FINANCIAL MODELS FOR SUSTAINABLE GROWTH OF INNOVATIVE ENTERPRISES

Professor Sava Dimov PhD[1]
Burgas Free University

Associate Professor Aleksandr Sergeev PhD
FinUniversity

Annotation: *The article considers the factors influencing the increase (decrease) in the sustainable growth rate of cluster enterprises. The negative impact of factors creates a greater degree of uncertainty and increases risks. The creation of innovative products entails a significant investment of resources while ensuring sustainable growth. Planning the costs of innovative products is not associated with a sustainable growth rate, which reduces the return on the resources used already at the first stage - designing an innovative product. Increasing the efficiency of using intensive factors entails an increase in a sustainable growth rate. A predictive model of a sustainable growth rate is proposed, which allows modeling the process of reducing costs for innovative products while simultaneously monitoring a company's sustainable growth rate. Recommendations are given on the use of functional strategies that contribute to a sustainable growth rate of enterprises in the innovation cluster. The novelty of the study lies in a new approach to solving the problem of sustainability of innovative enterprises: in combining the functions of creating innovative products and ensuring sustainable growth.*
Keywords: *innovative enterprises, models of sustainable growth, the impact of intensive factors.*
JEL Classification System: *C22, G32, L65, O33.*

ФИНАНСОВИ МОДЕЛИ ЗА УСТОЙЧИВ РАСТЕЖ НА ИНОВАТИВНИ ПРЕДПРИЯТИЯ

Професор д-р Сава Димов
Бургаски свободен университет

Доцент к.ик.н. Александър Сергеев
ФинУниверситет

Анотация: *Статията разглежда факторите, които влияят върху увеличаването (намаляването) на темпа на устойчив растеж на клъстерните предприятия. Отрицателното въздействие на факторите създава по-голяма степен на несигурност и увеличава рисковете. Създаването на иновативни продукти изисква значителни инвестиции на ресурси, като същевременно осигурява устойчив растеж.*

[1] The authors' share is as follows: Professor Dimov Sava Hristov PhD, Burgas Free University, Republic of Bulgaria - 50% and Associate Professor Sergeev Aleksandr Aleksandrovich, PhD in Economics, Financial University under the Government of the Russian Federation, Moscow - 50%.

Планирането на разходите за иновативни продукти не е свързано с устойчив темп на растеж, което намалява възвръщаемостта на използваните ресурси още на първия етап – проектирането на иновативен продукт. Повишаването на ефективността на използването на интензивни фактори води до увеличаване на устойчивия темп на растеж. Предлага се прогнозен модел на устойчива степен на растеж, който позволява моделиране на процеса на намаляване на разходите за иновативни продукти, като едновременно с това се наблюдава устойчивата степен на растеж на компанията. Дават се препоръки за използването на функционални стратегии, които допринасят за устойчива степен на растеж на предприятията в иновационния клъстер. Новината на изследването се състои в нов подход към решаването на проблема за устойчивостта на иновативните предприятия: в комбинирането на функциите за създаване на иновативни продукти и осигуряване на устойчив растеж.
Ключови думи: *иновативни предприятия, модели на устойчив растеж, въздействието на интензивните фактори.*
Система за класификация JEL: *C22, G32, L65, O33.*

Introduction
Relevance and State of Research

Robert Gibrat, in his work “Inegalites Economiques”, proposed Gibrat's growth concept (Gibrat's Law). Gibrat described changes in a company's growth rate based on revenue, net assets, or headcount. Using Gibrat's model, Bianco and Sestito [1] examined the influence of these factors on 28,700 Italian companies. Initially, the researchers were interested in the impact of output volume (size) or headcount on a company's growth rate. The variance of random variables for each of the enterprise categories under consideration was compared with the expected value. The results of Mansfield's study showed that small firms had higher growth rates than large companies (in six out of ten samples). Furthermore, regression analysis provides even greater evidence for the validity of Gibrat's Law. At the end of the 20th century, Contini and Revelli considered the possibility of using a modified Gibart model in a changing macroeconomic environment. Wagner analyzed more than 10,700 small businesses over three years [2]. He showed that the probability of bankruptcy for small businesses increases initially and then decreases.[2]

