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**ANALYSIS OF THE ACQUISITION COSTS
AND ACQUIRED FIXED ASSETS FOR THE PERIOD 2008-2012
AND FORECASTING ON 2014-2016**

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***Abstract:** The report analyzes the status and the change of the costs of acquiring and acquired tangible fixed assets in Bulgaria for the period 2008-2012 based on data from the publications of the National Statistical Institute for 2013 and makes a forecast for the period 2014-2016, using the method of least-squares on a linear and quadratic function. Data have been tabulated and shown graphically for better visualization and perception.*

***Key words:** analysis, acquisition costs, fixed assets*

The costs of acquisition of tangible fixed assets include actual costs according to the publications of the National Statistical Institute, for the purchase of land, construction of various objects in economic way and by commissioning; supply and installation of fixed assets; acquisition of machinery, equipment and vehicles for development projects; amounts paid for geological surveys of mineral resources and hydrological studies; exploratory design work serving the construction industry; fruit-bearing perennial crops until brought into fertile age; productive and working animals and other costs for the purchase of fixed assets.

The costs of acquiring fixed assets include costs incurred for the purchase of fixed assets of second hand.

We should note that the volume of the acquired tangible fixed assets includes the value of all tangible fixed assets acquired regardless of their way of acquisition, which is done by construction or purchase.

Accounting for the acquired by means of construction tangible fixed assets occurs after their introduction into service under Ordinance № 2 of the Ministry of Regional Development of the Republic of Bulgaria.

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The aim of the work is to analyze the status and change of the costs of acquiring and acquired fixed assets for the period 2008-2012 based on data from the publications of the National Statistical Institute for 2013 and make a short-term forecast for the period 2014-2016, using the method of least squares on a linear and quadratic function.

1. Analysis of change of the costs of acquiring and acquired tangible fixed assets for the period 2008-2012

There is a reduction of the cost of acquisition of tangible fixed assets (total) in the period 2008-2010 with a small increase in 2011 and decrease again in 2012. The data for the costs of acquisition of tangible fixed assets (total) are given in Table 1 and presented graphically in Chart 1.

Table 1. Costs of acquisition of fixed assets - total (thousand levs)¹

2008	2009	2010	2011	2012
29 424 189	21 274 280	16 218 269	17 913 925	16 840 992

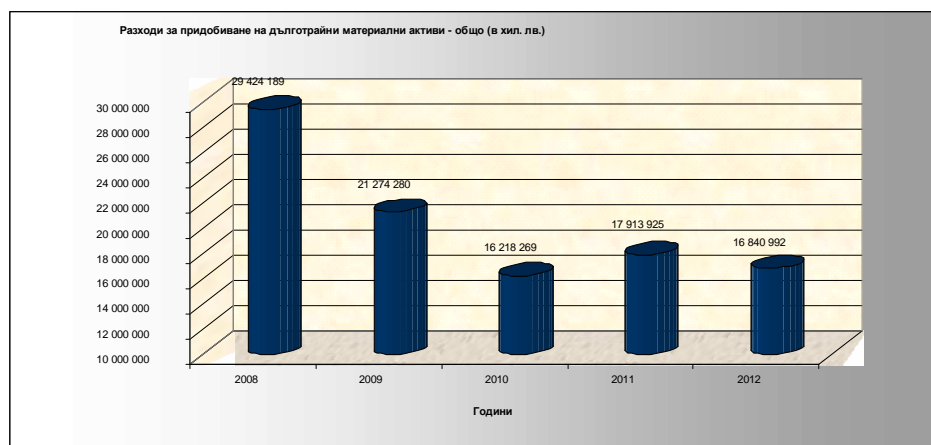


Chart 1

As a result of the occurred crisis in the country the change of the acquisition costs of tangible fixed assets shows a reduction of the costs incurred in 2009 compared with 2008 by 8,149,909 levs, ie 27.7%, also a reduction of the costs incurred in 2010 compared with 2009 by 5,056,011 levs, ie 23.8%; an increase in expenditures during 2011 compared with 2010 by 1,695,556 levs, ie 10.5%; a reduction in expenditures during 2012 compared with 2011 by 1,072,933 levs, ie with 5.99%.

There is also a reduction of the costs of acquisition of tangible fixed assets (land) with a small increase in 2011 and decrease again in 2012. The data for the costs of acquisition of tangible fixed assets (land) are given in Table 2 and presented graphically in Chart 2.

