*Entrepreneurship*
*ISSN:* 2738-7402
*DOI: 10.37708/ep.swu.v10i1.6* *Volume: X, Issue: 1, Year: 2022, pp. 59-67*

# ASSESSMENT OF PHARMACEUTICAL MANUFACTURERS' COMPETITIVENESS

**Milena Filipova[1] Yulia Nedelcheva[2]**

Received: 03.04.2022, Accepted: 25.04.2022

***Abstract***

*The aim of the article is to assess the competitiveness of pharmaceutical manufacturers. The assessment was carried out for six producers in Bulgaria with largest volume of production. The assessment is based on a model, which is a combination of quantitative and qualitative indicators of manufacturers. The answers of 52 respondents from a survey were used to determine the quality indicators of the model. The results of assessment identify quality indicators as leading to manufacturer competitiveness. The competitiveness of the product (ratio of product quality to price) has the greatest weight in assessment the manufacturer competitiveness. The quantitative indicators of the individual producers have similar values and therefore have little effect on the assessment of their competitiveness. The state participates in the assessment of the competitiveness of pharmaceutical manufacturers by determining of pharmaceutical products that price is paid partially by a competent authority.*

***Keywords:*** *Bulgaria; survey; pharmaceutical products*

***JEL Codes:*** *D22; I11; L11*

## 1. Introduction

Manufacturers of pharmaceutical products achieve their own economic goal of increasing production while at the same time fulfilling a social goal of improving healthcare. These two roles of producers are balanced and have a synergistic effect in increasing their competitiveness. Unlike other manufacturers, competitiveness for the pharmaceutical manufacturers leads to the supply of innovative, efficient and affordable pharmaceutical products.

The environment of COVID-19 pandemic (2020-2022) further drew attention to the importance of pharmaceutical manufacturers for the development of the economy and the well-being of the society. Their competitiveness already exceeds the micro level of influence and is the subject of national and international research. The

[1] South-West University "Neofit Rilski", Blagoevgrad, Department of Management and marketing, Professor, PhD, e-mail: emili2000@abv.bg; ORCID ID: https://orcid.org/0000-0002-5003-006X

[2] South-West University "Neofit Rilski", Blagoevgrad, Department of Management and marketing, PhD Student, e-mail: yulia.nedelcheva@abv.bg; ORCID ID: https://orcid.org/0000-0002-0252-1825

new reality has set a new framework for the development of pharmaceutical manufacturers, including their competitiveness. As an added value of increasing the competitiveness of pharmaceutical manufacturers are the corrective measures at the macro level for the competitiveness of the national economy and for the development of society.

## 2. Assessment method

In assessing the competitiveness of pharmaceutical manufacturers we will use a model proposed by M. Velev (Velev, 2004). The model is a combination of quantitative and qualitative indicators. Each indicator is adjusted by a weighting factor, which is determined empirically based on expert opinions. For a specific sector of the economy, the model of R. Dimitrova is applied, which is a modification of the model of Velev (Dimitrova, 2014):

$$C = 0.22Cp + 0.13Im + 0.13Fm + 0.4Am + 0.13Lp + 0.13Fp + 0.12Gm$$

where:

*C* – competitiveness of the manufacturer;

*Cp* – competitiveness of the product;

*Im* – innovation of the manufacturer;

*Fm* – flexibility of the manufacturer;

*Am* – adaptability of the manufacturer to the market;

*Lp* – labor productivity;

*Fp* – financial performance;

*Gm* – growth of the manufacturer.

The higher the value of the assessment, the higher the current competitiveness of the enterprise.

From all manufacturers of pharmaceutical products in Bulgaria, we select those with the largest production volume (Borisova, 2017). The sample covers six producers – Balkanpharma-Dupnitza, Balkanpharma-Razgrad, Balkanpharma-Troyan, Bul Bio, Sopharma and Tchaikapharma. From their annual financial statements, certified by an independent auditor, we calculate the quantitative indicators of the Velev-Dimitrova model (labor productivity, financial performance, growth of the manufacturer).

