

Specialized terms can be found in dictionaries compiled specifically for a particular field (economic, medical, legal, etc.). The different types of dictionaries contain either a straightforward translation, or include explanations and interpretations of the terms.

The purpose of this study is to present the various aspects of the nature and complexity of teaching a specialized foreign language (German), and to identify the
expected results and benefits from it, while the object of the study is the entire process of teaching, including the specific criteria, prerequisites and requirements to both sides, and the different strategies and methods used in this difficult endeavor.

1. Prerequisites for studying a specialized foreign language

Existing theoretical background in the respective field

The first precondition for studying a specialized foreign language is the students’ good understanding of the theory in their mother tongue. The in-depth knowledge of the specific problems and vocabulary/terminology of a certain field in the mother tongue would be a solid ground for those undertaking to master these in a foreign language.

General languages skills

Second comes the command of the respective general foreign language at least at level A2 (Goethe Zertifikat A2 or ÖSD Grundstufe Deutsch 2). In this case, the training in a specialized foreign language would correspond to that level of language skills. This would be conductive to satisfactory results of students with average goals as regards their foreign language training.

However, proficiency in a specialized language (in any field) requires advanced skills in the general foreign language corresponding to language levels B2-C1 (Goethe Zertifikat B2 / ÖSD Mittelstufe Deutsch 2 or Goethe Zertifikat C1 / ÖSD Oberstufe Deutsch). The higher the language level, the better!

Personal motivation

The motivation of students of any degree course for foreign language learning is essential.

Motivated people are much more active in this respect compared to unmotivated people. Furthermore, we should never ignore the fact that a person’s attitude towards the tasks assigned during the learning process is crucial for the final result. Foreign language learners have a chance of success only if they believe they are up to the task, and, on the other hand, they are bound to fail if the endeavor is preconceived as too hard or even impossible for them to undertake.

Existence of theoretical background in their mother tongue, good command of the general foreign language and the personal motivation of students are a sure guarantee for successful mastering of the specialized language.
2. Prerequisites for teaching specialized foreign language

Fluency in the general foreign language

The excellent language skills of teachers is a must if they want to take up such a responsible task as the teaching of specialized foreign language. Their language skills must correspond to the highest levels: C1-C2 (Goethe Zertifikat C1/ÖSD Oberstufe Deutsch or Goethe Zertifikat C2).

Good command of the specialized foreign language

The solid skills in the general foreign language allow further training in a specialized foreign language. This is not easily achieved and takes a long time. When preparing for this new task the teacher has to read a large volume of specialized literature both in their mother tongue and in the relevant foreign language, in order to get familiar with the nature and specifics of the specialized terminology of the respective field. It takes time and requires serious reflection on unfamiliar subjects. Furthermore, it requires some serious ambition if the teacher wants to be well versed and competent in this new field. However, all efforts are worthwhile, if the teacher wants to establish himself/herself as a specialist at the necessary level. This is truly a great challenge!

The teacher’s extensive knowledge in the respective field is crucial to the selection and preparation of educational materials and to the teaching itself. These constitute the solid ground for the teacher to step on.

Consultations with specialists

Teachers of a specialized foreign language can hardly be the greatest specialists in the specific field. Therefore it is often advisable to consult professionals who could help them understand and make sense of the scientific literature they have read. Teachers are not experts (economists); they usually have a degree in philology! However, they make great efforts to master all the intricacies and peculiarities of the specialized terminology before coming to the lecture hall to teach it.

The high professionalism of teachers proficient in general and specialized foreign language and the consultations with experts in the respective field can ensure the successful overcoming of all difficulties related to their immediate work.

3. Methods of teaching a specialized foreign language (Business German)

Before examining the methods and strategies applied in the specific task of teaching a specialized foreign language, we must be aware of our exact goals and the desired final results of our professional activities. Another important factor is the students’ year of study and degree course. Their language level should also be taken
into account in order to have clarity on the foundation for accumulating new knowledge.

For instance, students from year 2, 3 and 4 have already acquired both general training in the basic (economic) subjects in their mother tongue and general language training in the foreign language. However, when they encounter difficulties in the mastering of the specialized language, they feel they cannot cope with the challenge. The specialized language, as is well known, contains a large volume of terms and mastering it is a very demanding task. Great effort and diligence are required, and the personal motivation is the main driving force. That is why it is so important for the teacher to consider very carefully his/her teaching strategies and select the appropriate methods to be used.

In principle, it is advisable to include conversation-oriented exercises and tasks in the specialized language training. This involves teaching methods which stimulate the students and train them to cope by themselves with some assignments. Central among these methods are the ordinary repetitions, variations and finally students’ own language production in improvised role plays. Dialog exercises are particularly appropriate for achieving this objective. Listening, understanding and adequate language reactions in a given situation should become routine. Their automation can be facilitated by including strategies employing pantomime or game elements. Developing conversational skills and creating own language production (oral and written) are two of the main objectives that should play a main role in teaching.

It is also necessary to develop exercises for team work such as production of educational posters, organizing discussions (possibly beyond the scope of the relevant field), suggestions for project work and essay writing requiring selection of necessary materials from the Internet or other sources.

Relevance to the practice

At the beginning of each subject/chapter of the textbook it is appropriate to suggest a practical situation through which the learning process aimed at achieving active conversational activity would be greatly facilitated. With the help of this situation the students would imperceptibly delve into the new target subject. Only their belief that the subject studied will be useful and is based on the actual practice would allow them to achieve the desired end result.

Gradual introduction to the specifics

Language teachers in universities of economics need to constantly follow the latest and newest ideas, theories and trends in the theory and practice of corporate management, marketing, tourism, banking, accounting, etc., and then gradually in-
roduce them to the students. A guiding principle is to start from the lighter language material and from there **gradually** expand and deepen the knowledge. The application of European law influenced by the processes of expansion and unification should also be taken into account. This applies mainly to corporate management and the choice of legal form of the enterprise.

In the specialized foreign language classes teachers should further take into account the influence of the internal European market on the national economy of the individual Member States and the current trends in this area. For example, they may discuss how the economic activity is influenced by policies related to environmental protection, and by social problems. Due attention should be given also to **intercultural aspects and specifics**. Here the starting point could be the relationships existing on the European and American market. Information regarding the typical German economic reality could be given by the teacher primarily through real practical examples taken from the German economy, or statements made by leading German managers, and through topical texts, specially prepared and if necessary **adapted** for the purpose of language learning. The leading principle in their selection should be the **gradual** introduction to the specifics and the practicing of **specialized terminology** through examples taken **directly** from the economic reality, but appropriate for the level of the language learners.

This approach gives good results and is suitable for use in the language teaching process.

**Methods of teaching and practicing the specialized international vocabulary**

The task of teaching **specialized terminology** is always oriented to taking decisions and concrete steps and is invariably associated with a particular **scientific field**. To achieve these ambitious goals the teacher needs to develop specific **strategies** reflected in specially designed exercises.

**The technical terms** should always be defined and, if necessary, interpreted in detail. Here are two possible options for action:

- **Option 1:**

  The activation of **situative thinking** helps a lot in the interpretation of the large number of **foreign words** and **internationalisms** found in every specialized terminology. Very often the students are **already familiar** with these words from the lectures and seminars on the relevant discipline in their mother tongue. The students, as future professionals, should be given the task of explaining each **term** in their **own words** in the **foreign language** (German). Thus they will have additional incentive to speak, and such incentive is much needed and could be very useful to them. And,
when provoked in this way, in most cases the students will **themselves** gradually identify the (German) synonym(s) of the foreign word and its translation.

**e.g.: der Rabatt** = der/das Skonto / der Preisnachlass / der Zahlungsabzug / der Abzug vom Preis.

Most importantly, learners should not be just **passive** recipients, but become **active** participants in the studies. If we can get them to think, speak and participate, then we have achieved real success!

