

Manage business effectively: analysis and forecasting MNC market opportunities

Administre el negocio de manera efectiva: análisis y pronóstico de oportunidades de mercado de MNC

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Abstract

The purpose of this investigation is to develop a new methodological basis for studying the market opportunities of the multinational corporation (MNC) on the basis of the synthesis of modern scientific methods for further forecasting their change. The results showed the degree of dependence of the effectiveness of business management on the trends in the field development and competitor's actions, market access opportunities, the use of MNC opportunities, their strategic positions, and the totality of internal factors that determine the profitability of activities. The practical value of the obtained results is to identify areas for increasing the efficiency of MNC business management and forecasting the dynamics of sales volumes of their products on the market.

key words: management, market and competition analysis, strategic analysis, business valuation

RESUMEN

El propósito de esta investigación es desarrollar una nueva base metodológica para estudiar las oportunidades de mercado de la corporación multinacional (MNC) sobre la base de la síntesis de métodos científicos modernos para pronosticar aún más su cambio. Los resultados mostraron el grado de dependencia de la efectividad de la gestión empresarial de las tendencias en el desarrollo del campo y las acciones de la competencia, las oportunidades de acceso al mercado, el uso de oportunidades de las empresas multinacionales, sus posiciones estratégicas y la totalidad de los factores internos que determinan la rentabilidad de las actividades. El valor práctico de los resultados obtenidos es identificar áreas para aumentar la eficiencia de la gestión empresarial de MNC y pronosticar la dinámica de los volúmenes de ventas de sus productos en el mercado.

Palabras clave: gestión, análisis de mercado y competencia, análisis estratégico, valoración de negocios.

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1. Introduction

Analyzing and forecasting market opportunities is one of the stages of the process of substantiation and management decision making, the results of which ensure the achievement of MNC business goals.

Despite the fact that a lot of research is devoted to this problem, the expansion of market opportunities using an integrated approach is important according to MNC strategic development. The need for such an approach is caused by the growing complexity of MNC's operations in the global market environment as a result of ongoing market changes, government decisions, management improvements, and excellent opportunities in use of potential, which has an impact on the efficiency of doing business. The current situation encourages the MNC to explore the conditions and factors that improve their market opportunities through analyzing and forecasting their future developments.

The solution to the problem of increasing the efficiency of business management is very important for MNC, which produces bearings and whose products provide the operation of such a strategically important sector of the world economy as machine building, where, in the period of 2015-2016, there was a reduction of sales volumes (UNCTADstat, 2018). This circumstance led to the expediency of studying the market opportunities of leading MNCs in Sweden, Germany and the United States in bearing production in the period of 2015-2017.

The practical aspect of the research was the identification of conditions and factors that ensure the development of market opportunities and enhance MNC business efficiency. This is realized by a complex approach, which involves the synthesis of such scientific methods as economic comparison, series of dynamics, graph analysis, strategic analysis, factor analysis, exponential smoothing.

1.1. The literature review of the research problem

It is proved that the problem of effective business management based on the use of the results of analysis and forecasting corporations market opportunities was always in the scientists' interest. Among modern scholars there is a constant polemic about the methods and tools of managing the global firm, which intensifies during the period of deepening crisis conditions in the modern markets. It is investigated that as directions of global management concept development in order to increase the management efficiency, it is proposed to increase advantages and network flexibility, to implement self-renewing process, to increase the effectiveness of strategic planning, to make organizational changes, to pay attention to innovation and R&D in the MNC (Bartlett et al., 2013). It is important to pay attention to the issue of improving the efficiency and performance of the enterprises, provided by studying the dynamics of financial indicators that determine the profitability of the activity and their growth reserves (Britchenko et al., 2018; Kryvovyazyuk, 2015a, 2019b), take into account the strategic and technological factors of growth, peculiarities of industrial diversification, changes in the international production level and structure (Casson, 2013). The study of international business also requires the study of new trends that affect its functioning, in particular the driving forces of globalization, e-commerce, the internet, and international entrepreneurship (Shenkar et al., 2014). It is proved that market opportunities at the present stage of science development are distinguished as one of the factors of highly developed firms growth (Demir et al., 2017), to which MNC belongs. It becomes clear that it is impossible to manage business effectively without taking into account the influence of the corporation market opportunities.

