

Features of the Assessment of Multidirectional Risks of Investing in Advertising

Hassan Ali Al-Ababneh¹, Khalid thaher amayreh², Arwa Hussein Amoush³, Tatyana Ibragimkhalilova⁴, Olha Popova⁵, Myroshnychenko Ganna⁶

¹Faculty of Administrative and Financial Sciences - E - Marketing and Social Communication, Irbid National University, Irbid, Jordan

² Faculty of Administrative and Financial Sciences –business administration, Irbid National University, Irbid, Jordan

³ Department of accounting, Al-alztoonah University of Jordan, Amman, Jordan

⁴ Faculty of Economics, Department - Marketing and Logistics, Donetsk National University, Donetsk, Ukraine

⁵Department of Management and Financial and Economic Security, Donetsk National Technical University, Pokrovsk, Ukraine

⁶Department of Management and Financial and Economic Security, Donetsk National Technical University, Pokrovsk, Ukraine

Article Info

Volume 83

Page Number: 24829– 24839

Publication Issue:

May - June 2020

Abstract

In the modern realities of the development of the marketing concept, the features of investing in one of its key elements - advertising are considered. To ensure competitive positions in the market and increase the effectiveness of the marketing activities of organizations, a prerequisite is the use of modern advertising tools and techniques. The conceptual significance and the need for investing in advertising in modern conditions of the functioning of world markets are emphasized. It was found that to increase the share of customer loyalty, company and brand recognition, it is necessary to invest in advertising and its development. The necessity of the formation and implementation of advertising and investment projects that ensure the achievement of strategic goals and marketing effectiveness is substantiated. The relationship between the risks of advertising projects and the risks of investing in large projects is theoretically justified and determined. In contrast to existing approaches, the author carried out a statistical analysis of the financial data of Procter & Gamble and PepsiCo, Inc. to confirm the theoretical justifications, which allowed us to conclude that the risks of investing in the organization's strategic goals are covered by its profitability. It turned out that the risks that determine the results of business projects are largely determined by the success / failure of the introduction of innovative goods, services, products, which in turn directly depend on the quality and effectiveness of the advertising company. The main results of the study of the characteristics of advertising risks in the organization of effective marketing activities and the implementation of investment projects are presented. A methodological approach to assessing advertising risks in a close relationship with advertising objects and investment risks in advertising objects and advertising itself is conceptualized and formed. Methodological approaches to the assessment of advertising risks are formulated and proposed, which are based on an algorithm for correlating absolute advertising investments with the actual size of investment investments in projects, which will ensure management effectiveness in order to minimize the level of risks and rationality. Managerial decisions in the field of marketing.

Keywords: Investment, marketing, methodology, marketing effectiveness, evaluation, advertising, risks.

Article History

Article Received: 11 May 2020

Revised: 19 May 2020

Accepted: 29 May 2020

Publication: 12 June 2020

I. Introduction

The current stage of development of advertising is due to the emergence of new types of advertising practice, the enrichment of its key forms, genres and methods using creative marketing tools and technologies. Being not just one of the marketing tools, but an independent socio-economic type of professional activity, advertising, on the one hand, contributes to the development of a market economy, and on the other it acts as a means of influencing the minds of consumers, forming new models of social relations. Advertising is gaining the greatest importance in connection with the intensification of competition in global markets. At the same time, the desire of advertisers to increase the effectiveness of advertising companies, as well as evaluate their effectiveness, is growing, which will provide information on the advisability of using advertising and its individual means and methods, determine the conditions for the optimal impact of advertising on potential consumers. Advertising activity is associated with the need to make decisions in the face of incomplete information. Uncertainty leads to the fact that the consequences of these decisions for the advertiser are a priori difficult to evaluate. Therefore, the planning, implementation and control of an advertising campaign should be carried out based on the requirement to minimize or limit possible failures and losses. Since advertising costs are usually very significant, the practical use of trial and error is fraught with significant financial losses for the advertiser. The basis of risk management and the development of rational, and in some situations optimal solutions, is preliminary modeling of the advertising campaign with an assessment of the necessary indicators. Risk assessment, which affect the key results and the effectiveness of marketing activity in modern conditions, is one of the strategic areas of activity of any organization. The issue of developing and improving existing methods and approaches to assessing the risks of investing resources in advertising projects remains relevant in modern business conditions, which will improve the quality of management of the organization's marketing activities and will facilitate the adoption of rational management

decisions by investors.