To determine the quality indicators of the Velev-Dimitrova model (competitiveness of the product, innovation of the manufacturer, production and marketing flexibility of the manufacturer, adaptability of the manufacturer to the market) a survey was conducted during 13.10-12.11.2021. The survey was sent to the respondents via social networks, which explains the large percentage of middle-aged respondents (Gergova, Stoimenova & Sidjimova, 2019). The respondents are 52 people with diverse socio-demographic characteristics, i.e. respondents cover a wide range of consumers of pharmaceutical products (Ilieva-Tonova, Stoimenova, &

Pencheva, 2016). The highest share of participation in the survey are persons with a master's degree (61%), aged 36-45 (44%), ultimate consumer of a pharmaceutical product (75%), woman (63%).

## 3. Results

The assessment of competitiveness is presented in Table 1. For comparison to assessment, respondents' preferences for a specific pharmaceutical manufacturer are presented (Ilieva-Tonova, Pencheva & Serbezova, 2022). For example, Sopharma is the most preferred manufacturer while its competitiveness assessment ranks it third. Another example of the assessment of the competitiveness and preferences of the respondents is Balkanpharma-Troyan – the least preferred producer by the respondents and with the highest assessment of competitiveness. The difference between assessment and preference is due to the fact that respondents' opinions do not take into account financial performance (Nedeltchev, 2005).

*Table 1. Basic data of the assessment and the survey*

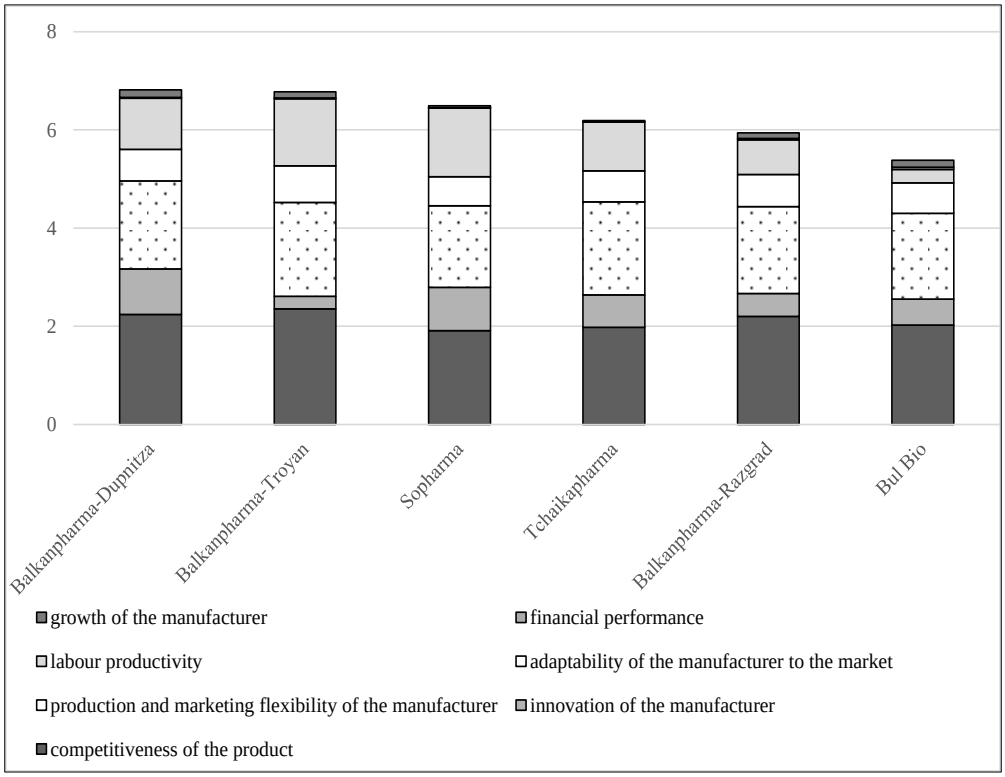
| | Assessment of competitiveness | Preferred manufacturer, % |
|---|---|---|
| Balkanpharma-Dupnitza | 6.81 | 9.6% |
| Balkanpharma-Troyan | 6.77 | 5.8% |
| Sopharma | 6.49 | 51.9% |
| Tchaikapharma | 6.19 | 13.5% |
| Balkanpharma-Razgrad | 5.94 | 9.6% |
| Bul Bio | 5.38 | 9.6% |

*Source*: authors' data

## 4. Discussions

The components of competitiveness assessment are presented in Figure 1. The high assessment is influenced by the quality indicators of the Velev-Dimitrova model.