It is found out that in modern scientific publications great role of market research and the necessity of using modern approaches in its analysis – descriptive, predictive and prescriptive analytics (Hair et al., 2018) – is emphasized. In particular, it is indicated the importance of using internet platforms in the development of business, due to changes in both the market itself and the methodology of its research. Together this provides predictability of the strategies which are adopted, and research methods have to become a “critical resource in

the dynamic and ever-changing business-to-business and consumer markets". An analysis of the scientific works content showed the feasibility of taking cognitive processes in the market opportunities perception into account, which can be a determinant factor in making decisions on the use of research results (Edelman and Yli-Renko, 2010).

It is proved that during analyzing and forecasting market opportunities in a number of modern scientists studies it is proposed to take into account the principles and analytical approaches of strategic management (Gamble et al., 2016; Johnson et al., 2017; Kryvoviazuk and Strilchuk, 2016; Morschett, 2015). In particular, to get a general picture of using market opportunities and forecasting their changes, it is advisable to use such methods as market analysis, Porter's five forces of industry profitability, analysis of political, economic, social and technical environments, and the analysis of strengths, weaknesses, opportunities and threats (Thursby and Berbari, 2016). To find new market opportunities, we recommend using a technology-driven roadmap (Jin et al. 2015). The methods of comparative analysis are used to find out how MNC implementation processes within the business environment can affect the international economics system (Kordos and Vojtovic, 2016). The study of the content of scientific publications on management showed that risks analysis is important for forecasting market opportunities in MNC business development, in particular strategic, valuation, organizational, response, warranty and reporting (Hopkin, 2010; Loras, 2011); financial and operational (Kota and Dragon, 2015), the results of which are the basis for developing a strategy to minimize their negative impact on the achievement of MNC business goals. It is determined that during market research it is important to collect and process relevant data, and to use quantitative analysis methods, in particular ANOVA, regression analysis, factor analysis and cluster analysis (Sarstedt and Mooi, 2019). It is proved that situational analysis has an important role in the process of strategic business management, and internal research factors should include in whole or in part such ones as logistics, production, marketing and sales, service, acquisition, scientific developments, human resources, enterprise infrastructure (Straková et al., 2018). Determining the ways of MNC entry to the market we must take into account foreign policy conditions. This is not enough to review the Uppsala model, transaction cost analysis, eclectic paradigm, industrial network, and institutional approaches. It is important to take into account the features of corporate policy (De Villa et al., 2014).

The lack of unity among scientists in studying MNC market opportunities is explained by various conditions that characterize MNC business environment, their different industry affiliation, scale of activity, distinct goals and strategies, so on. This requires a new methodological basis development for studying multinational corporation market opportunities.

2. Methodology

The research is focused on the development and use of analysis and forecasting methods of MNC market opportunities.

The study sample consists of MNCs in Sweden, Germany and the USA, which operate in the field of bearings production and sales. To increase the sample was difficult due to limited access to MNC reporting data. They were obtained from official reports published on MNC's sites (Schaeffler Group, 2018; SKF Group, 2018; Timken Company, 2018), from international organizations reports (UNCTADstat, 2018; World Bank Group, 2018) and from market research firms and consulting companies (Allied Market Research, 2018; Credence Research Inc., 2018; Gardner Business Media Inc., 2018; Global Industry Analysts Inc., 2018; Markets and Markets Research Private Ltd, 2018). The data of the mentioned organizations and companies are auxiliary according to the authors' obtained results.

The following stages of analysis and forecasting market opportunities of MNC bearings manufacturers are proposed in accordance with the author's approach:

Stage I. Market and Competition Analysis:

- studying trends of MNC product market development by generalization and comparison methods;
- determining the value of demand for the products and trends in its change;
- defining the commodity and geographic structure of MNC product market;
- estimating the influence of factors on the world market of MNC products by generalization and comparison methods;
- comparing the competitive positions of the largest producers of the market by quantitative and qualitative analysis methods;
- determining the concentration level of MNC product market by calculating CR₄ concentration index (Sisk, 2018).

Stage II. Analysis of the market opportunities use:

- selecting indicators for analysis;
- determining the degree of using MNC's capabilities according to the blocks "Production", "Organizational Structure and Management", "Marketing and Sales", "Finance" and "Intellectual Potential" (Fedonin et al., 2006);
- comparing values with benchmarks.