According to Professor George Kleiner, the sustainability of an enterprise is ensured by the effective use of resources while preventing dangers and threats. The quality characteristics of innovative products affect price and sustainable growth through the technologies used. In order to integrate sustainability into business (Integrating Sustainability into Business, abbr. ISB), innovation requires a variety of technologies [3]. Information technologies, innovative product design technologies, innovative product manufacturing technologies, digital technologies. Modigliani and Miller, studying the growth of companies, came to the conclusion that sustainable growth of companies is possible if the growth rate of added value is higher than the growth rate of invested capital. To measure company growth, they used indicators such as sales growth, equity, and asset value [4].

[2] Gibrat's Law was formulated by French economist Robert Gibrat in 1931. It posits that the proportional rate of growth of a firm is not influenced by its absolute size. This means that both small and large firms have an equal probability of growing at a certain rate, leading to a log-normal distribution of firm sizes in the market.

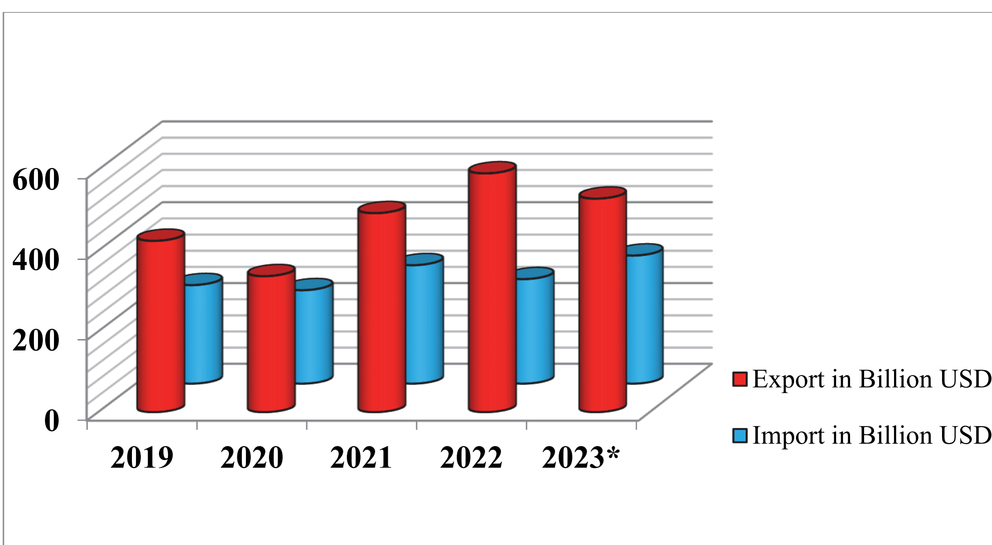
In the scientific work of Mengistaye T. (2006) "Competition and Human Capital of Entrepreneurs in Ensuring the Longevity and Growth of Small Businesses", it is noted that competition and human capital play an important role in the growth of an enterprise [5]. Thus, when considering the origins of sustainable growth, scientists have always sought an economic mechanism that provides protection from external and internal threats through the effective use of resources and the constant addition of value to equity.

Based on data from a sample of small-scale producers, Taye Mengistae argues that a business is less likely to survive and prone to grow more slowly the smaller the average price-cost margin in the industry in which it operates. The probability of survival is also lower in industries that compete with imports. Small businesses are less likely to survive and prone to grow more slowly in industries where competitive pressure is stronger. The probability of survival and the expected growth rate determined by survival increase with entrepreneurial human capital. Therefore, the effect of competition and entrepreneurial human capital on the growth of survivors would be biased by the effect of the same variables on the expected growth rate of a start-up.

Models, factors and sustainable growth of companies

Considering the current situation in the innovative sphere of industrial production, it should be noted that the decline in demand caused by sanctions and political pressure on Russia significantly disrupts foreign trade in innovative goods [13].