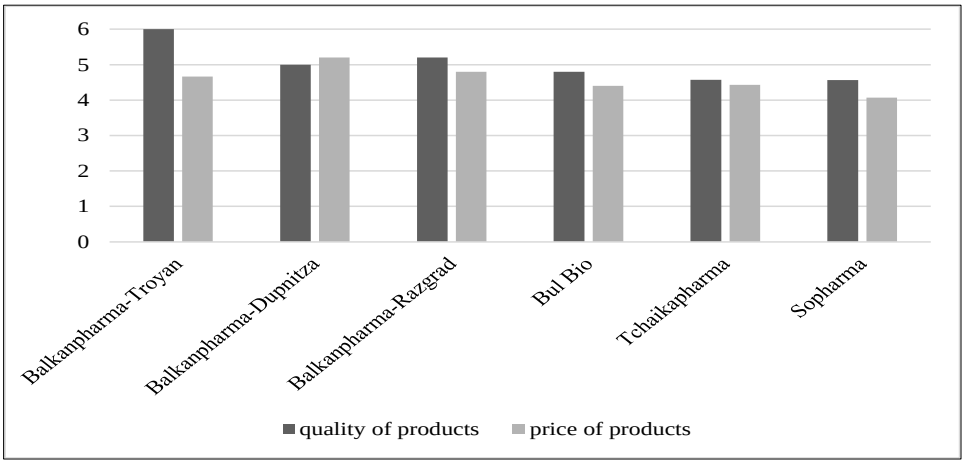
*Figure 1. Assessment of the manufacturers' competitiveness by components*




*Source*: authors' data

*Competitiveness of the product*. In the first places are manufacturers with high quality indicators. The competitiveness of the product has the greatest weight in assessment of the manufacturers' competitiveness (Keremidchiev & Nedelchev, 2022). This indicator is defined as the ratio of product quality to price. Balkanpharma-Dupnitza has the highest value of this indicator (2.24), which determines its highest assessment of the manufacturers' competitiveness. The lowest value of this indicator has Sopharma (1.91). As per respondents, the quality of the products is more important for the respondents than the price of the products (Figure 2).

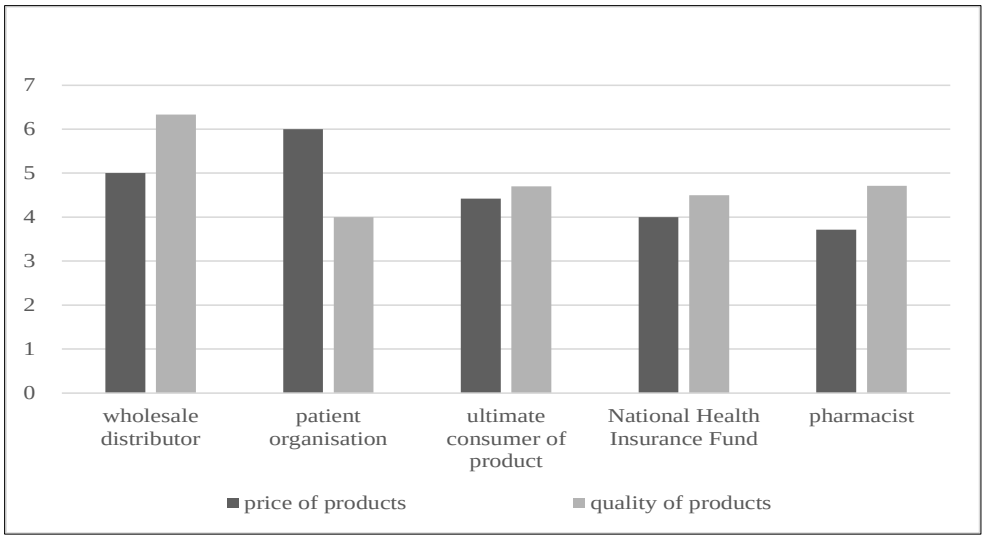
*Figure 2. Survey data for quality and price of pharmaceutical products by manufacturers*




*Source*: authors' data

Individual groups of respondents have a characteristic opinion about the price and quality of products when assessing the competitiveness of manufacturers (Madgerova & Kyurova, 2014). Only in the case of patient organisations the price is more significant than the quality of the pharmaceutical products (Figure 3).