Stage III. Strategic analysis:

- analysis of MNC strategic position in the market by BCG method;
- risk analysis by the method of determining the force of operating lever.

Stage IV. Evaluating the effectiveness of doing business:

- analysis of internal factors determining profitability of MNC activity by factor analysis method;
- evaluating the effectiveness of business decisions by integral indicator method.

Stage V. Forecasting market opportunities changes by the method of exponential smoothing.**VI stage. Conclusions and recommendations.**

The advantages of the methodology are the variability of the analysis, the ability to follow the trends of changing indicators and their mutual influence, practical orientation on determining the directions of effective MNC business.

3. Results

3.1. Results of market and competition analysis of MNC bearing manufacturers

The activity of enterprises in the modern market environment requires continuous monitoring of various factors changes in order to ensure flexibility and adaptability of the enterprises to new business conditions. Today, more than ever, it is important to pay attention to dynamism of the market, the study of the participants behavior and the results of market interaction.

The leading branch of the world economy is machine building, and its primary link of the production is bearing manufacture. Analysis of the world market in the period 2012-2017 years revealed a regularity that characterizes

the dependence of the dynamics of bearings sales on the trends in the development of machine-building industry in general (Table 1).

Table 1
Sales of machine building products and bearings on the world market in 2012-2017

Indexes	2012	2013	2014	2015	2016	2017
Sale of machine-building products, bil. USD	5878.6	6082.2	6273.1	5984.0	5884.7	6399.1
Sale of bearings, bil. USD	32.969	32.974	34.281	30.106	29.379	32.705

Source: (UNCTADstat, 2012-2017)

It was proved that on the bearings market there is a direct dependence of bearings sales volumes on changes in sales volumes of machine building products. This is affected by changes in solvent demand for machine building products. The demand on the bearings market is formed by manufacturers of cars, electrotechnical, electronic and aerospace industries, heavy machinery for construction, mining, agriculture. However, the largest connection of the bearings market with automotive industry is observed, since the growth of demand for vehicles is one of the factors of the market development.

In the sectoral structure of demand, 51% of bearings sales belongs to North America, 23% to Asian countries, 15% to European countries, 7% of bearings are supplied to Africa and the Middle East, and 4% to South America (Markets and Markets Research Private Ltd).

The analysis of the regional distribution of bearings manufacturers showed that production is concentrated in many regions of the world. The share of the countries of the Asia-Pacific region in the total bearing production is 45%, in the second place is Europe (28%), in the third – the USA (25%) (Global Industry Analysts Inc.).

It is determined that among the types of bearings (roller and tapered) the largest share in the structure of bearing production is occupied by roller bearings – 34.4%. This kind of bearings allows nodes and aggregates to work more smoothly due to reduced friction during rotation, since they have smaller surface contacts. However, the demand for tapered bearings is increasing every year, due to their ability to withstand heavy loads (Allied Market Research).

It is found that the bearings market is influenced by three main groups of factors: trends in machine building (volatility of sales of machine building products, concentration of capital in highly developed countries, introduction of innovations), macroeconomic factors (market conditions, inflation, taxes) and competitive environment (MNCs competition). Tendencies in engineering can lead to fluctuations in bearing production, mergers and acquisitions, growth in the need of financial resources for development and innovation. Macroeconomic factors determine the instability of bearings demand, the growth of resource prices, the receipt of benefits or losses from the exchange differences, the growth of tax payments and sales costs. Factors of the competitive environment lead to the monopolization of the market and the absorption of small producers by transnational corporations, the dependence of producers from each other, the need to reduce the price of products in order to win a larger market share.

Now in the world there are 235 large manufacturers of bearings, many of which have subsidiaries, and about 294 small ones. The feature of the bearings market is that a small number of MNCs occupies more than 3/4 of the market. The leaders in the global bearings market are SKF Group (Sweden), Schaeffler Group (Germany), NTN Global (Japan), Timken Company (USA). A comparative analysis of the world's most powerful bearings manufacturers is given in (Table 2).