Diagram 1
Exports and imports of goods by the Russian Federation



Compiled by the author based on data from the Federal Customs Service [6]

Economic benefit is defined as the difference between the value of the income the owner expects from an asset and the opportunity cost of forgoing the opportunity to earn income from investing in similar other assets [7]. For an innovative enterprise, importing components, parts, assemblies, and technological elements represents the alternative cost of purchasing or import substituting (producing) these elements under existing conditions. The benefit from import substitution is determined by the effect – the amount of retained earnings resulting from the comparison.

The sustainable (potential) growth model is also constructed on an alternative basis. Benefit realization is viewed as an alternative to other, unselected benefit realization options. In the practice of financial management, two models of potential business growth are used: the internal (potential) growth rate and the sustainable (potential) growth rate.

In the internal growth model, financing is provided solely through equity (retained earnings). The economic rationale behind this model is to determine the amount of retained earnings generated from each ruble of equity capital alone. Its mathematical expression is similar to the sustainable growth rate model, but without the equity multiplier (Formula 1) and the component M = NA/E. Comparing the values for these two models provides an understanding of the degree to which factors influence sustainable growth: those with an active financial policy in attracting financial resources and those without.

The sustainable growth rate model (SGR) is a model of potential economic growth - a four-factor multiplier, the factors of which are [8]:

$$\mathrm{SGR} = \frac{\Delta \mathrm{E}}{\mathrm{E}} = \frac{RP}{E} = \mathrm{EM} * \mathrm{ROS} * \mathrm{NAT} * \mathrm{PCR}\ (1)$$

Where:

EM = NA/E – Equity Multiplier (Shows how many times equity is contained in total assets);

ROS = NP/V – Return on Sales (It expresses what percentage of each realized revenue remains as net profit after all expenses);

NAT = V/NA – Net Asset Turnover (Measures the effectiveness of using net assets to generate revenue);

PCR = RP/NP – Profit Capitalization Ratio (Reflects the share of retained earnings in relation to total net profit).

The model of equity capital growth is determined not only by efficiency, investment (NAT), operating activities (ROS), and financial activity (EM = NA/E), but also by the alternative share of retained earnings allocated to dividend payments and profit capitalization (DPa & PCa). Sustainable growth of enterprises should be ensured at an early stage of the innovation process through intensive factors (Formula 1). The alternative choice remains with the owners of the enterprises. By achieving high profitability through the effect of financial leverage, an enterprise can use this effect to invest in assets, but will these actions be justified with a constant increase in borrowed funds?

Effective interaction between firms depends on the degree of cooperation, the creation of conditions for the development of innovations, and an increase in demand for them. “One competitive industry helps another in mutually reinforcing processes” [9]. The external environment determines the directions and factors of internal influence on accelerating the processes of innovation implementation, increasing the growth rate of invested capital, revenue, and profit.

The model for creating an innovative product is the process of transforming all types of resources into products that stand out from existing analogues on the market in terms of quality, ease of use, and price. Thus, innovation costs are viewed as the result of the physical and intellectual efforts of employees who use the optimal combination of all types of resources to design the technology that ensures more efficient production through the advantages of low costs and high quality. Efficient production is mathematically expressed as follows:

$$ROA = \frac{1 - Mi - Li - Di - OEOA}{Ci + WCFR} \qquad (2)$$

Where:

ROA (Return on Assets) – It measures how efficiently a company uses its assets to generate operating profit (EBIT). It excludes interest and taxes, focusing on core operations in relation to the asset base;

Li (Labor intensity) – Shows how much labor is required to produce a unit of output;

Mi (Materials intensity) – Reflects the amount of materials used per unit of output;

Di (Depreciation intensity) – Measures the share of depreciation expenses in relation to total expenses or production;

OEOA (Other expenses from ordinary activities) – Includes expenses that do not fall into the main categories but are part of ordinary activities;

Ci (Capital intensity) – Shows how much capital is needed to produce a unit of output;

WCFR (Working capital fixing ratio) – Measures what portion of working capital is tied up in assets and is not available for current needs.

The symbols (Formula 2) include such concepts as capital intensity, which includes the values of non-current assets at the beginning and end of the year, as well as intangible assets; current assets, including values at the beginning and end of the year; and inventories at the beginning and end of the year.