¹ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

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Table 2. Costs of acquisition of tangible fixed assets - land (thousand leva) ²

2008	2009	2010	2011	2012
3 525 990	1 989 006	1 091 585	1 534 227	913 456

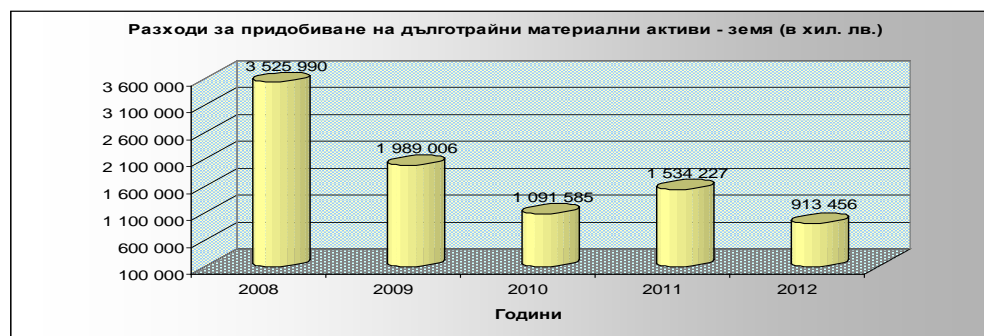


Chart 2

The change of the costs of acquisition of tangible fixed assets (land) shows a reduction of the costs incurred in 2009 compared to 2008 by 1,556,984 thousand leva, ie 43.6%; a reduction of the costs incurred in 2010 compared to 2009 by 897,421 thousand leva, ie 45.1%; an increase in costs during 2011 compared to 2010 by 442,642 thousand leva, ie 40.6%, a reduction of the costs incurred in 2012 compared to 2011 by 620,771 thousand leva, ie 40.5%.

There is a variable change, which includes: reducing the costs of acquisition of tangible fixed assets (buildings, equipment and constructions) in 2009 compared to 2008; a decrease in 2010 compared to 2009; an increase in 2011 and decrease 2012. The data for the costs of acquisition of tangible fixed assets (buildings, equipment and constructions) are given in Table 3 and presented graphically in Chart 3:

Table 3. Costs of acquisition of tangible fixed assets - buildings, facilities and constructions (thousand leva) ³

2008	2009	2010	2011	2012
12 887 776	10 499 733	7 697 177	8 266 052	7 452 733

The change the acquisition costs of tangible fixed assets (buildings, and construction equipment) shows a decrease of the costs incurred in 2009 compared with 2008 by 2,388,043 thousand leva, ie 18.5%; a reduction of the costs incurred in 2010 compared with 2009 by 2,802,556 thousand leva, ie 26.7%; an increase in costs incurred in 2011 compared to 2010 by 568,875 thousand leva, ie 7.39%; a reduction of the costs incurred in 2012 compared to 2011 by 813,319 thousand leva, ie with 9.84%.

² Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

³ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

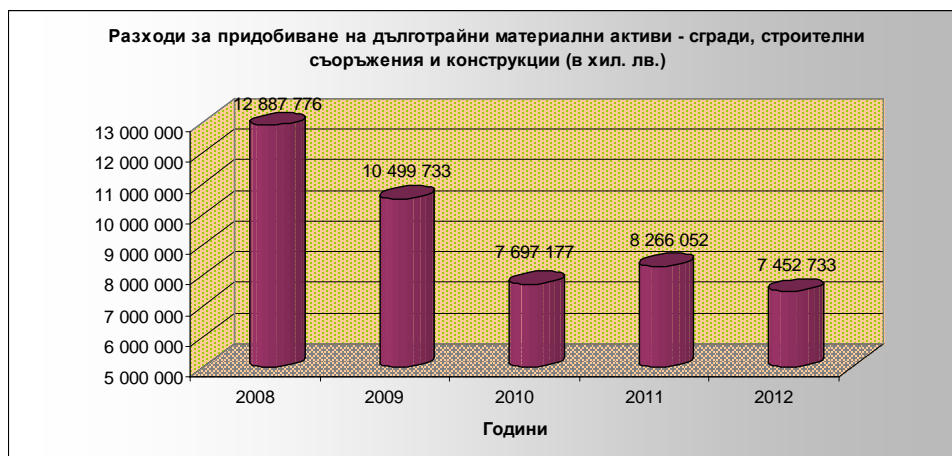


Chart 3

There is a reduction of the costs of acquisition of tangible fixed assets (machinery, equipment and vehicles) with a small increase in 2012 compared to 2010 and 2011. The data for the costs of acquisition of tangible fixed assets (machinery, equipment and vehicles) are given in Table 4 and presented graphically in Chart 4.