Table 2
A comparative analysis of leading MNC bearings manufacturers

Characteristics	SKF Group	Timken Company	Schaeffler Group	NTN Global
Occupation	Sweden	USA	Germany	Japan
Number of firms	103	63	151	71
Workers	45678	15006	90151	25493
Market share, %	28,6	9,2	29,1	18,5
Prevailing sales market	Europe	North America	Europe	USA
Main type of bearings	Rolling	Tapered, Roller	Rolling	Needle, Roller
Production quality	High	High	High	High
Assortment	Very wide	Wide	Wide	Very wide
Price range	Very wide	Wide	Wide	Very wide
Main brands, trademarks	Kaydon, Cooper, Alemite, Reelcraft	Timken, Fafnir, Gear, Carlisle, Drives et al.	LuK, INA, FAG	NTN, BCA, Bower, SNR

Source: (SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018; NTN Global, 2018)

A comparative analysis of MNC showed that the Schaeffler Group predominates in terms of resource potential, in terms of strategic vision – SKF Group and NTN Global, and the most branded is the production at Timken Company.

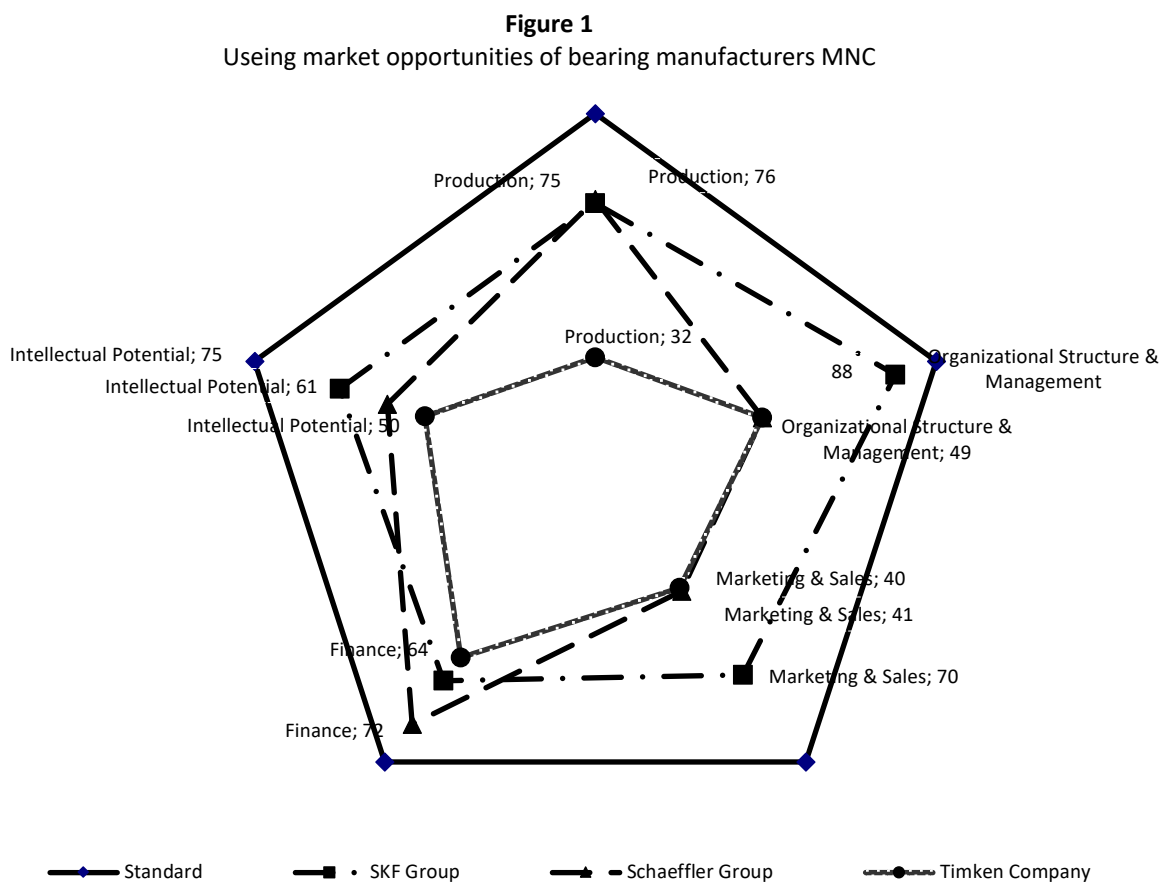
The value of CR₄ for the largest four MNCs is 85.4, which allows the market to be classified as highly concentrated. This creates a barrier to entry into the market for new manufacturers, as MNCs have both manufacturing and sales benefits and financial opportunities for innovation.