The development and improvement of methodological approaches to assessing the risks of investing in advertising ensure the simultaneous fulfillment of several functions, namely: determining the likelihood and size of profit (loss) from the invested project; clarification of the need to develop alternative investment options, as well as their comparison; determining the optimal size of advertising investments, clarifying the advertising plans of investors. It is worth noting that in modern business conditions and the constant modernization and improvement of marketing tools, such as advertising, advertising risks are heterogeneous. The heterogeneity of advertising risks is due to their multidirectional nature, which depends on a large number of both internal and global factors, which are characterized by their constant variability and volatility, which greatly complicates the process of assessment and diagnosis. However, it is worth noting that in order to ensure competitive positions in global markets in the conditions of constant volatility, both internal and external environment, to ensure the effectiveness of organizations, the necessary conditions are the use of modern marketing tools and methods of promoting and increasing consumer loyalty such as advertising.

Consequently, any kind of advertising campaign will require significant investments and the budget there is a need to make a decision on investing in advertising, assess its effectiveness and rationality of the risk management methodology. Since investing in advertising in order to increase production by expanding competitive positions and increasing the share of customer loyalty is accompanied by risks that may adversely affect the planned results of marketing activities and its effectiveness, special attention and more detailed research requires the improvement and development of the risk assessment methodology by determining loss functions with probabilistic characteristics.

II. THEORETICAL ASPECTS OF INVESTING IN ADVERTISING AND ASSESSING THE MAIN RISK

Modern business conditions are characterized by high requirements from the management and management decision-making methodologies,

which are aimed at the optimal ratio of income and risk level of activities. Achievement of performance in the conditions of constant volatility of both internal and external environment is impossible without the use of innovative management methods and marketing tools such as advertising. To ensure the effectiveness of this activity, it is necessary to rationally build a methodology for assessing risks and possible losses when investing in advertising to achieve strategic goals. The research of the main aspects of investment risk management, advertising risk and entrepreneurial risk has been the subject of work by many domestic and foreign scientists. Scientists dealt with this problem from the beginning of the 1940s, then in the 1970s and 1980s, and later more and more new improved methods and approaches for risk analysis and assessment were developed and applied. It is worth noting that in the framework of the study (Heinz-Peter Berg, 2010), an approach is laid down that considers the risk management procedure that is used in modern conditions in a modified form in organizations, but this approach does not include all the main factors in this procedure, both internal and and external impact on the decision-making process for risk management, which is a very important argument in modern business conditions. Of particular note is the scientific approach (Zeng, 2010), which quantitative risk management methods as a standard management tool that takes into account mainly internal factors, and the scope of their occurrence is the risks of projects, processes and products. This approach is not relevant in modern realities and will not allow ensuring the effectiveness of management, since it takes into account specific areas of activity and a minimum set of influence factors. Particular attention should be paid to research (Litvinyuk, 2016), which, under the management of risk management, identifies a complex multifaceted process that takes into account both internal and external factors and is based on the use of economic and mathematical modeling tools to determine the level of financial losses. However, it is worth noting that the presented studies of a group of scientists do not take into account the features of advertising risk assessment. Studying the development of risk management science that

accompanies any type of activity, it is worth noting that, according to (Belyaev, 2013), riskology develops both in philosophical and historical aspects. The development of modern business, as well as the development of the social environment, involves the use of analytical approaches to risk analysis. At the same time, investment risks are considered depending on the areas of investment (Aven, 2016), and their developed classification is improved (Batova, 2015). The possibilities of assessing financial risks are investigated separately (Leshchinsky, 2009), which considers both qualitative and quantitative risk assessments. Of particular interest are studies in the field of risk management (Litvinuk, 2016), which considers a systematic approach to risk management, taking into account the strategic goals of the organization. Various approaches to assessing the investment attractiveness of projects are also being actively studied (Melai, Sergeeva, 2015). Particular attention is paid to quantifying risks and improving the direction of risk assessment and management (Aven, 2014).