The main task of the asset profitability model is to select the optimal effect of intensive factors that influence not only the increase in asset efficiency but also sustainable growth. One of the options for disaggregating the sustainable growth rate[3] indicators of the deterministic model is presented in Formula 1. Sustainable growth in the second option can be represented by the product of two components multiplied by the profit capitalization coefficient:

$$SGR = [\, \frac{(1 - Mi - Li - Di - OEOA + POA) \times (1 - t)}{TPC + NCA} * CDCTP + EFL] * Pcr \qquad (3)$$

Where:

Mi, Li, Di, Oci – Material intensity, Labor intensity, Depreciation intensity and Other cost intensity;

POA (Profitability of Other Activities);

EITR (Effective Income Tax Rate) – The average percentage rate of tax on a given income for a given period;

TPC+NCA (Turnover Period of Current and Non-Current Assets, days);

CDCTP (Calendar duration of the enterprise's capital turnover period, days);

Pcr – (Profit capitalization ratio).

[3] According to experts at the Corporate Finance Institute (CFI), the concept of sustainable growth makes it possible to assess the stage of the life cycle a company is at, provide information for decision-making regarding strategy, financing, and dividend payments, and be used by creditors to assess creditworthiness [12].

$$EFL = \frac{BCa}{ECa} * (ROA - r) * (1 - t) \text{ Financial leverage effect } (4)$$

Where:
(BCa / ECa) – Ratio of Borrowed capital to Equity capital (financial leverage)
(ROA - r) – The difference between return on assets and the interest rate on the loan (financial leverage differential);
t – Income tax;
r – Interest rate on the loan;
PCa – Profit capitalisation ratio.

To obtain a resource model, we will replace return on assets based on operating profit with a detailed breakdown of return on assets indicators based on operating profit (See Formula 2). The transformed sustainable growth model looks like this:

$$SGR = \left[\frac{(1-Mi-Li-Di-OEOA+POA)*(1-t)}{TPC+NCA} * CDCTP + \frac{BCa}{ECa} * \left(\frac{1-Mi-Li-Di-OEOA}{Ci + WCFR} - r\right) * (1 - t)\right] * Pcr \quad (5)$$

Combined model for analyzing sustainable growth rates and the efficiency of resource-intensive factors

A sustainable growth model can reflect the actual state of the consolidated components of sustainable growth or serve as a forecasting model:
– *The first component* of a sustainable growth model is the return on invested capital (Formula 5).
– *The second component* is the product of leverage and financial leverage differential, taking into account income tax.
The relationship between the resource indicators of intensive growth in return on assets and return on invested capital is evident from the presented modified sustainable growth model. For technically simple innovative products, the price of the new product can increase proportionally to the increase in the main quality parameter.

$$Pb.p./Vb.p. = Pn.p./Vn.p. \ (6)$$

The price of technically complex products is determined by a combination of properties (parameters), so the relationship between price and quality is determined based on correlation analysis, followed by the development of a regression equation. It is economically feasible for each percent increase in costs to result in a higher percentage increase in the effect (price or sales volume).
Let's examine the change in sustainable growth rates for innovative products based on changes in product quality characteristics, using the example of CHEMKOR JSC[4], a company within a regional innovation cluster. Reducing per-unit costs (materials, wages, depreciation, and other expenses) increases the return on each resource and helps increase profits and operating margins from the assets used.

[4] The largest manufacturer of PVC-U Pipes & Fittings in Russia.

The initial data for calculating the resource-based return on assets model is presented in a table format, using the Factor Analysis of Return on Assets (FAROA) website [10].