3.2. Results of the analysis of the use of market opportunities

Using the graph-analytical method, we will analyze the use of market opportunities for SKF Group, Timken Company and Schaeffler Group.

The following indicators are selected for evaluation: the block “Production” – the volume of production, the degree of depreciation of fixed assets, the productivity of fixed assets, the cost for one dollar of sales, net profit, profitability of production, the block “Organizational structure and management” – managers business skills, efficiency organizational structure, labor productivity of personnel, average monthly wage, block “Marketing and sales” – sales costs for one dollar of products, export share, marketing efficiency, number of brands, sales volume, block “Finance” – current liquidity, financial independence, assets turnover, turnover of working capital, return on assets, return on equity, and the block “Intelligent Potential” – goodwill, intangible assets share in the total value of assets, investment expenses for enterprise development, innovation of the company.

Based on the calculations, a graphoanalytical model was made that illustrates the use of market opportunities by world leading corporations in bearing production in 2017 (Figure 1).

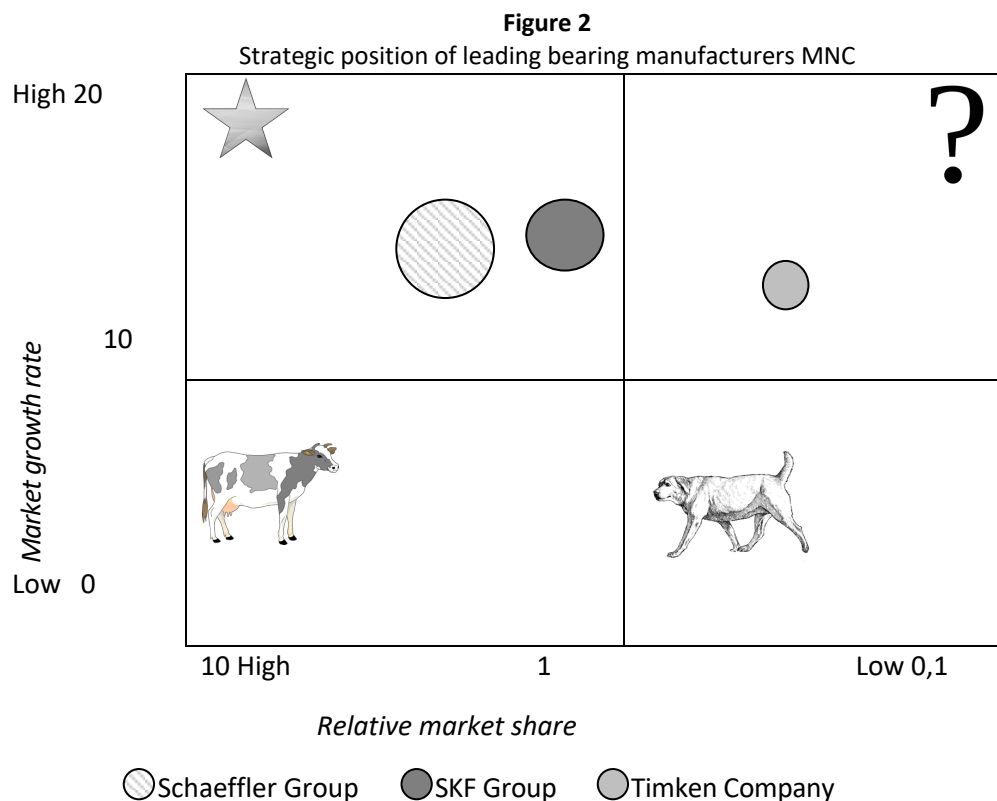


Source: (calculated by authors on the data of SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018)

It is determined that in 2017 SKF Group uses market opportunities the best, because MNC has an efficient organizational structure and production and pays great attention to innovative development. However, SKF Group uses marketing and financial potential worse, which leads to an increase in sales costs and a deterioration in the financial position. Schaeffler Group has an average level of using of market opportunities, pays great attention to financial stability, and is constantly investing in innovative development and production, but worse use of marketing and organizational capacity, in particular, under-financing, leads to the fact that MNC has a low level of productivity, and its brands are little recognizable among buyers. Timken Company is characterized by low level of using market opportunities. The company focuses on a stable financial position, but needs to increase the efficiency of production, marketing and management, because low wages do not contribute to the high efficiency of business management.