III. METHODOLOGICAL APPROACHES TO THE EVALUATION OF THE VARIOUS RISKS OF INVESTMENT IN ADVERTISING

The theoretical basis of the study is the fundamental principles of risk management, marketing, advertising, the theory of finance and economic development. The following research methods were used in the work: the method of logical generalization, while highlighting the features of the implementation of advertising in modern conditions; scientific abstraction and system-structural analysis - when conducting a comparative assessment of the risks of investment and advertising projects; heuristic and formal methods - in the classification of key financial indicators P&G and PepsiCo, Inc.; critical analysis and scientific generalization - while highlighting the main approaches to risk management methods to justify the relevance and need for further research.

The information base of the research is formed by the basic regulatory legal acts that regulate advertising activities; international rules and standards for risk management; electronic

resources that are presented on the Internet as part of the study of risks and methods of their management in the formation of an advertising campaign and investing in it. The investor is always interested in the question of the need for sufficient advertising expenses, while making a decision requires reliable information on the extent to which he risks to lose not only the means of the advertising project, but also (most significantly) the resources of the main investments, the efficiency of which is based on the advertising company efficiency. Therefore, there is a need for additional research on this problem. Using the described research methods and techniques, a methodological approach to assessing advertising risks together with an advertising object, the main project, which take into account the characteristics of advertising risks, will be developed. The main objectives of these approaches in this case are: to highlight the

characteristics of advertising risks; to identify the relationship between the risks of investing in advertising objects and in advertising itself; to develop an improved approach to assessing advertising risks in close connection with advertising objects. In the course of their activities, enterprises face a set of various risks, including advertising risks. Advertising risks have a number of features that distinguish them from the general list. Let's compare the risks of "main" project and its accompanying advertising project. Immediately let's specify right away that the systematic risks that are always present are difficult to regulate, and sometimes they are practically unaffected by project management (political, environmental, legal, economic, etc.) are indicated by us and are beyond the scope of our study Table 1.

Comparison Criteria	Risks of investment (main) project	Risks of advertising project
Strategic plans		
- formation and implementation of strategic decisions	+	+++
Production plans		
- execution of scheduled works	+	++
- achievement of established production output	+	++
- <i>ensuring the established level of production costs</i>	+	++
- <i>provision of technological standards</i>	+	++
- <i>settlement of administrative decisions</i>	+	+++
Financial plans		
- acquisition of expected income	+	+++
- maintenance of liquidity	+	+++
Market plans		
- market conditions	+	++++
- market position	+	++
HR plans		
- stability	+	+++
- competence	+	+++
- loyalty	+	+++
- motivation	+	+++
Organizational plans		
- segmentation	+	++
- impact of investment amount on project efficiency	+	++
- project underfunding	+	+

- fraud	+	+++
- unforeseen factors	+	++++

Next, we explore the relationships between the risks of investing in advertising objects and in advertising itself. Immediately let's specify right away that the calculation largely depends on

the level and sectorial specificity of the project itself. Consider these relationships on the example of the results of the leading brands: The Procter & Gamble Company and PepsiCo, Inc.