- **Option 2:**

  The teacher often explains in German specialized terms that are **unknown** to the students: internationalisms, i.e. explains descriptively their meaning in the **foreign language** (German) and only then gives the accurate **translation in the mother tongue**, focusing on their polysemy, if such exists. In some cases, as already mentioned, the students themselves arrive at the correct translation.

  This method can be illustrated by numerous examples here, however, cite only two that are sufficiently indicative.

- **Foreign words:**

  - **Logistics**

    The meaning of this term, which is one of the basic concepts of economics, is in most cases confused with that of the word “logic”. In such situations it is explained first that in economics “logistics” means “the aggregate of all the activities of a company starting from the supply of materials and ending with the transportation of finished products.” The concept, however, has a second meaning: “formulation of logical laws using mathematical symbols (mathematical logic)”. This meaning should also be mentioned.

  - **Diversification**

    Very often the meaning of this word is confused with that of the word “diversion”. “Diversification” means in economics “the expansion of the range of goods and products of an enterprise.” The other meaning of this term is “variety, change”. This meaning is also explained.

    Here it would be appropriate to explain what exactly the meaning of “diversion” is:

    1. side attack
    2. sabotage by the (class) enemy.

    In this manner a maximum clarity is achieved, and from now on every student will distinguish between the two concepts represented by foreign words.

    Thanks to this method of teaching, the specialized language learning plays an
important complementary role in the study of economic subjects in the mother tongue. It significantly enriches the student’s specialized vocabulary of both languages.

This fact can only make us happy, because in this way we contribute to the expansion of the future professionals’ knowledge in general. They feel truly satisfied that it is precisely during the specialized language learning that they have learned something new and important. Both sides participating in the learning process – students and teachers – experience satisfaction.

**Stimulating logical thinking**

Students constantly and inevitably encounter in the texts new, unfamiliar to them specialized German expressions and terms. Well, this is where it is our turn to act! Our task is to explain these descriptively, using the already known words and phrases. In case there are relevant synonyms of the new German concepts in the form of internationalisms, these should necessarily be mentioned and written down. A mandatory rule is to give all the synonyms and antonyms of the unfamiliar expression, so that the learners can remember them more en bloc.

E.g.: - **synonyms:** der Fremdenverkehr = der Tourismus / die Touristik / das Tourismusgewerbe / das Gastgewerbe
- **antonyms:** harter ↔ sanfter Fremdenverkehr.

Thus the logical and associative thinking of the students is activated, and in this sense it is a much more effective approach than the rendering of direct translation into the mother tongue. Due to this kind of thinking the students can themselves grasp the meaning of unfamiliar words.

And so we reach out to the students, guide them skillfully on the path to understanding the meaning of the specialized terminology and as a result they translate by themselves the unfamiliar concepts and expressions. The effect of this is incredible! Learners feel genuine satisfaction when this happens and they arrive at the correct translation. They are truly satisfied with the achievements and even proud of themselves. In this way their personal motivation for learning this difficult subject matter increases significantly and they want to learn more and more new things; they are simply won for the cause of “specialized foreign language”. The sense of confusion and helplessness is completely gone.

This teaching method is highly recommended and has proved repeatedly successful in the long teaching practice.
Illustrating the teaching material - an additional occasion for speaking and writing

The teaching material should be illustrated with tables, charts, posters, pictures, etc., in order to achieve a better visualization and give the students an overview of the subject matter. These visual aids could be discussed and serve as basis for drawing conclusions or making predictions.

To these can be added graphs and diagrams, which can also be discussed or commented, interpreted and explained. All such activities require knowledge and use of special verbs, clichéd phrases and whole sentences. These are used to check the acquired knowledge alongside the traditional tests, or could be included in such tests. This oral or written exercise would significantly increase the language skills of the learners.

Stimulating the creativity of students

The results of the learning largely depend on whether students are able to work independently with the foreign language outside classes, and then in class compare their own language production with that of the other participants in the course and assess their actual language skills. Very suitable for this purpose are the discussions in which they are actively involved, e.g. discussion of their answers to the home assignments: reading comprehension texts with possible answers Yes / No / No information available in the text. Such a discussion would be much more useful than the ordinary reference to the answer key in the relevant textbook.

What is important, however, are not only the results of the learning, but also the path to completion of the very process of learning. In its final stage it is appropriate to assign tasks dealing with comparing the economic situation in other countries to this in their own country. Tasks of this kind are an additional impulse for creativity, i.e. for creating students’ own language production (oral or written). Such exercises do not seek to define precisely the similarities and differences of domestic and international economic realities, relationships and processes, but rather to allow for a repeated usage and exercising the already mastered specialized concepts in a new context that personally affects the learners themselves. The ability to apply the acquired knowledge would undoubtedly be useful to the students in their future intercultural communication on economic issues with partners and colleagues from abroad.

Freedom of choice

One of the most important methods of teaching has always been to provide the students the opportunity for personal choice. This means that at the end of each topic/chapter there should be at least one pair of related subtopics, case studies or sit-
uations or a couple of questions for discussion, presentation, etc. from which they themselves can choose one case study or question, one subtopic or situation according to their own criteria and personal interests.

A famous German proverb says: “Wer die Wahl hat, hat die Qual” (Whoever has the choice, has the torment) In this case, however, this saying does not apply! On the contrary, students easily identify the more interesting and closer to them subjects and immediately sift out the boring, uninteresting and tiresome stuff. After all, every undertaking should be approached willingly and enthusiastically if there are to be any positive results! In this way the achievements would increase manifold. The attitude towards any human activity, as is well known, is crucial to its success. Another German proverb says: “Lust und Liebe zum Ding macht alle Arbeit gering”, i.e. “Loving your work makes it feel easy”. No task should be forced upon students, as it would be perceived as a major annoyance, and would only trigger their negative reaction. Students should always feel pleasure from their foreign language (German) studies and with that feeling it would be a lot easier to walk the long road to proficiency. This is how our mentality is wired and we must always take this fact into account.

From a psychological point of view it is precisely the active use of the foreign language in a casual atmosphere that is a guarantee for good results. If we can eliminate the element of compulsion in the exercises, then the learning process would proceed much easier and produce much better results.

During the course of study the students have practiced sufficiently the grammar and vocabulary of the respective language level. Everything learnt so far is now automated and the students can now quite naturally apply it actively in practice. At this stage we can “spur” the creative thinking of the people we work with. They experience as a real challenge the task of formulating and expressing their own thoughts in the foreign language; they demonstrate in this direct way the knowledge and skills they have acquired and are proud of their achievements, which in turn brings them real satisfaction. The transition to this stage goes quite unnoticed, which is the most valuable thing in this long and hard process!

But what happens in the meantime? – Reaching the level of proficiency sufficient for creating one’s own language production and being able to converse in the studied foreign language is a very complicated process, even if learners are not fully aware of this fact. During their oral or written presentations they make some mistakes (both grammatical and lexical). However, it is more important that the course participants already have gained the courage to express their own opinion on the topic, issue or thesis chosen by them, in front of an audience. They start to speak! The initial worry of possible mistake and most fears and inhibitions are finally overcome! This is
already a step forward, a true victory for them. They have achieved a higher level of language skills.

We in turn have to be very careful in our reactions to their mistakes – we have to correct the mistakes, so that students can learn from them and never again make them, which however should happen very delicately. We can also direct their attention to the specific manner of expression in the relevant industry and offer alternatives for formulating their own thoughts and structuring the text they themselves have created. In any case, it is necessary to encourage their initiative and the fact that they have chosen and worked on a topic or answered a question.

**Ensuring the desired results of the learning process**

At the end of each unit there should be tasks that would help to consolidate the new knowledge and skills acquired during that unit and to put them into practice. These tasks are generally aimed at reviewing the knowledge already acquired, but serve also to expand and enrich that knowledge by providing additional texts. The tasks are not at all obligatory for everybody, but allow a deeper insight into the topic. This type of tasks could be performed in class, individually or in groups, orally or in writing, but could also be assigned as homework, if their completion requires more time, for example for collecting and processing additional information, carrying out some kind of research or analysis, i.e. if they contain a creative element.