*Figure 3. Survey data for quality and price of pharmaceutical products by respondents*

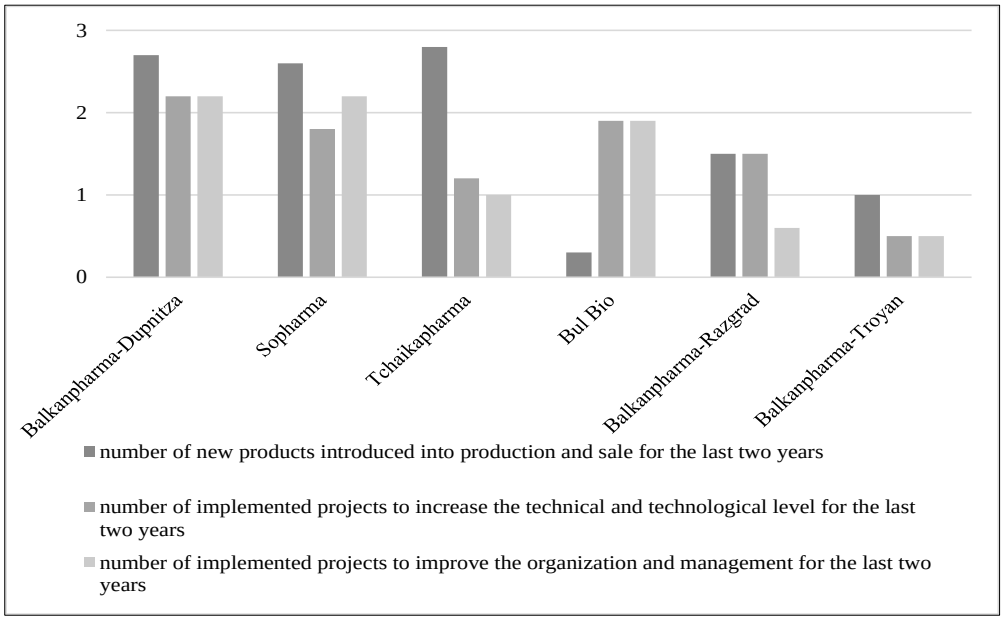



*Source*: authors' data

Respondents' opinion on the price of pharmaceutical products largely depends on state intervention in pricing (Nedelchev, 2019). The National Council on Prices and Reimbursement of Medicinal Products every six months includes certain pharmaceutical products in a list on which the state pays part of the price of the product (Yuleva, 2019). For the period of our competitiveness assessment, four of the producers are on the list for paying part of the price by the state: the state pays 67% of the price for 74 products of Balkanpharma-Dupnitsa and Balkanpharma-Troyan, 60% for 84 products of Sopharma and 62% for 117 Tchaikapharma's products. State participation in the formation of selling prices is depend of the age and health status of citizens.

*Innovation of the manufacturer*. Innovation of the manufacturer is determined by the number of new products introduced into production and sale in the last 2 years, the number of projects implemented in the last 2 years to increase the technical and technological level, and the number of projects implemented in the last 2 years for improving the organization and management of the manufacturer. Balkanpharma-Dupnitza has the most innovations (0.92) and the least – Balkanpharma-Troyan (0.26). The values of this indicator are in line with the nature of pharmaceutical products as part of the healthcare system (Petrova, 2018).