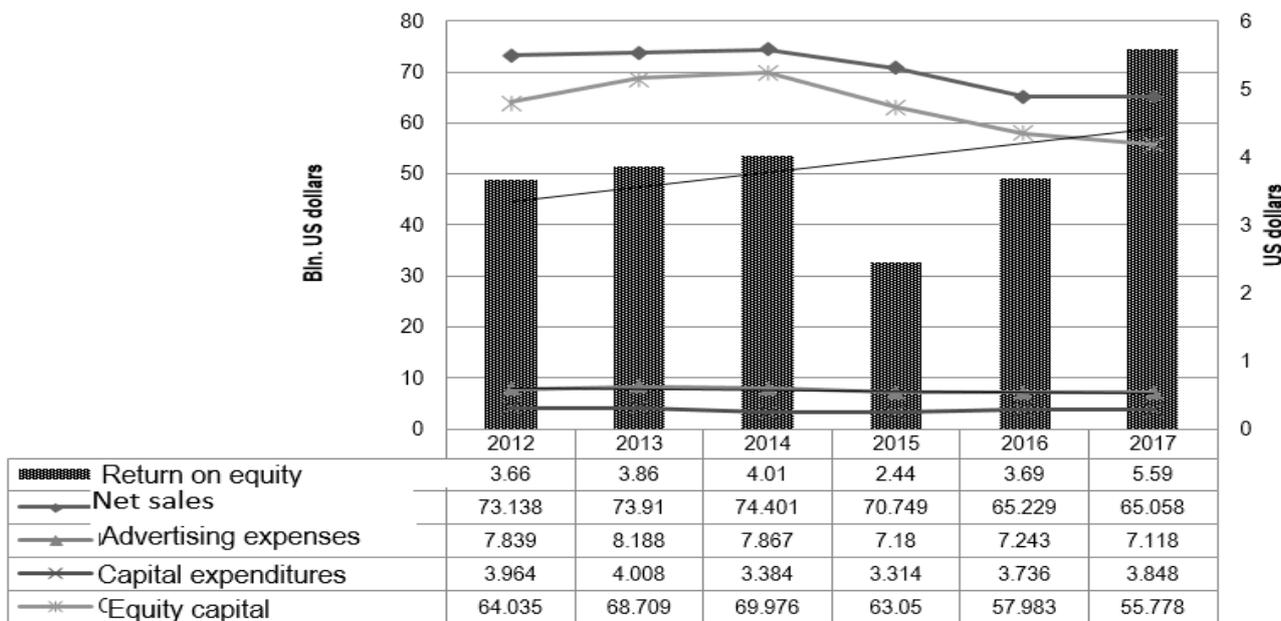


Fig: Sampling of financial performance of The Procter & Gamble Company P&G

The dynamics of the corporation's absolute indicators (sales volume, equity, capital expenditures) are negative. The advertising expenses are reduced. At the same time, the relative indicator of earnings per share is growing with significant acceleration (a linear trend line is presented). Consequently, a corporation compare its advertising expenses with the amount of capital, assets and capital investments and, most importantly, with risks, optimally. It should be noted that the ratio of advertising expenses to capital expenditures of the corporation is stable and is approximately 2.0. David Taylor, the Chief Executive Officer at Procter & Gamble, said that there is a time to reduce company's advertising expenses. Since 2015, the number of its agencies has been reduced from 6 to 2.5 thousand and the expenses have been decreased by USD 750 million, respectively. The corporation is planning to further reduce the number of agencies by 50%, and to improve marketing activities by working

only with creative agencies, i.e. if we can do without an agency, its work will be replaced with appeals to "public sources". Thus, until 2021, P&G is going to save USD 2 billion on the marketing (according to adindex.ru). It should be emphasized that this saving is based on the integrated approach (savings on the product cost, trade, manufacturing, marketing, including advertising). In addition, P&G is planning to improve the efficiency of advertising directly at points of sale, to develop promotion and programs of direct access to consumer, using Direct-To-Consumer. By optimizing spending in 2017, P&G significantly slashed its advertising budget. So its amount absolutely amounted to USD 7.118 billion. This is the minimum amount over the last 11 years. At the same time, P&G sales in 2017 amounted to USD 65.1 billion, which is not less than the level of 2016. The corporation's operating profit increased from \$ 13.4 billion in 2016 to \$ 14 billion in 2017.

Thus, a corporation operating in 180 countries and territories and carrying out operations in international markets, primarily pays attention to the risk management issues, based on global economic trends, measuring and optimizing its

expenses and revenues. We will conduct a similar analysis by examining the financial performance of another transnational company in the food industry - PepsiCo, Inc.