Table 4. Costs of acquisition of tangible fixed assets - machinery, equipment and vehicles (thousand levs) ⁴

2008	2009	2010	2011	2012
11 417 454	7 553 609	5 945 227	6 614 232	7 244 597



Chart 4

The change of the acquisition costs of tangible fixed assets (machinery, equipment and vehicles) shows a reduction of the costs incurred in 2009 compared to 2008 by 3,075,015 thousand levs, ie 28.4%; also reduction of the costs incurred in 2010 compared to 2009 by 809,473 thousand levs, ie 11.7%: a reduction of the costs incurred in 2011

⁴ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

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compared to 2010 by 592,864 thousand levs, ie 9.33%; an increase of costs incurred in 2012 compared to 2011 by 888,810 thousand levs, ie 13.98%.

There is a variable change that includes: an increase the acquisition costs of tangible fixed assets (other expenses) in 2009 compared to 2008; a decrease in 2010 compared to 2009; an increase in 2011 and again, an increase in 2012 . The data for the acquisition costs of tangible fixed assets (other costs) are given in Table 5 and presented graphically in Chart 5:

Table 5. Costs of acquisition of tangible fixed assets - other costs (thousand levs) ⁵

2008	2009	2010	2011	2012
1 592 969	1 231 932	1 484 280	1 499 414	1 230 206



Chart 5

The change of the acquisition costs of tangible fixed assets (other expenses) shows an increase of costs incurred in 2009 compared to 2008 by 187,834 thousand levs, ie 24.7%; a reduction of the costs incurred in 2010 compared to 2009 by 17 988 thousand levs, ie 1.9%; an increase in costs during 2011 compared to 2010 by 167,898 thousand levs, ie 18.1%; an increase in costs during 2012 compared to 2011 by 133,422 thousand levs, ie 12.16%.

We observe a reduction of the acquired tangible fixed assets (total in value) over the period 2008-2010 with a small increase in 2011 and decrease in 2012. The data for the acquired tangible assets (total, values) are given in Table 6 and presented graphically in Chart 6.

Table 6. Acquired tangible fixed assets - total, values (thousand levs) ⁶

2008	2009	2010	2011	2012
22 261 128	18 439 801	15 552 551	16 921 196	14 598 944

⁵ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

⁶ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

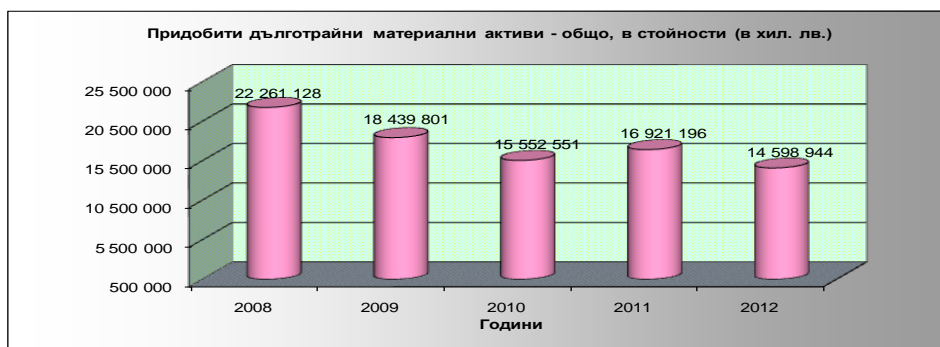


Chart 6

The change of the acquired tangible fixed assets (total, values) shows a decrease of the acquired tangible fixed assets (total in value) in 2009 compared to 2008 by 3,821,327 thousand levs, ie 20.7%; also reduction of the acquired tangible fixed assets (total in value) in 2010 compared to 2009 by 2,887,262 thousand levs, ie 18.6%; an increase of the acquired tangible fixed assets (total in value) in 2011 compared to 2010 by 1,368,645 thousand levs, ie 8.8%; a reduction of the acquired tangible fixed assets (total in value) in 2012 compared to 2011 by 2,322,252 thousand levs, ie 15.9%.