During classes the teacher can make suggestions/offer ideas for action, which would facilitate the individual work related to the foreign language, but this time in a completely different, extracurricular environment.

Students could be provided with information on relevant sources, e.g. educational literature such as specialized textbooks/ reference books/ dictionaries, or specialized newspapers/ magazines/ websites that would help in the preparation of papers and presentations, and would enable them to further develop their knowledge in their areas of interest.

**Summary**

In conclusion, I want to emphasize the fact that the specialized terms should always be taught in a practice-oriented specialized language training. They should no more be perceived by the future professionals as something completely remote and unfamiliar. A minimum of 500 terms would be sufficient for the students to expand their language competence so that they are able to express themselves accurately and competently in their future professional environment. The specialized terms should be selected according to the criteria “usefulness”, “frequency of use”, and “constant occurrence in practice”.
It is recommended that the fundamental and most important terms or expressions are written in different font and in bold type in the various textbooks so as to stand out clearly in the text. This contrasting technical representation is very important for their fast and easy mastering.

These fundamental and “inevitable” for the respective field terms would provide students access to any specialized literature of the field they find interesting. The new knowledge and additional current information acquired from this literature would noticeably enrich the students’ experience and professional skills. Their written or verbal communication with colleagues from abroad would improve significantly, from which they only stand to gain.

Language training in the professional field aims to increase the motivation of students throughout the course of study. They themselves must realize that their future employers will value ever more their general language skills and language competence in the respective field. And this is quite specific for each area of professional activity.

The solid language competence would help the future managers and employees of foreign companies in Bulgaria to contact and maintain smooth relations with companies from the German speaking region. The solid language skills would be very useful for interns in companies abroad and also for the students at universities of economics. Such skills are another open door on the way to their professional realization and career development. Students of such background will be able to participate in international projects, forums, conferences and discussions, which would allow them opportunities to express their own opinions and present their works and ideas.

The good command of a specialized foreign language would be of significant help to all those interested in passing exams for obtaining a certificate of proficiency in the relevant specialized language, for example the Wirtschaftsdeutsch International and WiDaF exams.

Finally, our professional goal would also be achieved!

TEACHING LANGUAGE FOR SPECIAL PURPOSES (BUSINESS GERMAN) – A REAL CHALLENGE FOR THE FOREIGN LANGUAGE TEACHER

Senior Lecturer Margarita Popova

Abstract

The article reviews the multi-aspect approach of the peculiarities and specifics of teaching of languages for specific purposes (Business German). The author departs from trying to define the meaning of the term „language for specific purposes“, which is then followed by explaining the reasons of the need for studying languages for specific purposes, as well as the
requirements and challenges for the teacher of such subjects. This is followed by a suggested
detailed itemized eight-step methodology for the delivery of this challenging subject matter.
Methods include close relation of teaching material to business practice, perpetual introduc-
tion of students into specialized themes and concepts, varieties of teaching, practicing and
learning hints of specific terminology, encouraging of critical thinking, use of graphs and oth-
er illustration of teaching materials, etc. encouraging student creativity activities for ensuring
positive learning outcomes.

**Keywords:** German for business, key competencies, language for specific purposes,
teaching business German at University.
ISSUES OF THE INVESTMENT PROCESS ON THE MARKET OF GOODS AND SERVICES IN THE REPUBLIC OF BULGARIA

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Introduction

In the course of last years the issues of the investment process in the economy of the Republic of Bulgaria, in particular those of the investment process on the goods- and-services market have become even more relevant. The reason for this is that investing reflects the process of creating and accumulating capital; yet, it also concerns the sustainability of income growth. In addition, the investment process on the market of goods and services is directly related to the characteristics of supply, the infrastructure of exchange, and together with those – to consumers’ welfare presented through the dimension of factual consumption. In defining and analyzing the investment process in the real sector there are also some unsolved issues concerning its content and criteria for optimization.

The goal of this article is to define the content and the criteria for optimizing investment process on the goods- and-services market in the context of the basic economic model, as well as to present a study of some basic characteristic features of the investment process that relate directly to income. In achieving this goal the approach is based on the Keynesian model of income and its application on a meso-economic level.

1. Theoretical issues of content and criteria for optimizing the investment process on the goods-and-services market.

Investing is actually the process of creating capital, e.g. acquiring or creating resources for using them in the production process\(^1\). This definition by J. Hicks from “A contribution to the theory of trade cycle” presents the nature of the investment process simultaneously with accumulating capital; yet, also as the process of creating resources in economy. Respectively, the investment process on the goods-and-services market is created by the resources in the form of long-term and short-term tangible assets that are used in exchanging goods and services. Together with it, the investment process should be continuous in time aiming at the achievement of optimum

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conditions of exchange both from the point of view of demand, and, on the other hand, supply.

The subject of this study is the common value, the structure and cyclic model of investment on the goods-and-services market, their mutual dependence on the overall investment process in Bulgarian economy, the level of efficiency in creating income, as well as its dependence on the overall investment process in economy. Through using serial correlations the article studies to what extent the empirical results (from studying the efficiency of the investment process author’s remark) could be used for prognosticating the situation in the future (future efficiency a.r.)².

Yet, besides on the company’s part (e.g. on the part of supply a.r.), investing and the investment process (within the macroeconomic framework a.r.) are also constituted by using part of the resources of the government, households and public organizations in the process of social production. In this process the formation and perfection of human capital is expanded, tangible and intangible assets are created, together with all forms of wealth. For these reasons, acquiring assets from the government and households, as well as creating social infrastructures, directing resources to education, using capital for research and development are also forms of investment, irrespective of the fact that they are carried out by various economic subjects with various goals³.

Therefore, within the macroeconomic framework both acquiring assets from households and the government and every use of their resource for perfecting the social production function and the labor factor are also investment process in nature⁴. In this line of thought one can draw the conclusion that the subjects of the investment process come both from the part of demand – households and, on the part of supply – companies. Respectively, the criteria for optimization in using their resources – companies’ capital and assets and households’ disposable income are directly linked with the current condition and expected changes of income and consumption.

On the goods-and-services market on the part of demand the basic criterion for optimizing the investment process is presented through maximization of usefulness, i.e. through maximizing consumption for households. In the context of the basic economic model on the part of demand and supply of goods and services, the investment process is simply using consumers’ resources – the households of particular individuals aiming at

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³ Hicks, J. see above.
⁴ Under “social production function” we mean not only the correlation between labor and capital factors in creating GNP, but also their inner structure. For the labor factor this is the correlation between long-term and short-term capital goods.
maximization of the marginal usefulness of the disposable income\(^5\). This definition of J. Keynes directly links the use of households’ resource to the dimension of factual consumption. Together with it, in “General theory” Keynes defines demand and consumption as the basic driving factor of production and supply. In this sense the level of an optimal investment process, the level of usefulness of the disposable income presupposes and is a factor of the optimizing the investment process in the real or factual sector of economy.

On the part of supply the investment process is actually using the resources of agents of supply (corporations a.r.) aiming at maximizing the value. Within the dynamics framework the investment process is directed to using the resource – creating and using capital, reaching the maximum marginal efficiency of companies\(^6\).

As seen from the above-mentioned definitions, the content of the investment process is focused on the meaning of investments both for the current and future condition of economy; therefore, it concerns the stages of development. In other words, the investment process cannot be viewed outside the context of the economic cycles\(^7\).