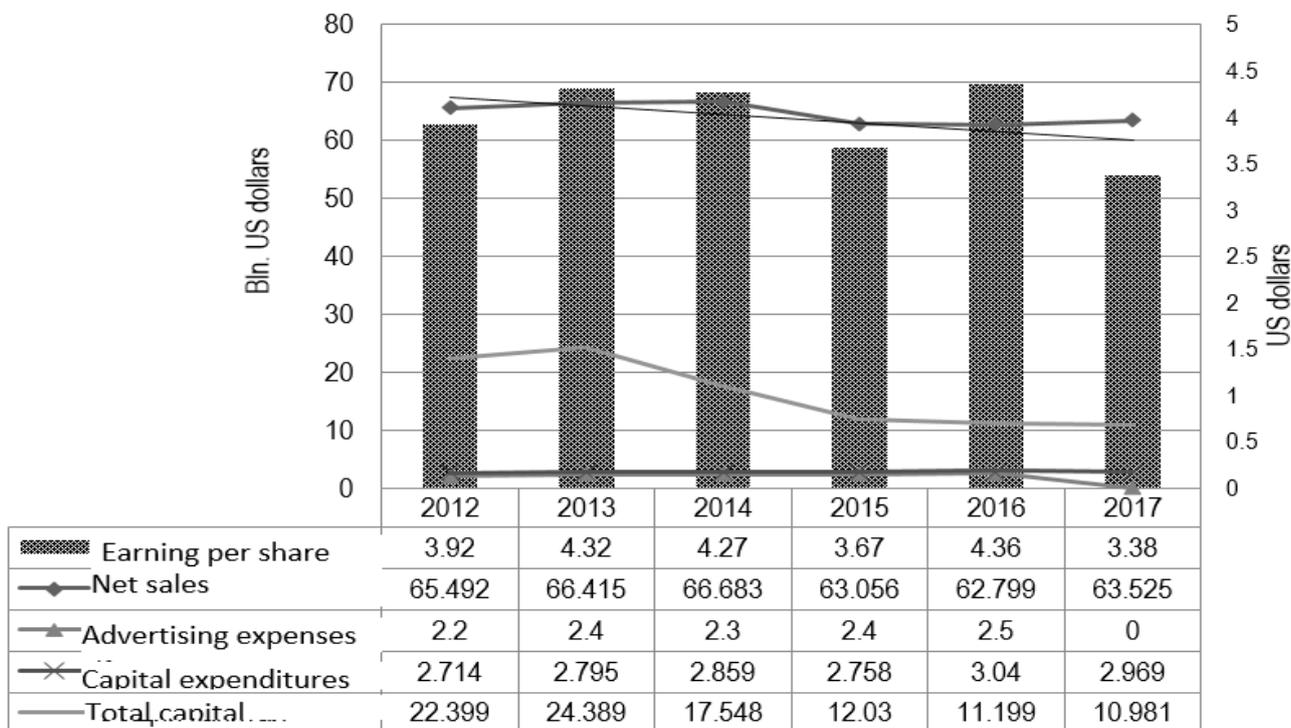


Fig: Sampling of financial performance of PepsiCo, Inc

The dynamics of both absolute indicators of PepsiCo, Inc. and earnings per share are negative. Earnings per share are falling. The corporation has increased advertising costs while reducing not only sales, but also earnings per share, and absolute values of capital are decreasing. Corporate advertising expenses are rising with reduction not only in sales, but also in earnings per share, and absolute values of capital are declining. Consequently, there are questions concerning the ratio of the expenses for advertising to the amount of capital, assets and capital investments of PepsiCo, Inc. and, finally, to the risks (both investment and advertising). Today, the corporation is planning to strategically rethink doing business, study the consumption market for goods, monitor the needs of people of different generations, taking into account global world trends, in particular, the trends of population ageing.

It should be noted that expenses of PepsiCo, Inc. vary primarily as a result of fluctuations in commodity prices and expenses on employee remuneration. The corporation's results of operations depend, in particular, on its ability to maneuver prices, receivables and payables projects, decisions, etc. Special importance is attached to maintaining and increasing profits and market share. Particular importance is attached to maintaining and increasing profits and market share. The inability to manage increases the risks of deterioration in financial results. On the contrary, quality management, introduction of marketing and operational innovations, successful response to challenges, competitive innovations and trends in changes in consumer habits would reduce the overall level of its risks. The risks affecting the results of activities are largely dependent on the successful development, introduction and

marketing of new products and goods, improvement of equipment and production processes. The success of such innovations is determined by the ability of analysts to correctly predict purchasing and consuming power. In addition, at the present stage, it is particularly important to ensure the necessary protection of intellectual property and to avoid violation of its

rights, to respond adequately and promptly to the technological advances and intellectual property rights granted to competitors. In regard to the above and from our point of view, it is of interest to study the relative indicators of P&G and PepsiCo, Inc., which demonstrate the relationship of investing in their main projects and advertising.