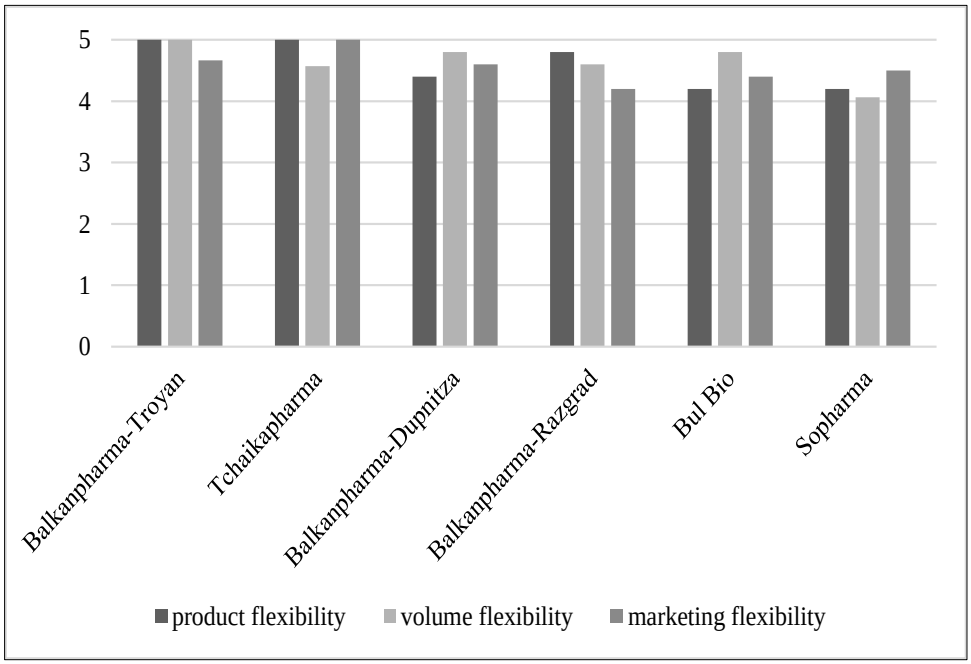
*Figure4. Survey data for innovation of manufacturers*




*Source*: authors' data

*Flexibility of the manufacturer*. This component has little weight in the model and second place in importance for the final assessment of competitiveness. The indicator is determined by three components: product flexibility, volume flexibility, and marketing flexibility (Figure 5). The values of this indicator are very close for all producers. For the total assessment of competitiveness, the volume flexibility (4.64) is of a little big importance over product flexibility (4.60) and marketing flexibility (4.56) (Figure 5). Leading position of flexibility is for Balkanpharma-Troyan (4.89) and lowest assessment level for Sopharma (4.26).

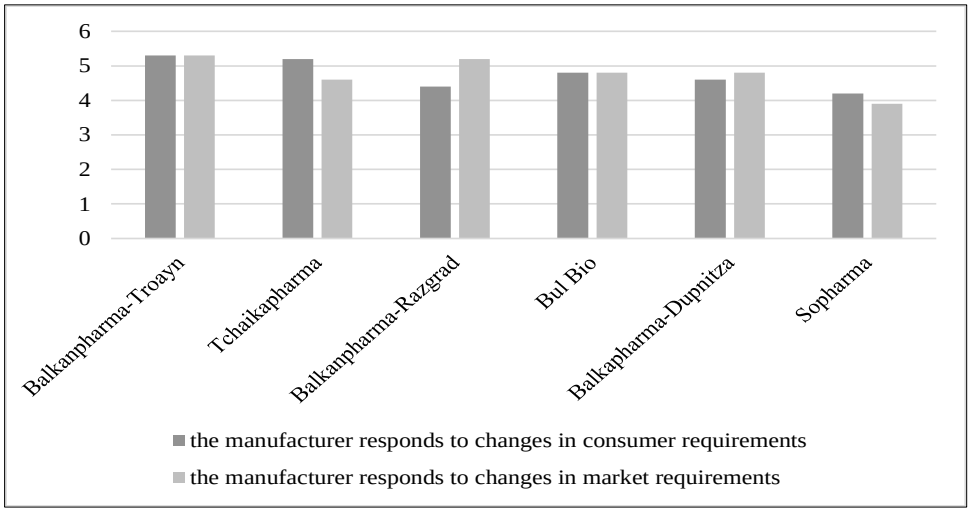
*Figure 5. Survey data for flexibility of manufacturers*




*Source*: authors' data

*Adaptability of the manufacturer to the market*. The adaptability of the manufacturer to the market includes responds to changes in consumer requirements and in market requirements (Figure 6). Balkanpharma-Troyan has highest assessment for adaptability to the market (5.3) and Sopharma – the lowest one (4.1).