The same conclusion holds true for the goods-and-services market. Corporations’ investment process occurs on the ground of the process of creating and accumulating capital, as well as on the creating conditions for supply and demand that are directly linked to the stages of the economic cycle – growth, stagnation, decline. Therefore, the effects of the investment process go together with postponed in time end results, which are expected but unknown and insecure. Maintaining the current level of supply, consumption and welfare or their increase requires the respective maintenance or perfection of the tools of the investment process, perfection of the supply of goods and services, as well as perfection of the subjects and structure of welfare. Therefore, to the utmost possible degree the sustainable economic growth, increased supply and increased welfare depend on the creation and perfection of the extra tools of production, accumulation of capital and increased highly-qualified labour. In other words, the investment process is actually the increase and perfection of the elements of the production function of society: labour, capital and entrepreneurship above the level of depreciation, as well as the element of physical wear and tear of the existing ones. Investing is also the growth of the elements which belong to the social production function and it embodies the new technologies\(^8\).

The above-mentioned definitions of J. Hicks, J. Keynes, G. Debreu and P. Samuelson categorically define the content and the general criteria for optimizing the investment process on the goods-and-services market in the context of the basic economic model. The processes of creating and accumulating capital, acquiring assets and various forms of wealth on behalf of companies are optimal only if the marginal efficiency of their resources is maximized. Together with this, the investment process on the goods-and-services market can be defined as optimal only if the use of households’ resources is tied with increasing real consumption per every unit of disposable income. With all the complexity of the process, using the resources both on the part of supply and demand is optimal, if there is ultimate perfection of the social production function and, together with it, sustainable growth of income and real consumption is achieved. The first part of the optimization criteria is directly linked to the mutual dependence of effects of the investment process and the physical form of capital. The second part concerns the achievement of sustainability of these effects from the viewpoint of economic cycles.

2. Studying the condition of the investment process on the Bulgarian goods-and-services market

Because of the limited size of this study, we are going to focus our analysis of the investment process on the goods-and-services market mainly on its dimension, structure and efficiency in creating income in the context of economic cycles.

2.1. General dimension and cycles of the investment process in the sector of the goods-and-services market

In the years 2000-2012 the total volume investment in trade – gross capital creation (GCG) together with the value of stock reserves amounts to 455,990 bn BGN, which is average 76.34% of the total volume of investments in Bulgarian economy. For the same period total investments in GCG of trade are 24,850 bn BGN against 166,206 bn BGN for the national economy. I.e. the aggregate capital goods in trade accounts for 14.95% of the total aggregate capital goods in the real sector of Bulgarian economy.

In the investment process on the goods-and-services market one observes the following principles.

The highest relative share in the total investment process one observes in the years 2000-2004 –82.34% average. In 2005-2009 there is significant decrease of the

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relative share – between 76.62% in 2005 and 70.37% in 2009. In this period of time
the rate of the investment process on the goods-and-services market is lower than the
investment rate in the sphere of telecommunications and tourism; yet they still have
relatively the highest share in the overall investment-process. After this period the
relative share of investments on the goods-and-services market in respect to total in-
vestment in national economy again marks a gradual increase up to 76.88% in 2012
(Table 1).

**Table 1**

**Condition of the investment process on the goods-and-services market in the Republic of Bulgaria in the years 2000-2012**

<table>
<thead>
<tr>
<th>Years</th>
<th>Investmen t in trade (ml BGN)</th>
<th>Rate of investment in trade (%)</th>
<th>Investmen t in GCG in trade (ml BGN)</th>
<th>Rate of investment in GCG in trade (%)</th>
<th>Stock reserves (ml BGN)</th>
<th>Rate of stock reserve (%)</th>
<th>Investme nt in GCG in economy (ml BGN)</th>
<th>Rate of investment in GCG in economy (%)</th>
<th>Investme nt in economy (ml BGN)</th>
<th>Rate of investment in econom y (%)</th>
<th>Correlati on between investme nt in economy and investme nt in trade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>19113.870</td>
<td>*</td>
<td>778.355</td>
<td>*</td>
<td>18335.515</td>
<td>*</td>
<td>4332.750</td>
<td>*</td>
<td>22668.265</td>
<td>*</td>
<td>84.320</td>
</tr>
<tr>
<td>2002</td>
<td>23192.165</td>
<td>7.971</td>
<td>1151.134</td>
<td>30.753</td>
<td>22041.03</td>
<td>6.997</td>
<td>6080.871</td>
<td>9.402</td>
<td>28121.90</td>
<td>7.508</td>
<td>82.470</td>
</tr>
<tr>
<td>2004</td>
<td>27866.616</td>
<td>10.140</td>
<td>1485.599</td>
<td>12.296</td>
<td>26381.01</td>
<td>10.021</td>
<td>8119.433</td>
<td>18.870</td>
<td>34500.45</td>
<td>11.983</td>
<td>80.772</td>
</tr>
<tr>
<td>2005</td>
<td>32194.144</td>
<td>15.529</td>
<td>1888.363</td>
<td>27.111</td>
<td>30305.78</td>
<td>14.877</td>
<td>11711.51</td>
<td>44.240</td>
<td>42017.29</td>
<td>21.788</td>
<td>76.621</td>
</tr>
<tr>
<td>2006</td>
<td>35341.062</td>
<td>9.775</td>
<td>2588.146</td>
<td>37.058</td>
<td>32752.91</td>
<td>8.075</td>
<td>14297.70</td>
<td>22.082</td>
<td>47050.62</td>
<td>11.979</td>
<td>75.113</td>
</tr>
<tr>
<td>2007</td>
<td>43253.014</td>
<td>22.387</td>
<td>3774.781</td>
<td>45.849</td>
<td>39478.23</td>
<td>20.533</td>
<td>17264.11</td>
<td>20.747</td>
<td>56742.34</td>
<td>20.599</td>
<td>76.227</td>
</tr>
<tr>
<td>2008</td>
<td>46689.215</td>
<td>7.944</td>
<td>3277.613</td>
<td>-13.171</td>
<td>43411.60</td>
<td>9.963</td>
<td>23282.98</td>
<td>34.863</td>
<td>66694.58</td>
<td>17.539</td>
<td>70.005</td>
</tr>
<tr>
<td>2009</td>
<td>41802.299</td>
<td>-10.467</td>
<td>2126.917</td>
<td>-35.108</td>
<td>39675.38</td>
<td>-8.607</td>
<td>19724.54</td>
<td>-15.283</td>
<td>59399.92</td>
<td>-10.937</td>
<td>70.374</td>
</tr>
<tr>
<td>2012</td>
<td>49820.060</td>
<td>6.761</td>
<td>1722.256</td>
<td>-13.389</td>
<td>48097.80</td>
<td>7.658</td>
<td>16701.02</td>
<td>2.932</td>
<td>64798.83</td>
<td>6.399</td>
<td>76.884</td>
</tr>
</tbody>
</table>

The investment process on the goods-and-services market has cycles with clearly manifested growth, stagnation and decline in correspondence with the cyclical stages of Bulgarian economy. At the same time the market is comparatively more sustainable than that of national economy. The level of instability of the investment process of trade companies, estimated on the ground of standard deviation of rates, is

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7.36% with somewhat higher average level of instability of the investment process in Bulgarian economy: 9.09%.

The average rate of change of investments on the goods-and-services market is 8.57% vs. 9.54% for the economy; yet, in the stages of the economic cycle both processes develop differently. For example, in 2005 the growth of investment in national economy is 21.79% vs. 15.53% of the good-and-services market; while in 2008 it is 17.54% vs. 7.94%. At the same time, in the years of decline the decreased investment of commercial enterprises is lower than the one in national economy. Most clearly manifested is the process in 2010 when the rate of investment change on the goods-and-services market is positive (+3.52%) in respect to the negative one (-3.26%) as total for the economy. At the end of this period of time the rates of both investment processes are approximately equal: 6.76% for the goods-and-services market vs. 6.39% for national economy.

Average for the period of time the coefficient of correlation between the rates of investment of commercial enterprises and total investment in the economy of the Republic of Bulgaria is +0.993, which indicates a very high level of coincidence between the direction and dimension of change of both processes. The correlation between them is higher in years of growing economy (2000-2008) - +0.996 average, whereas in the years of economic crises 2009-2012 the interdependence between the rates of both processes is comparatively lower (+0.895). The findings of the analysis are shown in Table 2.

