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MONITORING OF EFFICIENCY OF THE FUELS AND LUBRICANTS MARKET OF PERM KRAI

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This article deals with the problem of the fuels and lubricants market efficiency monitoring. The author reveals the notion of efficiency monitoring and applies this tool to petrol market of Perm krai. As an object of research the largest company of the region LUKOIL-Permnefteproduct, LLC is chosen. The initial step of monitoring is study and analysis of the market by means of the system of statistical indicators which comprehensively show trends and problems of the market. Then influence of earlier revealed traditional factors on the condition of the petrol market is estimated and the principal reasons for petrol price changes are determined. The application of efficiency monitoring enables to estimate the market conditions more qualitatively.

Keywords: monitoring, efficiency, market, factor, region.

МОНИТОРИНГ ЭФФЕКТИВНОСТИ РЫНКА ГОРЮЧЕ-СМАЗОЧНЫХ МАТЕРИАЛОВ ПЕРМСКОГО КРАЯ

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Статья посвящена проблеме мониторинга эффективности рынка горюче-смазочных материалов. Автор раскрывает понятие мониторинга эффективности и применяет данный инструмент для рынка бензина Пермского края. В качестве объекта исследования выбрано самое крупное предприятие региона - ООО «ЛУКОЙЛ-Пермнефтепродукт». Первоначальным этапом мониторинга является исследование и анализ рынка с помощью системы статистических

показателей, которые всесторонне показывают тенденции и проблемы рынка. Далее оценивается влияние ранее выявленных традиционных факторов на состояния рынка бензина, и определяются основные причины изменения цен на бензин. Применение мониторинга эффективности позволяет качественнее оценивать состояния рынка.

Ключевые слова: мониторинг, эффективность, рынок, фактор, регион.

The Russian market of fuels and lubricants is at the stage of development and it is characterized by high degree of attractiveness. At the same time in the market there are several external economic risks which can negatively affect its dynamics and attractiveness in the medium-term prospects. First of all, it is necessary to take into account the probability of a new global economic crisis connected with debt problems of Europe.

Of course, there are also other scenarios of negative world economy development there causing high probability of slowdown of its growth and, according to this, the reduction of demand for energy resources which finally leads to the reduction of volumes of oil and gas receipts to the state budget. According to the official forecast of the Ministry of Finance of the Russian Federation, the reduction of predicted oil and gas receipts as a percentage of GDP in 2013-2015 in relation to 2012 is caused by the reduction of the price for oil of Urals («Юралс») brand, despite the fact that the average oil price in 2013 is forecasted at the level of 97 dollars per barrel.

Today the most important task of improvement of management quality and efficiency in the market of fuel and lubricants is development of solutions for improvement of competitiveness through the study of indicators of price changes, identifying the causes and impact of factors to the global price changes. Moreover, owing to the objective laws of spatial development of the Russian Federation, the task of carrying out a state policy concerning regions with a various level of development through the implementation of programs becomes actual. Efficiency

monitoring helps to estimate the efficiency level of the implementation of such programs [2].

Efficiency monitoring of fuels and lubricants market is a set of the economic relations connected with actions for systematic study of price dynamics on the market, assessment of influence of factors on this changes and analysis of the reasons for the purpose of expeditious diagnostics of the market condition.

We investigate the monitoring of efficiency of the fuels and lubricants market of Perm krai.

According to Office of the Federal Antimonopoly Service (FAS), about 70% of the Perm retail market of oil products is held by OOO LUKOIL-Permnefteproduct. The rest 30-35% of the market are held by several companies, among which the largest one is the Arsenal oil company. Top five also includes OOO Evroinvest (Neftekhimprom gas station), DAN (13 gas stations), Phoenix Petroleum (10 gas stations), and Petrol (5 gas stations in Perm krai).

Based on the above data, in order to objectively analyze and estimate the statistics of oil products retail sales dynamics in Perm krai, it is necessary to take OOO LUKOIL-Permnefteproduct as an object of research, as it occupies the largest share of the market. The main sold types of oil products of the company are AI-95, AI-92 (AI refers to RON), and diesel fuel, which we will study.

On the basis of monthly price changes we will carry out the calculations of statistical indicators for the period since January 2007 till December 2012 (Table 1).

Based on the received values of variation indicators, we can conclude that the range of variability of all three brands of petrol is great enough that proves high variability of petrol prices in the market of fuel and lubricants (Table 2).

The results of calculation of variance indicate significant deviations of prices for petrol from mean value. It gives evidence of instability of the market in the given period. Values of the prices variance go in ascending order: AI-92, AI-95, and diesel. From this, it is possible to conclude that the most unstable type is diesel, and the stablest type is AI-92.

Table 1

Statistical indicators used in of the fuels and lubricants market efficiency monitoring

Symbol	The name of statistical indicator
y	the average level of interval time series
R	range of variability
σ^2	Variance
σ	standard deviation
K_O	coefficient of oscillation
V	coefficient of variation
$K_{Ц}$	continuous growth rate
K_B	base growth rate
$\delta y_{Ц}$	absolute continuous increment
δy_B	absolute base increment
$\delta K_{Ц}$	continuous increment rate
δK_B	base increment rate

Table 2

Received values of statistical indicators, 2007-2012

Indicator	АИ-92	АИ-95	Diesel
Σy_i	1159,97	1258,44	1119,19
\bar{y}	21,09	22,88	20,35
R	9,92	10,76	12,75
σ^2	4,62	5,33	9,40
σ	2,15	2,31	3,07
K_O	47,06%	47,01%	62,64%
V	21,90%	23,28%	46,18%

Standard deviation is rather small, this indicates that the received average values adequately characterize the prices for each of the taken petrol brands.