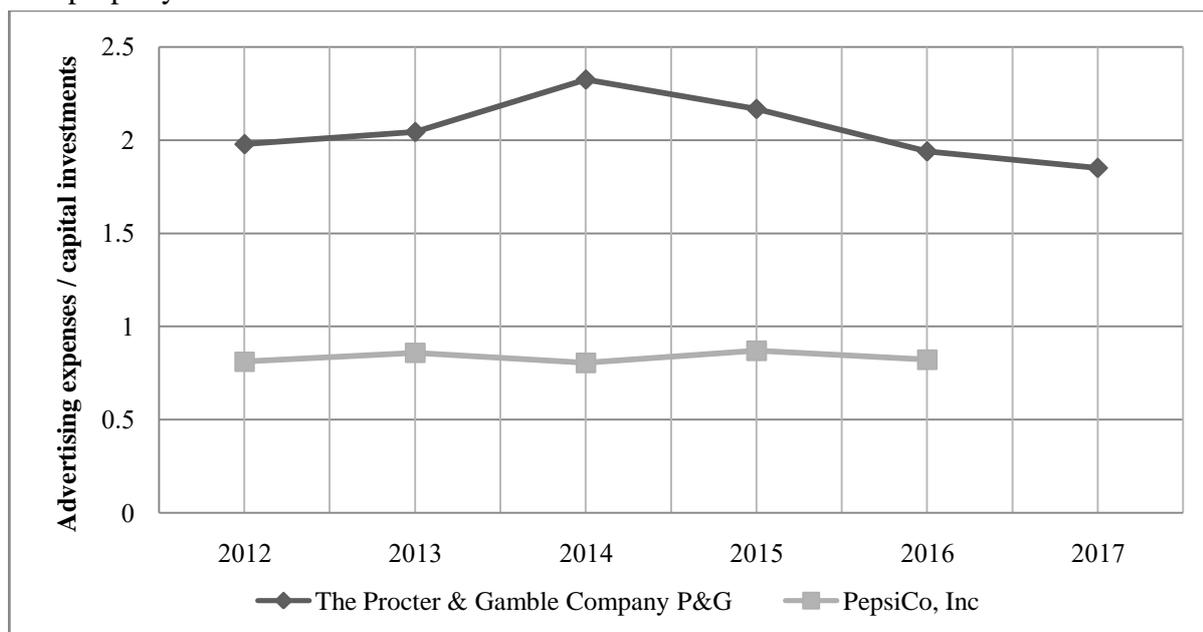


Fig: Ratio of advertising expenses to capital investments

The dynamics of the ratio of advertising expenses and capital investments in both corporations demonstrates stability. However, the ratio of P&G exceeds the ratio of PepsiCo, Inc. almost two-fold. We should remind that at the same time PepsiCo, Inc. shows a decrease in earnings per share. We believe that a more detailed analysis of this ratio and probably other

ratios (for example, the share of advertising expenses in investments to current expenditures) will reveal the “risk acceptability margin”, which should become a marker for making decisions on reformatting investment budgets. We summarize and compare information on the risk orientation of the main and advertising projects in Table 2.

Project risks	Main project risks	Advertising risks	Total risk
Systematic risks of macroeconomic character			
Changes in political conditions	↑	↑	↑↑
Global changes in economy	↓	↓	↓↓
Currency risk	↓	↓	↓↓
Fluctuations in credit markets	↓	↓	↓↓
Risks associated with contractors			
Fluctuations in supply chains	↑	↑	↑↑
Fluctuations in prices and cost of suppliers and contractors	↑	↑	↑↑

Competitive risk			
Fluctuations in success level of competitive innovations	↑	↑	↑↑
Volatility in the ability to influence changes in consumer's habits	↑	↑	↑↑
Competitiveness of the project in the local and global markets	↑	↑	↑↑
Consumer demand and customer relations	↑	↑	↑↑
Reputation	↑	↑	↑↑
Organizational risk			
Outsourcing	↑	↑	↑↑
Information security, including cybersecurity	↑	↑	↑↑
Legislative fluctuations and collisions	↑	↑	↑↑
Tax fluctuations and collisions	↑	↑	↑↑
Management of current acquisitions	↑	↑	↑↑
Opportunities and abilities to adapt	↑	↑	↑↑

Thus, a comparison of the risks of the main and advertising projects demonstrates their absolute “co-orientation”. Consequently, changing any risk of the main project automatically changes the corresponding risk of the advertising project and vice versa. Using the method of analogies for measuring project risks, the study of statistical data and financial statements of P&G and PepsiCo, Inc. made it possible to assess the results of implemented projects and extrapolate them for the future. Since both company are transnational corporations and operate in many countries around the world, it should be noted that strategically correct decisions of P&G made it possible (all things being equal - at the same level of systematic risks and macroeconomic situation) to achieve growth in earnings per share and stabilize their financial performance. PepsiCo, Inc. is "late" with the adoption of strategic decisions that determine its development for a long-term perspective, and, therefore, underestimates the level of potential and existing risks.