3.3. Results of strategic analysis

The results of the analysis of MNC strategic position on the market by BCG method (Figure 2), were obtained taking into account the data of 2017: the growth rate of bearings market, which makes up 11.3%, and the relative shares values of SKF Group market (1.55), Timken Company market (0.50), Schaeffler Group market (2.23) according to the market share of NTN Global. The size of the circle illustrates sales volume of MNC products.



Source: (calculated by authors on the data of SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018)

The analysis showed that SKF Group and Schaeffler Group are in the “Star” segment, their current operation is profitable, they occupy leading positions in the market and are rapidly developing. This requires constant financing improvements and innovations in order to maintain its position on the market. Timken Company is in the “Question marks” segment, which has less impact on the market and its competitors, needs to change its position on the market by forming competitive advantages and investing in expansion of sales.

The risk analysis showed that the biggest negative impact on the activity of MNC SKF Group is financial and market risks, for Timken Company – legal, financial, market, environmental and brand risks, and for Schaeffler Group – financial and subsidiary activity risk management. In addition to mentioned, the indirect effect on MNC's operations also has economic and political risks, manufacturing risks, supply chain risks, IT risks and personnel management risks.

The risk analysis by method of determining the operating leverage strength, which determines MNC operational risks, whose high values indicate high risks, showed that for SKF Group this type of risk is reduced during the examined period, for Timken Company is unstable, and for Schaeffler Group, despite significant reduction, remains the highest, due to significant financial risks because of significant financial costs.

3.4. Results of business efficiency evaluation

To determine the quantitative influence of key factors on MNC activity indicators, we will conduct a factor analysis of the profit by the method of chain substitutions. For the analysis we will use the factor model:

$$PPS = SPR \times TRCA \times LR \times ECP \times SSLF_1 \times EEQ,$$

where PPS – profit from products sales;

SPR – sales profitability,

TRCA – turnover ratio of current assets,

LR – liquidity ratio,

ECP – equity capital profitability,

SSLF₁ – the sum of short-term liabilities falling on dollar profit from products sales,

EEQ – enterprise equity.

The results show the following factors impact on the profit from MNC products sales (Table 3).

Table 3
Factors influence determining profitability of MNC sales

Factors	Factors influence on SKF Group, Dollars in millions		Factors influence on Timken, Dollars in millions		Factors influence on Schaeffler, Dollars in millions	
	2016/2015	2017/2016	2016/2015	2017/2016	2016/2015	2017/2016
SPR	8.8	39.4	-46.4	25.5	-25.8	-133.7
TRCA	-334.9	164.3	-51.3	-69.9	-365.1	367.0
LR	-6.4	-2048.3	79.3	-104.3	-278.3	220.3
ECP	-155.2	-10.9	-76.7	17.9	-731.6	-902.7
SSLF ₁	304.8	1756.9	16.6	153.5	526.6	-361.2
EEQ	65.2	355.0	-20.5	92.8	748.2	1411.7

Source: (calculated by authors on the data of SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018)

It is determined that for SKF Group in 2016 simultaneous influence of factors led to sales revenue reduction of \$117.7 million, and in 2017 – to increase sales revenue of \$256.4 million. Largely it was caused by changes in property liquidity and short-term liabilities.

At Timken Company, under the simultaneous influence of factors in 2016, there was a reduction in sales revenue of \$99.1 million, and in 2017 – an increase of \$115.6 million, which was greatly affected by a change in property liquidity, equity profitability, short-term liabilities and the amount of equity. For Schaeffler Group in 2016 the simultaneous influence of factors led to sales revenue reduction of \$126.1 million, and in 2017 – to increase of \$601.4 million. The greatest impact on the profit change was the change in equity profitability, the values of short-term liabilities and equity.

The results of MNC SKF Group, Timken Company and Schaeffler Group activities show their business effectiveness. It is expedient to assess the effectiveness of business decisions by calculating the indicators of functional, economic and commercial activity, the normative value of which is > 1.