### Table 2

**Coefficient of correlation and systematic cycles (β coefficients) between the investment process on the goods-and-services market and the overall investment process in the economy of the Republic of Bulgaria**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Years</th>
<th>Average for the period of time</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rho[I_T; I_E]$(^{11})</td>
<td>0,993</td>
<td>0,996</td>
</tr>
<tr>
<td>$\beta[I_T; I_E]$(^{12})</td>
<td>0,804</td>
<td>0,952</td>
</tr>
<tr>
<td>$\beta[DMA_T; DMA_E]$(^{13})</td>
<td>1,035</td>
<td>1,481</td>
</tr>
<tr>
<td>$\beta[CZ_T; I_E]$(^{14})</td>
<td>1,964</td>
<td>2,236</td>
</tr>
</tbody>
</table>

\(^{11}\) Coefficient of correlation between the rates of investment on the goods-and-services market and investment in economy.

\(^{12}\) $\beta$ coefficient of investment on the goods-and-services market in respect to investment in economy.

\(^{13}\) $\beta$ coefficient of investment in ACG on the goods-and-services market in respect to investment in GCG in economy.

\(^{14}\) $\beta$ coefficient of investment in SR in respect to investment in economy.
The high level of mutual dependence is supported by the data about $\beta$ coefficients between the rates of the investment process on the goods-and-services market and the rates of the investment process in economy. With this coefficient one expresses the systematic and non-random nature of the direction and the value of coincidence between the two processes $\beta = \frac{cov_{ij}}{\var_{j}}$.\(^{15}\) Again estimates show high level of non-random systematic development of the two processes: average for the years 2000-2012 $\beta = +0.804$ with $+0.952$ in the years of growth and $+0.915$ for the years 2009-2012, which indicates that the development and cyclic nature of investment on the goods-and-services market are structural variables in the development of investment in national economy. In accordance with this conclusion, the implementation of the basic functions of the investment process in national economy which refer to creating and sustaining incomes and consumption depend to quite a considerable degree on the analogical indicators and the general characteristics of the investment process on the goods-and-services market.

Total for the above-mentioned period of time the $\beta$-sensitiveness of investment in ACG on the goods-and-services market in respect to net generation of capital in economy is $+1.035$, which proves that for the whole period of time the two processes developed identically. However, in the period of growth 2000-2008 $\beta$-sensitivity is $+1.481$ against $+1.076$ in the period of decline 2009-2012. This means that in economic growth the development of GCG on the goods-and-services market is more sensitive in respect to the development of GCG in economy. In the stage of decline and stagnation this sensitivity decreases and approximates 1 ($\beta = 1.076$).

The greater $\beta$-sensibility of the gross capital formation on the goods-and-services market in respect to the similar process in national economy in the years of growth indicates the following: while increasing the intensity of accumulating capital in national economy in the form of GCG, on the goods-and-services market the similar process has greater intensity. This accounts for more optimism in expectations for income and consumption. Yet, this process is also a prerequisite for creating an investment bubble as a result of the higher rates of gross capital goods on behalf of retailers.

The tendencies in the development of investment in reserves on the good-and-services market tend to go in the same direction, with even higher intensity. Total for the period of time the systematic sensibility of stock reserves in respect to the total

investment process is approximately twice bigger: $\beta = 1.964$. This means that for every 1% of changed investment in economy, the sensibility of investment in stock on the goods-and-services market is average 1.964 times higher. In the years of growth 2000-2008 this process is more intensive $\beta = 2.236$, whereas in the period of decline the systematic sensibility in stock reserves decreases to $\beta = 1.178$. The higher $\beta$-coefficient of stock reserves in the years of growth is an indication for extra optimism incurred by developed consumption and GDP. Yet, higher $\beta$-sensibility of investment on the goods-and-services market is a prerequisite for more cycles in the regulatory marginal efficiency which concerns retailers’ return on capital. In cases of efficiency of the investment process below the weighed average costs for the capital (WACC) there are present all prerequisites for creating an investment bubble in trade\textsuperscript{16}. This conclusion needs more argumentation by studying the efficiency of the investment process.

The findings from the study give ground to make the following conclusion: the investment process in trade is cyclical, with clearly defined stages of cycles in national economy. In the years of growth 2000-2008 the systematic non-random development of investment on the goods-and-services market in respect to the general investment process in the country is more clearly prominent for stock reserves compared to GCG. Supplying goods and services is considerably more sensitive to the growth of investment in national economy than the development of infrastructure in trade. The reason for this fact is that $\beta$ of stock reserves is 2.236 in respect to 1.481 of GCG. In the years of decline the development of the structure of the investment process on the goods-and-services market and the structure of the investment process in Bulgarian economy are almost identical.

**2.2. Efficiency of the investment process on the goods-and-services market in creating gross added value**

As it is already clear, the efficiency of the investment process on the goods-and-services market concerns the change of income per every invested unit. The findings of the analysis in regard to the growth of income are presented in Table 3.

\textsuperscript{16} Traikov, Hr. Finansov menidzhmynt v tyrgoviyata. Nauka i ikonomika, 2014, c. 258
Efficiency and marginal efficiency of the investment process on the goods-and-services market in the Republic of Bulgaria in the years 2000-2012\textsuperscript{17}

<table>
<thead>
<tr>
<th>Year</th>
<th>Chain rate of the gross added value in trade (%)</th>
<th>Chain rate of the gross domestic product (%)</th>
<th>Gross added value per 1 BGN of investment in trade (BGN)</th>
<th>AGAV/Δ Investment in trade (BGN)</th>
<th>Gross domestic product per 1 BGN of investment in economy (BGN)</th>
<th>ΔGDP/Δ Investment in economy (BGN)</th>
<th>Chain rate of GAV per 1 BGN of investment in trade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>*</td>
<td>*</td>
<td>0.295</td>
<td>*</td>
<td>1.211</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>2001</td>
<td>15.659</td>
<td>10.810</td>
<td>0.304</td>
<td>0.374</td>
<td>1.163</td>
<td>0.850</td>
<td>2.919</td>
</tr>
<tr>
<td>2002</td>
<td>13.365</td>
<td>9.482</td>
<td>0.319</td>
<td>0.510</td>
<td>1.184</td>
<td>1.468</td>
<td>4.996</td>
</tr>
<tr>
<td>2003</td>
<td>9.030</td>
<td>7.914</td>
<td>0.319</td>
<td>0.317</td>
<td>1.166</td>
<td>0.981</td>
<td>-0.057</td>
</tr>
<tr>
<td>2004</td>
<td>11.470</td>
<td>10.958</td>
<td>0.323</td>
<td>0.361</td>
<td>1.156</td>
<td>1.067</td>
<td>1.207</td>
</tr>
<tr>
<td>2005</td>
<td>5.736</td>
<td>14.067</td>
<td>0.295</td>
<td>0.119</td>
<td>1.083</td>
<td>0.746</td>
<td>-8.477</td>
</tr>
<tr>
<td>2006</td>
<td>20.861</td>
<td>13.850</td>
<td>0.325</td>
<td>0.630</td>
<td>1.101</td>
<td>1.252</td>
<td>10.099</td>
</tr>
<tr>
<td>2007</td>
<td>4.875</td>
<td>16.224</td>
<td>0.279</td>
<td>0.071</td>
<td>1.061</td>
<td>0.867</td>
<td>-14.309</td>
</tr>
<tr>
<td>2008</td>
<td>16.846</td>
<td>15.137</td>
<td>0.302</td>
<td>0.591</td>
<td>1.039</td>
<td>0.915</td>
<td>8.246</td>
</tr>
<tr>
<td>2009</td>
<td>3.787</td>
<td>-1.405</td>
<td>0.350</td>
<td>-0.109</td>
<td>1.150</td>
<td>0.133</td>
<td>15.920</td>
</tr>
<tr>
<td>2010</td>
<td>-2.158</td>
<td>3.205</td>
<td>0.331</td>
<td>-0.215</td>
<td>1.227</td>
<td>-1.143</td>
<td>-5.482</td>
</tr>
<tr>
<td>2011</td>
<td>-1.148</td>
<td>6.803</td>
<td>0.303</td>
<td>-0.048</td>
<td>1.237</td>
<td>1.403</td>
<td>-8.335</td>
</tr>
<tr>
<td>2012</td>
<td>8.931</td>
<td>3.693</td>
<td>0.309</td>
<td>0.400</td>
<td>1.205</td>
<td>0.714</td>
<td>2.032</td>
</tr>
</tbody>
</table>

In the years 2000-2012 the total size of the gross added value (GAV) created by trade companies on the goods-and-services market is 142.244 bn BGN. This accounts for 20.736\% of the gross domestic product (GDP) created in the same period of time, which amounts to 685.966 bn BGN.