IV. CONCLUSION

Based on the results of the study, the main theoretical aspects of the organization of effective

marketing activities using the basic tools of advertising and investing in it are determined. The lack of a unified approach to the organization of effective marketing activities has been revealed. Unlike existing studies and approaches by the author, it is proved that an important argument in the organization of advertising campaigns is the tendency of senior management to take risks and the likelihood of financial losses in case of risk, as well as the relatively high cost of advertising investment. Ensuring the effectiveness of marketing activities and maximizing financial results is impossible without a high level of risk, which has a close relationship and defines the main priorities within the existing paradigm, as well as the ratio of risk and result. The basic elements of advertising and the features of investing in advertising projects are examined, which made it possible to identify a number of features of advertising risks in modern business conditions. It is worth noting that the identified risks, on the one hand, always coincide with the risks of the main project, and on the other hand, they exceed them quantitatively, which is mainly associated with the organization of the work of the personnel involved in advertising (team

instability) and the variability of the input data of the advertising itself (which is determined by the influence on the content of advertising of a large number of constantly changing factors). According to the results of a statistical analysis of the financial indicators of companies and the method of analogies, it was found that there are close relationships between the risks of investing in advertising objects and the advertising itself, which determine the specifics of the advertising company, the complexity of its organization and the high price for the investor, which can be covered by increasing the share market, customer loyalty, increasing profits through advertising companies. In contrast to the existing approaches, it has been established and concluded that the risks, which are the defining criteria and the main results of business projects, are largely determined by the success (failure) of the introduction of new products (with the correct analytical forecasts), which, in turn, depends on the quality, the effectiveness of the advertising campaign and the risk appetite of the organization's top management. It is proved that the larger the organization's rice-appetite, the more effective is the marketing company that secures the achievement of strategic goals. According to the results of studies, it should be noted that the circle "investment - advertising" should end with the circle "advertising - investment". In addition, relations with other advertising projects (both investor-advertisers and competitors) have a significant impact on the success of an advertising company.

Therefore, in order to ensure the effectiveness of marketing activities, it is necessary to conduct a rational assessment of the risks of investing in advertising, which will determine the risk appetite of the organization and ensure the reliability and relevance of the data when making management decisions. Constant monitoring and comparison of advertising investments with investments in large projects is necessary to form a successful approach to assessing advertising risks.

Using the basic tools of the method of analogy and comparative analysis, an interconnection tool was determined, with which you can determine the maximum threshold for investment in advertising in combination with the volume of basic investment. As such a marker, it is recommended to use the ratio of the amount of advertising investments to the amount of main investments.

The developed and proposed methodological approach to assessing the multidirectional risks of investing in advertising in practice will allow us to determine the criteria and metrics for choosing the best advertising projects, the level of financial losses of which is minimal, which will increase the effectiveness of the organization's marketing activity through the use of key advertising elements. It is worth noting that this area is very relevant in modern realities and requires more in-depth analysis and improvement.

REFERENCES

- [1] Heinz-Peter Berg (2010). Risk management: procedures, methods and experiences. Reliability: Theory & Applications, 5 (2 (17)), 79-95.
- [2] Батова И. Б. (2015). Классификация рисков и причины их возникновения / И. Б. Батова // Международный студенческий научный вестник.. – № 1. [Электронный ресурс]. – Режим доступа: <http://www.eduherald.ru/ru/article/view?id=11976> (дата обращения: 20.02.2018).
- [3] Литвинюк О.В. (2016). Обґрунтування науково-методичних підходів до моделювання оптимальної структури портфелів активів та пасивів банків/ Вісник соціально-економічних досліджень: зб. наук. праць; за ред. М. І. Зверякова (голов. ред.) та ін. (ISSN 2313-4569). – Одеса: Одеський національний економічний університет– Вип. 2. - №61.- С.
- [4] Беляев Е. И. (2013). Рискология в философской перспективе / Известия Саратовского ун-та. Нов. серия.. – Т. 13. Сер. Философия. Психология. Педагогика, вып. 1. – С.10–14. [Электронный ресурс]. – Режим