Evaluating the effectiveness of MNC business showed (Table 4) that values of efficiency of SKF Group functional activity during 2015-2017 and Schaeffler Group in 2016 were less normative, it means that MNC functional activity was ineffective because of overspending on wages, fixed assets and working capital, payback period of which is more than a year.

Table 4
Results of analysis and evaluation of MNC business solutions effectiveness

Areas of business activity	SKF Group			Timken Company			Schaeffler Group		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Efficiency of functional activity business decisions	0.98	0.89	0.95	1.38	1.27	1.21	1.06	0.99	1.01
Efficiency of economic activity business decisions	1.49	1.61	1.67	1.34	1.35	1.23	1.87	2.03	1.97
Efficiency of commercial activity business decisions	1.21	1.20	1.26	1.36	1.31	1.22	1.41	1.42	1.41
General estimation of business decisions effectiveness	Solutions are effective, efficiency is growing			Solutions are effective, efficiency decreases			Solutions are effective, efficiency is steadily high		

Source: (calculated by authors on the data of SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018)

At the same time, a high level of labor motivation allows to achieve a high level of management efficiency, since it is difficult to manage a large number of subsidiaries. At Timken Company during 2015-2017 years, functional activity was efficient. It is proved that economic activity of the companies during 2015-2017 years was effective, it means that investment decisions were justified. In general, the business decisions made at SKF Group, Timken Company and Schaeffler Group are effective, since the value of economic efficiency of commercial activities is more than one unit.

3.5. Forecasting market opportunities changes of MNC bearing manufacturers by method of exponential smoothing

Predicting changes in the products sales of SKF Group, Timken Company and Schaeffler Group MNC is important in determining the prospects for changing their market opportunities. Method of exponential smoothing due to ease of application allows to obtain relatively exact results with a slight error (Table 5).

The results of forecasting the dynamics of sales volumes of leading MNC bearings manufacturers showed a tendency to increase sales: for SKF Group till 2021 for \$591.4 million, for Timken Company – by \$218.3 million, and for Schaeffler Group – by \$4401 million. For this function the error is typical up to 10%.

Table 5
Forecasting sales products volumes of MNC bearings manufacturers

MNC	Sales volume, Dollars in millions					Simulation results	
	Fact	Forecast				Model	R2
		2018	2019	2020	2021		
SKF Group	9352.6	9298.1	9474.8	9882.8	9944.0	$y=8745,7e^{0,0184x}$	0.8540
Schaeffler Group	16685.0	17342.9	18506.4	20175.4	21086.0	$y=13709e^{0,0619x}$	0.9848
Timken Company	3003.8	2980.1	3045.9	3201.0	3222.1	$y=2778,5e^{0,0212x}$	0.8440

Source: (calculated by authors on the data of SKF Group, 2018; Schaeffler Group, 2018; Timken Company, 2018)

3.6. Recommendations

The results of the analysis and forecasting market opportunities of leading MNC bearings manufacturers showed a positive market dynamics in strategic perspective; the additional opportunity for MNC is the fact that their products market is highly concentrated. It is proved that better use of MNC market opportunities is facilitated by such factors as the balance of internal resources use, stable strategic position, timely response to risks, especially financial, taking into account the influence of factors on profit from products sales.

For SKF Group, Timken Company and Schaeffler Group are recommended to implement strategies of growth stabilization within which to expand sales markets at the expense of: for SKF Group – strengthening market position through product development, for Timken Company – horizontal integration through enterprise acquisition in the PRC, for Schaeffler Group – horizontal integration through enterprise acquisition in the United States.

4. Conclusions

The results of this investigation showed that for MNC's effective business management analysis and forecasting market opportunities should be carried out steadily using integrated approach by synthesizing methods of quantitative and qualitative analyzes. The high efficiency of MNC business management is achieved through a timely and substantiated decision-making of functional and economic activity, where the efficiency of economic activity decisions is priority. Supporting factors of MNC's efficient business management are growth stabilization of the product market, the distribution of sales markets between competitors, the high level of using market opportunities, a strong strategic position in the market, stabilization of financial position. The result of the analysis and forecasting market opportunities is making MNC development strategy and defining the directions for improving the management of its business.

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