There is a reduction of the acquired tangible fixed assets (land) during the period 2008-2010 with a small increase in 2011 and a decrease again in 2012. The data for the acquisition of tangible fixed assets (land) are given in Table 7.

Table 7. Acquired tangible fixed assets - land (thousand levs) ⁷

2008	2009	2010	2011	2012
3525990	1989006	1091585	1534227	913456

The change of the acquired tangible fixed assets (land) shows a decrease of the costs incurred in 2009 compared to 2008 by 1,556,984 thousand levs, ie 43.6%; also a reduction in 2010 compared to 2009 by 897,421 levs, ie 45.1%; an increase in 2011 compared to 2010 by 442,642 thousand levs, ie 40.6%, a reduction of the acquired tangible fixed assets (land) in 2012 compared to 2011 by 620,771 thousand levs, ie 40.5%.

There is a variable change, including: an increase of the acquired tangible fixed assets (buildings, and construction equipment) in 2009 compared to 2008; a decrease in 2010 compared to 2009; an increase in 2011 and decrease in 2012. The data for the costs of the acquired tangible fixed assets (buildings, and construction equipment) are given in Table 8:

Table 8. Acquired tangible fixed assets - buildings, facilities and constructions (thousand levs) ⁸

2008	2009	2010	2011	2012
7140559	7745397	6583429	7934398	6235411

⁷ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

⁸ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

⁹ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

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The change of the acquired tangible fixed assets (buildings, and construction equipment) shows an increase of the acquired fixed assets (buildings, and construction equipment) in 2009 compared to 2008 by 604,838 thousand levs, ie 8.47%; a decrease in 2010 compared to 2009 by 1,161,968 thousand levs , ie 15.0%; an increase in 2011 compared to 2010 by 1,350,969 thousand levs, ie 20.5%; a reduction of the acquired fixed assets (buildings, and construction equipment) in 2012 compared to 2011 by 1,698,987 thousand levs, ie 21.4%.

There is a reduction of the acquired tangible fixed assets (machinery, equipment and vehicles) with a small increase in 2012 compared to 2010 and 2011. The data for the acquired tangible fixed assets (machinery, equipment and vehicles) are given in Table 9.

Table 9. Acquired tangible fixed assets - machinery, equipment and vehicles (thousand levs) ⁹

2008	2009	2010	2011	2012
10833539	7758524	6948651	6355787	6567160

The change of the acquired tangible fixed assets (machinery, equipment and vehicles) shows a decrease of the acquired tangible fixed assets (machinery, equipment and vehicles) in 2009 compared to 2008 by 3,075,015 thousand levs, ie 28.4%; also a decrease in 2010 compared to 2009 by 809,473 thousand levs, ie 11.7%; a decrease in 2011 compared to 2010 by 592,864 thousand levs, ie 9.33%; an increase of the acquired fixed assets (machinery, equipment and vehicles) in 2012 compared to 2011 by 211,373 thousand levs, ie 3.33%.

There is a variable change, including: an increase of the acquired tangible fixed assets (other costs) in 2009 compared to 2008; a decrease in 2010 compared to 2009; an increase in 2011 and a decrease in 2012. The data for the acquired tangible fixed assets (other costs) are given in Table 10:

Table 10. Acquired tangible fixed assets - other costs (thousand levs) ¹⁰

2008	2009	2010	2011	2012
759040	946874	928886	1096784	882917

The change of the acquired tangible fixed assets (other costs) shows an increase of acquired tangible assets (other costs) in 2009 compared to 2008 by 187,834 thousand levs, ie 24.7%; a reduction in 2010 compared to 2009 by 17988 thousand levs, ie 1.9%; an increase in 2011 compared to 2010 by 167,898 thousand Levs, ie 18.1%; a reduction of the acquired fixed assets (other expenses) in 2012 compared to 2011 by 213,867 thousand levs, ie with 12.16%.

2. Forecasts and trends of development of the acquisition and acquired tangible assets (total and by types) for the period 2014-2016

Let us make a forecast of the development of the acquisition costs of the tangible fixed assets for the next three years, on the basis of data for their development in Bulgaria

¹⁰ Statisticheski godishnik, NSI, S., 2013, p. 198; Statisticheski spravochnik, S., 2013, p. 172.