- доступа:
<https://www.sgu.ru/sites/default/files/journals/izvestiya/pdf/2013/12/13/2013-1-3.pdf>. (дата обращения: 12.03.2018).
- [5] Боробов В. Н., Носенко А. А. (2014). Риски персонала рекламного проекта /"Российское предпринимательство".. – № 10 [Электронный ресурс]. – Режим доступа: <https://creativeconomy.ru/lib/8379> (дата обращения: 23.02.2018).
- [6] Лещинская А. Ф. (2009). Оценка финансовых рисков инвестирования при реализации наукоемких технологий // Вестник ТГУ.– №2. – С.373–380.
- [7] Мелай Е. А., Сергеева А. В.(2015). Подходы к оценке инвестиционной привлекательности организации: сравнительный анализ // Известия ТулГУ. Экономические и юридические науки. — №1-1. – С.80–93. [Электронный ресурс]. – Режим доступа: <http://cyberleninka.ru/article/n/podhody-k-otsenke-investitsionnoy-privlekatelnosti-organizatsii-sravnitelnyy-analiz> (дата обращения: 23.02.2018).
- [8] Попова А. Ю. (2006). Оценка риска инвестиционного проекта // Научный журнал КубГАУ - Scientific Journal of KubSAU.. – №19. [Электронный ресурс]. – Режим доступа: <http://cyberleninka.ru/article/n/otsenka-riska-investitsionnogo-proekta> (дата обращения: 23.02.2018).
- [9] Собченко Н. В (2011). Методика оценки эффективности инновационно-инвестиционного проекта // Бизнес в законе.. – №4. – С.277–280. [Электронный ресурс]. – Режим доступа: <http://cyberleninka.ru/article/n/metodika-otsenki-effektivnosti-innovatsionno-investitsionnogo-proekta> (дата обращения: 12.03.2018).
- [10] Aven T., Zio E. (2014). Foundational issues in risk analysis Risk Analysis // National Institutes of Health. –2014. – 34 (7). – P. 1164-1172. [Электронный ресурс]. – Режим доступа: <https://www.ncbi.nlm.nih.gov/pubmed/24152111> (дата обращения: 23.02.2018).
- [11] Aven Terje (2016). Risk assessment and risk management: Review of recent advances on their foundation // European Journal of Operational Research.. – Volume 253, Issue 1, 16 August. – P. 1–13. [Электронный ресурс]. – Режим доступа: <https://www.sciencedirect.com/science/article/pii/S0377221715011479#!> дата обращения: 23.02.2018).
- [12] Baraldi P., Zio E., Compare M. A (2009) method for ranking components importance in presence of epistemic uncertainties //Journal of Loss Prevention in the Process Industries.. – 22 . – P. 582–592.
- [13] Ben-Haim Y. (2012) Risk Analysis 101: Robust-Optimization — the elephant in the robust-satisficing room // Moshe Sniedovich Department of Mathematics and Statistics University of Melbourne Melbourne Vic 3010, Australia – 35 p.
- [14] Ben-Haim Y.(2012)Doing our best: Optimization and the management of risk Risk. // Risk Analysis.– 32 (8) . – P. 1326-1331.
- [15] Brandtner M. (2013) Conditional value-at-risk, spectral risk measures and (non-) diversification in portfolio selection problems— A comparison with mean–variance analysis //Journal of Banking and Finance. – 7. –P.5526-5537.
- [16] Mumpower J.(1985)Risk analysis and risk management: An historical perspective /Risk Analysis.. – 5 (2). –P. 103-119.
- [17] Cox L.A.T. (2012). Confronting deep uncertainties in risk analysis//Risk Analysis – 32). –P. 1607-1629.
- [18] Fahimnia B., Tang C.S., Davarzani H., Sarkis J.(2015)Quantitative models for managing supply chain risks: A review // European Journal of Operational Research.. – 247. – P.
- [19] Flage R., Aven T. (2015). Emerging risk – conceptual definition and a relation to black swan types of events //Reliability Engineering and System Safety.– 144. –P. 61–67.
- [20] PepsiCo - Official Website [Электронный ресурс]. – Режим доступа: <http://www.pepsico.com/>
- [21] Procter&Gamble [Электронный ресурс]. – Режим доступа: <https://www.pg.com.ua/uk-UA>
- [22] Procter&Gamble сократит расходы на маркетинг до 2021 года Маркетинг | 09 Января 2018 14:23 [Электронный ресурс]. – Режим доступа:

<https://adindex.ru/news/marketing/2018/01/9/168425.phtml>

[23] TheWallstreetjournal. [Электронный ресурс]. – Режим доступа: <http://quotes.wsj.com/company-list>