Coefficient of oscillation shows significant changes of extreme values of the prices for the taken types of petrol round their mean values. Values of oscillation coefficient of the prices for these types of petrol in the given period go in ascending order: AI-95, AI-92, diesel. This indicates wide range of price changes, higher values of oscillation coefficient corresponds to a higher fluctuation range. Values of the coefficient of prices variation for AI-92 and AI-95 are less than 40%, with values of the coefficient of prices variation for AI-92 being less than for AI-95, that shows low price variability for these types of petrol. Values of the coefficient of prices variation for diesel are more than 40%, that shows significant price variability for this type of petrol in the chosen period.

Indicators of continuous growth rate, absolute continuous increment and continuous increment rate show monthly changes of prices for the chosen types of petrol in the given period in relation to the previous period (month) [4].

Indicators of base growth rate, absolute base increment and base increment rate show changes of price levels for the chosen types of petrol for the chosen period in relation to the comparison base (January, 2007).

The next step of the efficiency monitoring is to estimate the factors affecting formation and changes of prices for petrol of the chosen types.

The most important factors of petrol pricing in the world are: oil cost, rate of the national currency, demand (income level), seasonality, taxes and excises, rate of inflation.

Now let's consider each of these factors of petrol pricing in details. The main factors are oil cost and rate of the national currency which experts consider first of all.

Oil cost. Petrol is a product of oil refining, therefore the main factor of petrol price formation is oil cost. In the studied period two key moments in oil cost changes are clearly visible. For example, in August 2008 price boom changed into sheer fall in prices and in May 2009 slump in prices changed into their increase (fig. 1).

There is a very high correlation between prices of petrol and oil. Decrease of oil cost leads to decrease of prices in the petrol market, and vice versa.

It should be taken into account that the price of a liter of petrol depends on the level of modern equipment availability of an enterprise, as the percentage of the petrol made from liter of crude oil on the outdated equipment is 15-25%, while on the new equipment it is about 80% [3].



Fig. 1. Oil prices, 2007-2012

Rate of the national currency. When oil prices fell by more than 70%, petrol prices fell by only 20%. This happened because one more important factor affecting petrol prices is the rate of the national currency. If we compare oil prices change dynamics (fig. 1) with the dynamics of the USD/RUR exchange rate, we will see that when oil prices plummeted, exchange rate of rouble fell as well, which means that inflation grew. As petrol prices are expressed in roubles, the simultaneous fall of oil prices and exchange rate of rouble compensated each other therefore petrol prices fall was not very significant.

Demand (income level). One more important factor affecting petrol prices is purchasing power of people which depends much on per capita income. Thus, in January 2013 disposable income and real wages increased by 0.7% and 3.5% respectively in relation to January of the previous year, and consumer prices increased by 1.7% over the same period [1].

Seasonality. Petrol price also depends on the season. It increases in summer when demand grows and it decreases in winter when demand decreases. This can be seen from the data in the table specially drawn up for Perm krai which will be considered below.

Taxes and excises. Tax payments are expenses which directly affect petrol price as their share is 44% to 60% of the petrol price. The share of tax deduction correlates with the petrol price. All the taxes (VAT, MET, excise taxes, income tax) included in the petrol price are federal, with the greatest share being taken by MET (16.9%).

Inflation. When comparing changes of inflation indicators with fluctuation of the petrol prices, direct correlation is revealed but inflation growth rate is much higher than growth rates of petrol price.

All factors of petrol pricing are interconnected, and when studying dynamics of petrol price it is important to consider all the factors, or there will be contradictions proving bias in the study. However, the possibility of uncontrollable events affecting the results should not be excluded.

Evaluating the previous two steps of efficiency monitoring, it is possible to distinguish two groups of causes of petrol price changes during 2007-2012 in Perm krai (Table 3).

Table 3

Causes of petrol price changes, 2007-2012

Year	2007	2008	2009	2010	2011	2012
Causes of sharp increase in petrol prices	Increase in wholesale prices for petrol (up to 20%) caused by closure of 9 oil refinery plants	Increase in wholesale prices for petrol (up to 20%) caused by closure of 9 oil refinery plants	Sharp increase in wholesale prices of oil companies in summer; increase in global oil prices; lack of supply on the market; increase in the vehicle feet of the country by 764,000 units.	Increase in oil prices; the situation of preparation of excise increase starting in January, 2011.	Increase in petrol excise duty since January, 2011; crude oil export duty increase in February; increase in global oil prices	Increase in petrol excise duty; debt problems of Europe
Causes of decrease in petrol prices	Federal Law "On Protection of Competition" was passed; crude oil export duty increase	Global financial crisis; new export duty was imposed; work on reducing MET	The Government and FAS pressure on oil companies; decrease in wholesale prices for petrol; MET on new oil fields and duties on imports of oil refinery equipment were abrogated	FAS control	Decrease in prices because of the pressure by FAS and Prime Minister V.Putin on oil companies	FAS control

Thus, the petrol market efficiency monitoring allows to estimate qualitatively the market condition, using statistical methods of an assessment taking into account the set of necessary factors and to reveal the main causes of increase or decrease of the petrol price.

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