Average for every 1 BGN invested on the goods-and-services market 0.312 BGN gross added value is created, versus 1.152 in total in economy. I.e. every lev invested by trade companies has considerably less efficiency compared to the aggregated indicator for national economy. The reasons for this low efficiency are due to the combined effect of the higher rates of growth of investment on the goods-and-services market in respect to investments in economy, as well as due to the lower rates of creating added value.

\textsuperscript{17} Estimates based on data by Eurostat: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=namq_10_gdp&lang=en, (16.01.2015)
At the same time, the process of creating income and its growth based on investments in the goods-and-services market has high level of instability and fluctuates between +15.9% in 2009 and +10.1% in 2006 up to -14.3% in 2007 and -8.3% in 2011 and -8.5% in 2005. During the last year of the studied period (2012) the growth of GAV per 1 lev of investment from commercial enterprises is comparatively low +2%.

Studying the marginal efficiency of investment on the goods-and-services market results into similar findings. In the period of time 2000-2008 characterized by accelerated economic growth, the marginal efficiency of every additional unit of investment is highly cyclical and reaches the highest values in 2006 and 2008, respectively 0.630 and 0.591; however, in 2009-2011 the marginal efficiency has negative values and the highest decline is in 2010: -0.215. In the last year of the studied period of time the marginal efficiency of investment in trade marks a serious growth: 0.400.

When comparing the results from analyzing the marginal efficiency of investment on the goods-and-services market with the aggregated indicator in total for the economy one observes that the coefficient of correlation between them is +0.854 average and fluctuates from +0.881 in 2003 to +0.99 in 2004 and 2011, but in 2012 the interrelation between the direction and dimension of the two investment processes decreases sharply to approximately +0.5. (Table 4).

**Table 4**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Years</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>ρ[marginal efficiency of investment in trade and marginal efficiency of investment in economy]</td>
<td></td>
<td>0,881</td>
<td>0,999</td>
<td>0,996</td>
<td>0,983</td>
<td>0,953</td>
<td>0,646</td>
<td>0,737</td>
<td>0,857</td>
<td>0,988</td>
<td>0,499</td>
</tr>
<tr>
<td>Serial correlation of the efficiency of investment in trade</td>
<td></td>
<td>-0,140</td>
<td>0,160</td>
<td>-0,910</td>
<td>-0,964</td>
<td>-0,956</td>
<td>-0,338</td>
<td>-0,397</td>
<td>0,266</td>
<td>0,354</td>
<td>0,166</td>
</tr>
<tr>
<td>Serial correlation of the marginal efficiency of investment in trade</td>
<td></td>
<td>-0,437</td>
<td>0,133</td>
<td>-0,949</td>
<td>-0,888</td>
<td>-0,990</td>
<td>-0,951</td>
<td>-0,152</td>
<td>0,033</td>
<td>0,588</td>
<td>0,174</td>
</tr>
</tbody>
</table>
These dimensions of the correlation coefficient give arguments to draw the conclusion that the marginal efficiency of investment in the goods-and-services market is tied very closely to the marginal efficiency of investment in the economy as a whole; besides, we can conclude that in the prevailing time of the mentioned period the process of generating income from investment on the goods-and-services market is closely tied to the general investment process and income generation in economy.

At the same time, in studying the serial correlation of efficiency and the marginal efficiency of trade companies in the same period, one could see clearly that the process of generating income in previous periods of time of the investment cycle does not transfer information about future periods of time. Therefore, the low dimensions of serial correlations mean that the return and rates in the past are not an argument for forecasting future tendencies.\(^\text{18}\)

Investigating serial correlation is one of the basic methods of analyzing the investment process. I.e. the achieved levels of efficiency and marginal efficiency of investment on the goods-and-services market from previous periods of time are not factors of the efficiency and marginal efficiency in future periods. It is a signal for increasing the insecurity of the investment process. In support of this conclusion there come the negative dimensions of serial correlation of the efficiency of investment on the goods-and-services market, which is -0.347 average, whereas the dimension of serial correlation of the marginal efficiency on the goods-and-services market is -0.379.

The dimensions found in the whole period of time are, above all, negative. In some periods of time the coefficient of the negative serial correlation of efficiency of the investment process on the goods-and-services market has very low dimensions: from -0.91 in 2005, -0.964 in 2006 and -0.956 in 2007. This means that in the years of high stable growth of GDP the growth of investment on the goods-and-services market does not correspond to a stable growth of added value. I.e. for trade companies the efficiency from the previous periods of time, presented by the growth of added value per every 1 lev of investment, has not transferred information and has not been a factor for increasing the efficiency in the coming periods of time. For the same period the serial correlation of the marginal efficiency of investment on the goods-and-services market fluctuates between -0.437 in 2003, -0.95 in 2005 and -0.99 in 2007. The resulting negative dimensions of efficiency and marginal efficiency in the years of stable growth until 2007 indisputably support the conclusion that the achieved di-

mension of efficiency of the investment process in trade is not a factor for optimizing the investment process in consecutive periods of time, as well as the fact that trade companies have not analyzed thoroughly the process of growth of the efficiency and its limits. Signals for changing the direction of the process have been given only in the years of decline – since 2010 and currently the dimension of current correlation of efficiency and marginal efficiency has comparatively low dimensions: +0.026 and +0.149, i.e. changes are still unconvincing.

**Conclusion**

The investment process on the goods-and-services market is a structural element of the general investment process in national economy with high relative weight. The process has high systematic sensibility and cycles in respect to the stages of national economy, at the same time it has relatively low efficiency from the point of view of generating income. In the analyzed period of time the information about the efficiency and stability of the investment process on the goods-and-services market from previous periods of time is not a factor for trade companies in achieving higher efficiency in consecutive periods of time, it is not a factor either for increasing the efficiency after the period of analysis. The comparatively low level of efficiency of the investment process on the goods-and-services market presupposes the low intensity of the process of generating and accumulating capital.

**ISSUES OF THE INVESTMENT PROCESS ON THE GOODS AND SERVICES MARKET IN REPUBLIC OF BULGARIA**

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**Abstract**

The investment process on the goods and services market is a structural element of the overall investment process in the economy, of the biggest specific weight. The process is of a clearly expressed cyclicity, closely connected with the phases of the economic cycle of the economy. At the same time the whole investment process on the goods and services market is of a relatively low efficiency. The low quantities and the negative values of the serial correlation of efficiency and marginal efficiency are proof that the information on the current state of the investment process on the goods and services market is not a factor for achieving higher efficiency on the part of trading companies in subsequent periods. The above sets as a prerequisite a low intensity of the creation and augmentation of capital.

**Keywords:** investments, efficiency, cyclicity, systemic sensitivity.
INTEGRATED MODEL FOR THE INITIAL MEASUREMENT OF ASSETS CREATED IN ENTERPRISES

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Introduction

Initial measurement of assets created in the enterprises is among the most significant, complex and complicated problems to be solved by accounting regulators, accounting scientists and the accounting departments of companies. This is an issue that is unlikely to ever lose relevance and is subject to serious dynamics in theoretical and methodological aspect, as well as in its practical application. The accounting information obtained in this field is expected to meet considerably high requirements – it has to be timely, comprehensive and high quality.