(total) taken from Table 1. We will use the method of least squares to smooth out the empirical data on a linear (straight) and quadratic function (parabola) for predicting the development of **acquisition costs of tangible fixed assets in Bulgaria (total)** for the period 2014-2016. Applying this methodology, we get a linear function where the mean quadratic error turns out to be greater than the mean quadratic error of the found quadratic function. The smaller value of the mean quadratic error in smooth parabola shows that the predictions on quadratic function will be more accurate. It gives the forecast results for the costs of acquisition of tangible fixed assets (total) in Bulgaria: $y_{2014} = 16,679,041$ thousand levs, $y_{2015} = 16,359,862$ thousand levs and $y_{2016} = 16,021,125$ thousand levs that show unfavorable **downward trend** for the costs of acquisition of tangible fixed assets (total) in Bulgaria for the period 2014-2016.

Applying the same approach, the estimated results are: **for the cost of acquisition of tangible fixed assets (land)**: $y_{2014} = 907,358$ thousand levs, $y_{2015} = 906,242$ thousand levs and $y_{2016} = 9,053,214$ thousand levs that show unfavorable **downward trend**; **for the costs of acquisition of tangible fixed assets (buildings, and construction equipment)**: $y_{2014} = 743,386$ thousand levs, $y_{2015} = 743,062$ thousand levs and $y_{2016} = 742,545$ thousand levs that show unfavorable **downward trend**; **for the costs of acquisition of tangible fixed assets (machinery, equipment and vehicles)**: $y_{2014} = 7,251,973$ thousand levs, $y_{2015} = 7,264,218$ thousand levs and $y_{2016} = 7,272,915$ thousand levs outlining favorable **upward trend**; **for the cost of acquisition of tangible fixed assets (other costs)**: $y_{2014} = 1,218,565$ thousand levs, $y_{2015} = 1,217,651$ thousand levs and $y_{2016} = 1,216,823$ thousand levs showing unfavorable **downward trend**; **for the acquired tangible fixed assets (total, values)**: $y_{2014} = 14,301,911$ thousand levs, $y_{2015} = 14,301,025$ thousand levs and $y_{2016} = 14,300,578$ thousand levs, unfavorable **downward trend**; **for the acquired tangible fixed assets (land)**: $y_{2014} = 913,028$ thousand levs, $y_{2015} = 912,656$ thousand levs and $y_{2016} = 912,042$ thousand levs outlining unfavorable **downward trend**; **for the acquired tangible fixed assets (buildings, and construction equipment)**: $y_{2014} = 6,227,495$ thousand levs, $y_{2015} = 6,221,984$ thousand levs and $y_{2016} = 6,217,106$ thousand levs showing unfavorable **downward trend**; **for the acquired tangible fixed assets (machinery, equipment and vehicles)**: $y_{2014} = 6,552,148$ thousand levs, $y_{2015} = 6,549,236$ thousand levs and $y_{2016} = 65,442,337$ thousand levs outlining unfavorable **downward trend**; **for the acquired tangible fixed assets (other costs)**: $y_{2014} = 880,354$ thousand levs, $y_{2015} = 879,562$ thousand levs and $y_{2016} = 879,064$ thousand levs outlining unfavorable **downward trend**.

According to the conclusions about trends in the costs of acquiring and acquired tangible fixed assets in Bulgaria (total and by types) for the period 2014 to 2016, there is a decrease of the costs of acquisition and acquired fixed assets and only in one case - an increase. Bulgaria has entered into a united Europe and developed with decreasing acquisition costs of tangible assets (total and by types), and the acquired tangible assets (total and by types), which is mainly due to the unfolding financial crisis in European countries. After a formal estimate of the pace of economic development in Bulgaria by about 3% for each of the next few years, the development trend in the costs of acquisition and the acquired tangible fixed assets in Bulgaria (total and by types) is also expected to improve.

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The changed socio-economic conditions and recent global and inclusive processes after the country's accession to the European Union are expected to be a new basis for future better economic development to occur in the next few years.

ANALIZA TROŠKOVA STICANJA FIKSNE AKTIVE U PERIODU 2008-2012 I PROGNOZE ZA 2014-2016

Rezime: U radu se analizira stanje i promene u troškovima pribavljanja materijalne fiksne aktive u Bugarskoj za period od 2008-2013 na bazi podataka iz zvaničnih izveštaja Nacionalnog instituta za statistiku, uz projekciju za period 2014-2016. U radu se koristi metod najmanjih kvadrata odstupanja na linearnim i kvadratnim funkcijama. Analize su prezentovane grafičkim prikazima.

Ključne reči: Analiza, troškovi akvizicije, fiksna aktiva.