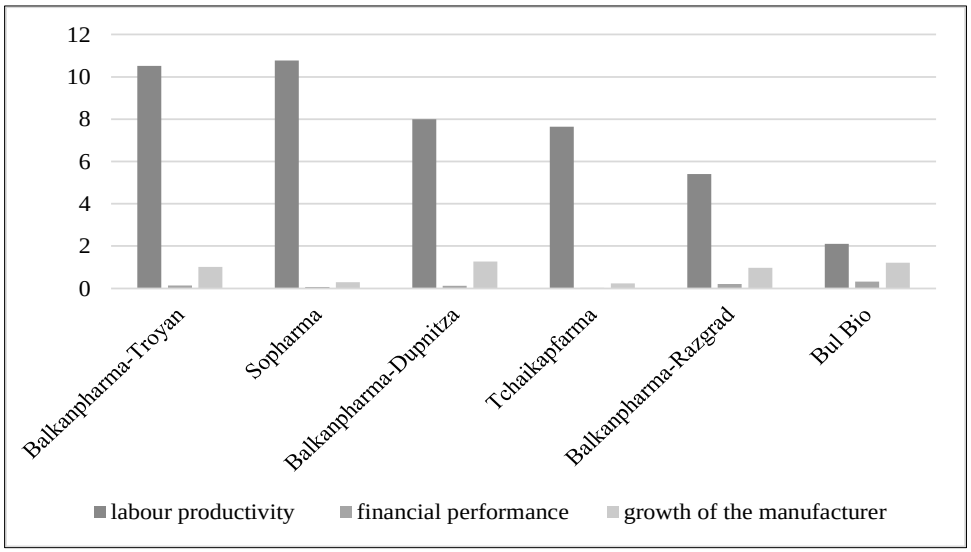
*Figure 6. Survey data for adaptability of manufacturer to the market*




*Source*: authors' data

Quantitative components of the model (labor productivity, financial performance, and growth of the manufacturer) have low weights for the competitiveness of manufacturers. Balkanpharma-Troyan has the best economic indicators again (Figure 7).

*Figure 7. Economic indicators of manufacturers*




*Source*: authors' data

## 5. Conclusion

Our assessment identify quality indicators as leading for manufacturers' competitiveness. The quantitative indicators of the individual manufacturers have similar values and therefore have little effect on the assessment of their competitiveness. The best competitiveness belongs to Balkanpharma-Dupnitza due to highest values of innovation of the manufacturer and growth of the manufacturer. The second rank is for Balkanpharma-Troyan – this manufacturer has best values for competitiveness of the product, flexibility of the manufacturer, and adaptability of the manufacturer to the market. At the other pole is Bul Bio – good economic indicators that have low weights in the competitiveness model.

## REFERENCES


Borisova, L. (2017). Balanced Scorecard in the Organization. *Entrepreneurship*, V (1), 66-76.

Gergova, V., Stoimenova, A. & Sidjimova, D. (2019). Reporting of Clinical Trials on Medicinal Products – Regulations and Practices in EU. *Health Policy and Management*, 19(4), 53-57.

Dimitrova, R. (2014). *Monitoring na konkurentosposobnostta na predpriyatieto*. Blagoevgrad: Universitetsko izdatelstvo „N. Rilski".

Ilieva-Tonova, D., Stoimenova, A. & Pencheva, I. (2016). Market Surveillance and Control of Medicinal Products in Bulgaria 2009 – 2015. *Science & Technologies*, VI (1), 365-373.

Ilieva-Tonova, D., Pencheva, I. & Serbezova, A. (2022). HPLC Tests in Quality Control under the Market Surveillance Program for Medicinal Products Containing Amlodipine and Valsartan. *Current Pharmaceutical Analysis*, 18.

Keremidchiev, Sp. & Nedelchev, M. (2022). Corporate Governance Assessment of State-Owned Hospitals. *Bulgarian Journal of Public Health*, 14(1), 3-14.

Madgerova, R. & Kyurova, V. (2014). Definition, characteristics and problems of family business. *Economics and Management*, X (2), 97-105.

Nedelchev, M. (2019). Corporate Governance of State-Owned Enterprises: the Case of Healthcare Establishments in Bulgaria. *Economic Studies*, 1, 115-123.

Nedeltchev, Dr. (2005). *Social capital and economic development*. Sofia: Akademichno izdatelstvo Marin Drinov.

Petrova, G. (2018). Some New Pharmacologic Options for Open-Angle Glaucoma. *World Journal of Pharmacy and Pharmaceutical sciences*, 6, 29.

Velev, M. (2004). *Otsenka i analiz na konkurentosposobnostta na firmata*. Sofiya: Softtrejd.

Yuleva, R. (2019). Competitive Advantages and Competitive Strategies of Small and Medium-Sized Enterprises. *Economics and Management*, XVI (1), 71-81.