Initial measurement of assets produced in the enterprise is typically performed according to their cost. IAS 2 Inventories states that "a major problem in accounting for inventories is recognizing their cost as an asset and transferring it for future periods until the respective incomes are recognized" (IAS 2 – Inventories; Paragraph1). A considerable part of the said standard, as well as its analogue, National Accounting Standard 2 "Accounting for inventories" provides guidance for solving this problem.

Cost calculation is a point of contact and common application ground for the two main branches of accounting – financial accounting and management accounting. Accurate information about cost can function as a reliable foundation for various management decisions, as well as the true and fair representation of accounting information in the financial statements of the company.

Cost calculation in manufacturing organizations is an exceptionally complex and labour-consuming process. In this connection, the purpose of this article is to present an integrated model for the initial measurement of assets created in the enterprise. This model is expected to serve the needs of both financial and management accounting.

The achievement of the set goal is connected with solving the following research tasks: providing an overview and analysis of the theoretical foundation for developing the model; building the model and providing guidelines for its practical implementation.

1. Techniques of (approaches to) cost calculation.

A mandatory element in the overall cost calculation of the manufactured output is applying a certain approach (technique) of costing. The essence of this element is to
use a particular methodology for defining the cost of the manufactured assets by means of inclusion into the methodology the various expenses that make up cost. In this part of our paper costing techniques will be viewed as the basis for building the integrated model for initial measurement of assets created in the company.

There are various opinions in the specialized literature concerning this element of the costing process. Yonkova, Oresharov and Rupska (2010) discuss costing approaches. Lucey (2009), on the other hand, uses the term costing techniques. According to the said specialists, under an approach (technique) for cost calculation we should mean the particular methodology that is used for applying the company-chosen method of costing. In other words, the particular methodology under which manufacturing costs are distributed over the manufactured products in order to establish product cost. In as much as there is no substantial difference in the authors' opinions about the content of these two notions, they will hereinafter be used as synonyms.

However, authors do differ in their classification of the various approaches to costing that they define. Boychinka Yonkova (2010) distinguishes among the following four approaches: Absorption costing; Variable costing; Activity Based Costing; Throughput costing (Yonkova, Oresharov and Rupska, 2010, p.94). Lucey (2009), on the other hand, formulates the following costing techniques: Total Absorption Costing (equivalent of Absorption Costing); Marginal Costing (corresponding in content to Variable Costing); Activity Based Costing (cost-calculation based on activity) and Standard Costing (costing using standard cost) (Lucey, 2009, p. 189).

From the analysis of the above mentioned classifications it has become clear that they differ in two points. Yonkova (2010) views costing based on the manufacturing cycle (Throughput) as one of the techniques, while Lucey (2009) mentions Standard Costing. Throughput is in itself a management accounting technique, aimed at the optimal management of the entire organization by comparing total incomes to total expenditure (Yonkova, Oresharov and Rupska, 2010, p.116). Therefore this technique remains beyond the range of issues covered in this article. For this reason we are going to study Lucey's (2009) classification and attempt to provide an explanation concerning the basic points of applying each of the techniques mentioned.

**Variable/Marginal Costing** typically divides costs into two main groups – variable and fixed. According to the definition suggested by the Chartered Institute of Management Accountants, variable costs are those costs per unit of product which can be avoided if this unit is not manufactured (CIMA, 2005, p.45). In this regard all direct costs such as labour costs, costs of material and other direct costs associated with the manufacturing of a particular output, as well as the variable production costs, can be classified as variable costs. When variable costs are calculated, product cost
only includes variable production costs. Variable costing is particularly useful from a managerial viewpoint. Based on the information derived through this technique, calculations and analyses are made to find out the marginal revenue from the various kinds of production and production units.

**Absorption costing** can be viewed as an extension of, or a kind of upgrade on the cost calculated by the technique of Marginal Costing. With absorption costing, apart from the variable costs, cost of production also includes fixed general overheads. This is also the technique included in the stipulations of *IAS 2 Inventories* and *NAS 2 Accounting for inventories*. It is precisely this technique that is applied in calculating product cost and disclosing information about it in financial accounting.

Applying the approach of costing based on all production costs (Absorption Costing) also helps to apply the principle of matching of income and expense. Including fixed general overheads in the cost of various assets should take place by using appropriate bases, which is a very complicated problem facing teams of accountants. This is so mainly because of the increasingly expanding product ranges, on the one hand, and on the other hand, because of the growing share of general overheads in the structure of cost. If the basis for distributing general overheads is incorrectly selected, the result is an economically unfounded increase in product cost, at the expense of lowering the cost of another product.

As a solution to the problems outlined in the end of the previous paragraph, in the late 1980s, the idea of **Activity Based Costing** was born. Ever since this idea appeared, there have been published a number of studies by leading accountancy scientists (Kaplan and Burns, 1987; Cooper, 1994; Lucey, 2009; Iliev et al., 2012;) and others, which explain its essence and reveal the advantages and disadvantages of its usage. In the following passage we shall review the basic points of the ABC approach as they were discussed in the literature devoted to this technique.

At the basis of the ABC calculation approach is the causal connection between the objects of costing, the resources necessary for their production and the activities involved in transforming resources into output. The ABC approach requires that general expenses be allocated only over to the types of output that have resulted in the generation of these expenses. This allocation should be based on what best reflects the cost defining factor, so that a larger part of the general expense is assigned to the product that is "more to blame" for incurring the expense. In order to be applied correctly, the ABC technique demands identifying the cost-defining factors, the bases for cost allocation and the activities that generate general expense.

If ABC approach is applied correctly, the result will undoubtedly be much better quality information about the cost of output and much fairer allocation of production overheads among the various objects of costing. Provided that the additional expenses
associated with the application of the ABC approach are smaller than the benefits for the enterprise management, the said technique should be widely applied in the Bulgarian accounting practices.

**Cost calculation using standard cost** or **Standard Costing** technique is extremely useful and should be more common in the national business environment. When this technique is implemented, estimate product cost is suggested. Later on, planned cost is compared to actual cost achieved for the period. It is assumed that planned cost is called standard cost (Drury, 2007, p. 417-419), and the differences between planned costs and physical costs are called variances. One of the most important aspects of the application of the above mentioned technique is the in-depth analysis of variances in order to identify the reasons that led to them.

Applying the technique requires the establishing of standard levels for the various expenses involved in the manufacturing of company assets. Once standards are set, it is necessary to build a system for monitoring physically incurred actual costs and their comparison with the planned standards. Variances should be regularly accounted for so that eventually they could be subjected to analysis. Changes of the environment the business operates in have to result in a certain adjustment of standard cost levels.

Disadvantages of this technique are the initial costs of implementing it and the expenses associated with updating the standards and reporting variances. Besides, it is difficult to apply this technique in times of abrupt changes in the price of essential resources. It is recommended that in such periods, if possible, the cost standards for particular types of expense be replaced by quantitative ones. Thus the effect of the resource price changes will be neutralized or at least minimized.

Despite these disadvantages, there are a number of strong points in favour of applying the technique. The opportunity for exercising a timely and active control on the part of management is a huge advantage. Easier planning and forecasting resource security is also a strength. The solid basis for correctly estimating sales prices by applying the "costs +" pricing method is a plus, as well as many other.

Now is the time to pay attention to another interesting approach to costing, namely, **Target Costing**. In his work Lucey (2009) examines Target Costing separately from the cost-calculation techniques. However, there are a number of reasons for target costing to be included among them. In fact, Target Costing has a lot in common with the Standard Costing method. Both methods include two costs – one is the preliminary determined one and the other is the actually achieved one. Both costs demand an analysis of variances and looking into the reasons which brought about those variances, etc.

The Target Costing method appeared and was initially applied by large Japanese corporations like Komatsu, Sony, Isuzu, Toyota and others. Afterwards the method
gained an ever increasing popularity in the USA and Europe. It also attracts serious interest as a subject of publications by leading accounting specialists (Robin Cooper, 1992; Peter Horváth, 1993; Cooper and Slagmulder, 1997), and others.

A characteristic of Target Costing is market orientation and production sales. In essence it consists of setting a target cost based on the estimated market price of the product, after deducting the required rate of return. This serves as a starting point for the management of the company in making a decision whether to start a certain production or not. It is exactly the market orientation of the Target Costing technique that is among the main features which make it different from the other approaches to costing.

Compliance with market prices is at present mandatory for every organization operating in a competitive environment. With Target Costing this compliance is still at the stage of planning and forecasting the respective activity and can save a number of undesired effects of the manufacturing of output that the market does not demand or the product is demanded at a price that is unprofitable for the respective organization. All this provides a good argument for the conclusion that the use of the Target Costing technique would have a positive effect on the manufacturing companies in this country.

The costing approaches discussed in this part of our paper hold an important position in both accounting theory and the practice of accounting specialists. The next part of our paper will suggest a development of the above mentioned theses and their unification in what the author proposes as an integrated model for initial measurement of assets created in the enterprises.

2. An integrated model for calculating the cost of manufactured output.

In unison with Lucey's opinion (Lucey, 2009), it has to be noted that the above described methods of calculating product cost can be used in combination with the various other methods of costing. Thus, for example, the direct method of calculating cost can be applied while using the Standard Costing approach. To do this, standards have to be developed for the expenses that make up product cost by items of calculation and afterwards measure and analyse deviations from these standards. Similarly, the ABC costing technique can be combined with the proportional method of cost calculation. This can be achieved when, in compliance with the ABC approach, different bases for allocation of the various types of general expenses which make up the cost of products in parallel production.

The following assumption of the author could be made by way of developing the above mentioned idea. Apart from combining the various costing methods and techniques, I believe that the various costing techniques could be combined with one another. In the following part of this paper there will be presented the author-developed
integrated model of combining all the above described approaches to calculation. The model aims to achieve synergy and extract the positive effects of implementing each of them.

The model is based on Target Costing. According to the author, in the pre-production stage it is feasible to carry out market research about expected demand for the product and identify the price range within which the product will be sold. Next the desired long-term profit margin should be defined and deducted from the net market price. Technologists, production engineers and employees of the purchasing department have to draw up accounts about the estimated levels of product cost that can be achieved in the enterprise and thus formulate the Target Cost. In case Target Cost is equal to or lower than the difference between the market price and the desired profit, it is possible to start developing the Standard Cost. The methodology suggested by the author can be illustrated by the following figure:

**Figure 1. Defining target cost**

Standard cost should be developed on the basis of target cost and should reflect the current state. The current prices of necessary raw materials, levels of labour cost and production overheads are taken into consideration and standards are developed for each type of expense. During the manufacturing process levels of actual costs are compared to those of standard costs and deviations are analyzed. When the Standard Cost technique is applied, calculation can be illustrated by the following formula:
**Formula 1:**

\[ AC = SC \pm \sum D, \]  
where

- \( AC \) – Actual Cost
- \( SC \) – Standard Cost
- \( \sum D \) – sum of Deviations

The larger the number of expenses for which standards are developed, the greater the extent to which the benefits of applying the technique are demonstrated. At the same time, one should also obey the rule that benefits must not exceed the costs of their implementation, which mostly consist of complications in accounting procedures.

Given that the business manufactures more than one type of product, as is usually the case with most manufacturing enterprises, one should also apply the ABC approach, in order to allocate general expenses among the manufactured products. This should be done having in mind the cause-and-effect connection between output, activities involved in its production and the various general expenses that accompany the manufacturing process.

With the ABC technique one achieves the necessary information to apply the Absorption Costing approach. Under this approach, as it has become clear, product cost includes fixed production overheads taking into consideration the level of manufacturing capacity achieved. Thus information is also provided to the finance and accounting department, and in particular, information about the proportion of expenses that are to be included in the manufactured product cost and the expenses that have to be reported and disclosed as period expenses.

Based on the information about cost before allocation of general expenses and applying the approach of Marginal costing, one can define the marginal cost of every product item. This information, compared to the manufacturing capacity of the enterprise, could be of great help in planning and deciding on the optimal volume of production.

The model suggested by the author points at the interrelation and outlines the need of interaction between the various approaches. The model can be visualized in the following figure:
It can be claimed that in its larger part, the suggested model is generally valid for manufacturing enterprises and can be applied in a large number of them, after the necessary corrections concerning the peculiarities of particular organizations are made. In this aspect it can be noted that if a certain enterprise manufactures only a single type of product and, consequently, applies the direct method of product cost calculation, then there is no scope for applying the ABC technique. In such cases the model should be modified to meet the specifics of the manufacturing process in every enterprise.

The following can be considered disadvantages of the suggested model:

- The need for additional spending on market research and identifying the market prices for the products that the business plans to produce.
- The need for preparing maximally accurate estimations of price levels for both the end product and the resources involved in its manufacturing. The less correct planned accounts are, the higher the risk of starting an unprofitable production.
• The necessity of incurring additional costs related to training financial reporting staff and staff who will monitor the correct application of the model.
• The need for adapting the model and the technological time necessary for its implementation.

The advantages of applying the suggested model can be systematized as follows:

✓ Integration of various costing techniques enables the combination of the positive effects each technique generates on its own.
✓ A wide scope of model applicability. Following certain adjustment procedures, the model can be applied in initial measurement (by cost) of assets created in various manufacturing enterprises.
✓ Compliance with market conditions. By applying the model the risk of starting unprofitable productions is minimized.
✓ Possibility for control over spending manufacturing resources, which allows for timely actions to prevent losses.
✓ Information about product cost that is generated by using the model serves the objectives of both management and financial accounting.
✓ More accurate and complex information about the costs of manufactured assets. This information can be used for reallocation of available resources and using them for the most profitable lines of production.

Before company management makes a decision to implement the model, an assessment of the estimated effects of its usage should be carried out. Preliminary calculations could be made in order to provide monetary expression of the additional costs and projected benefits. Provided that benefits outweigh expenditures and the enterprise has the necessary capacity, it could proceed to implement the model.

Conclusion

The presented model integrates the positive aspects of various costing techniques. Implementation of the model requires the joint conscientious efforts of a number of teams in the manufacturing enterprise – from Marketing, Production, Accounting, Logistics and other departments.

To maximize benefits and minimize the expenses related to model application, it should be implemented in an automated system for reporting of expenses and calculating cost. Such a system would facilitate reporting procedures, reducing expenses to a minimum. In addition, management teams would have timely access to the information they need in order to prepare their strategic and operational management decisions. The electronic system can be an individual software product or be developed and implemented as a module to be incorporated in the company’s ERP system.
Application of the suggested model will result in considerable improvement of information about product cost. This information along with consideration for market conditions could be used by managers of manufacturing enterprises in at least two major aspects. Firstly, it can function as a basis for adequate pricing. Secondly, detailed and accurate information on product cost, with its constituent elements, can be viewed as a basis for identifying and using reserves for optimizing cost. This would inevitably lead to improving the competitive positions of manufacturing companies on both the home market and international markets.

References


ASSETS CREATED IN ENTERPRISES

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Abstract

The initial measurement of assets created in enterprises is among the most important, complex and difficult to solve issues, facing accounting regulators, scientists in the area of accounting and the accounting departments of companies. The aim of this article is to present
an integrated model for the initial measurement of assets created in the enterprise. The application of the model put forward by the author will help achieve considerable improvement of the information on prime cost. This information could be used in at least two aspects. As a basis for adequate pricing and planning the overall activity of the enterprise. And, on the other hand, the detailed and accurate information on prime cost and its elements can serve as a basis for discovering and realizing the reserves for its optimization.

**Keywords:** prime cost, costing, costing model, costing systems, initial measurement of production.
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