Table 1
Initial data for asset profitability of the resource model

№	Indicator, thousand rubles	2021	2022
1	Non-current assets at the beginning and end of the year	518 828	325 131
2	Current assets at the beginning and end of the year	1 223 385	1 585 560
3	Stocks at the beginning and end of the year	546 482	648 475
4	Assets at the beginning and end of the year	1 742 213	1 910 691
5	Sales revenue	3 03762	6 140 191
6	Cost of sales	2 645 282	5 501 051
7	Commercial expenses	121 189	161 072
8	Management expenses	28 180	29 572
9	Profit (loss) from sales	237 111	448 496
10	Net profit (loss)	167 594	346 548
11	Labor costs	1 100 000	1 301 789
12	Social contributions	320 000	468 644
13	Material costs	740 540	1 880 305
14	Depreciation	528 731	1 590 652
15	Other expenses from ordinary activities	105 380	450 305

Compiled by the author based on the reporting of CHEMKOR JSC [11]

The revenue-to-cost ratio for each product type using a specific technology is known. An increase in revenue will also increase variable costs proportionally. The remaining indicators are adjusted automatically according to the calculation algorithms of automated systems. Implementing this project in practice is much more complex. Increased costs for quality improvement or innovative products are justified by taking into account the investment costs of technology changes, new equipment, and the level of demand and price for the new product. The resulting financial and economic indicators are comprehensively analyzed for each of the proposed variations.[5]

[5] Variation (Latin vario - change) is a change or modification of something that leads to the creation of a new form or type. In mathematics, "variation is a combination without repetition".

Table 2
Obtained results of indicators from changes in initial factors

№	Indicator, thousand rubles	2021	2022	Absolute deviation
1	Return on assets at net income (ROA)	0,192	0,363	0,170
2	Asset turnover (At)	3,480	6,427	2,947
3	Return on sales (ROS)	0,055	0,056	0,001
4	Capital intensity (Ci)	0,086	0,026	0,059
5	Ratio of fixing of volume funds (Rfvf)	0,202	0,129	**-0,073**
6	Return on assets by operating profit (ROAop)	0,272	0,469	0,197
7	Income to expense ratio (Ier)	1,085	1,079	**-0,006**
8	Share of current assets in assets (Sca/a)	0,702	0,830	0,128
9	Share of inventories in current assets (Sica)	0,447	0,409	**-0,038**
10	Inventory turnover ratio (Itr)	10,228	17,554	7,326
11	Salary intensity (Si)	0,468	0,288	**-0,180**
12	Material consumption (Mc)	0,244	0,306	0,062
13	Depreciation capacity (Dc)	0,174	0,259	0,085
14	Other resource intensity (Ori)	0,035	0,073	0,039

Compiled by the author based on the reporting of CHEMKOR JSC

The model allows for variability in calculating return on assets based on net profit, operating profit, and return on sales. Most prominently, the sustainable growth and variance in the growth rate of invested capital per ruble of retained earnings will be continuously monitored and regulated by managers. The return on assets model is considered as three variations in selecting optimal factors to achieve the desired result according to the sustainable potential growth model. The design option was determined by taking into account the actual feasibility of their implementation. Variations 2 and 3 are presented in their final form: only as the influence of factors on the return on assets (See Table 3).

Table 3
The impact of intensive factors on return on assets (Variations)

№	Increase or decrease of factor	Variation 1	Variation 2	Variation 3
1	Increase in wage intensity (ΔWi)	0,627	**-0,037**	0,238
2	Increase in material consumption (ΔMc)	**-0,216**	0,009	0,291
3	Increase in depreciation capacity (ΔDc)	**-0,295**	**-0,008**	**-0,458**
4	Increase in other expenses in revenue (ΔOer)	**-0,134**	0,088	0,180
5	Fixed asset intensity (Fai)	0,06	0,11	0,022
6	Ratio of closing volume of funds (ΔRcvf)	0,149	0,124	0,102
7	Return on assets by operating profit (Raop)	0,192	0,115	0,373

Compiled by the author based on model calculations in Excel format

The constructed model demonstrates the significant impact of resource-intensive factors on asset return:

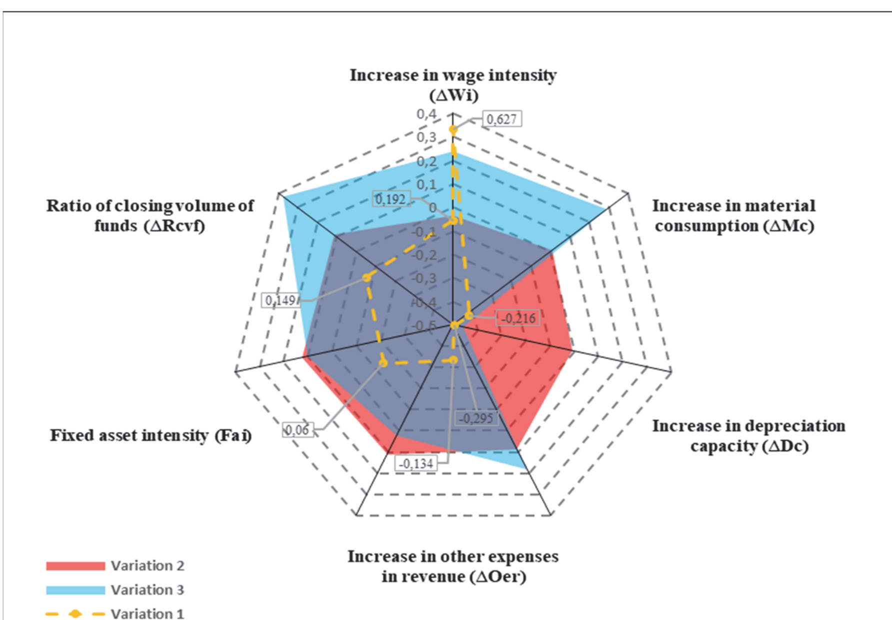
– *In the first variation*, the impact of negative factors is quite high. This means that the share of costs in revenue should almost double. Doubling price or demand seems quite complex and risky. Experts are unlikely to choose this option for implementation.

– *In the second variation*, changes in resource-intensive factors had a relatively weak impact on asset return. Moreover, two factors reduced resource efficiency.

– *The third variation* differs from the first and second in that it increases the return on each resource (factor) through the implementation of a new set of technological solutions that reduce costs and improve not only asset return but also return on invested capital. Based on the comparison of variations, the following can be concluded: the introduction of technological innovations in the third variation significantly increases the positive impact of asset return on operating profit (by 0,258 points) and requires fewer ongoing costs and investments. The positive impact of each factor on the return on assets in terms of operating profit has increased.

The results of the authors' study can be illustrated by applying the spider web theorem.[6] For this purpose, we will use the seven key indicators, the variation results obtained, and the capabilities of the Microsoft Excel software product. (See Author's Diagram 2)

Diagram 2
Visualization of results obtained using the spider web theorem



Author's Diagram 2

[6] The phrase "cobweb theorem" or "radar diagram" is not tied to any particular theory. Instead, it is used as a metaphor in various fields: as a metaphor for political analysis, a philosophical idea about how humans interact with their environment, a concept in graph theory, or a theory in materials science about hierarchical structures. Although the "cobweb theorem" exists as a recognized economic model, the term "cobweb" is more commonly used as a descriptive analogy.

The labor intensity factor in the third variation has shifted to a positive impact on return on assets. The depreciation capacity factor, although negative, is more than offset by the impact of other positive factors. As the company enters target markets, increases revenue, and reduces the cost of fixed assets, this factor will increase its positive impact. Thus, tangible and intangible factors of an intensive nature are transformed sources of innovative products, the result of the labor expended in transforming tangible and intangible resources.

The degree of product innovation is reflected in the combination of technical characteristics that ensure high demand for the product and high sales margins. The initial indicators for calculating sustainable and actual growth for the period 2017-2021 were based on the financial statements of CHEMKOR JSC (in thousands of rubles).

Table 4
Comparison of the growth rates of invested capital and the sustainable growth rate of equity

№	Indicators (thousand rubles, %)	2017	2018	2019	2020	2021
1	Retained earnings	18887	33901	16497	7682	100802
2	Growth in investment capital, in thousands of rubles and in %. (ΔIc)	-24876	-118715	3764181	339161	-372604
		-2,39	-11,5	414.7	7,26	-74,35
3	Return on invested capital, % (Ric)	15,27	10,60	2,98	4,38	32,92
4	Increase in investment capital, (ΔIc/RP)	**No**	**No**	204,6	20,56	**No**
5	Increase in equity capital, (ΔRP/E)	0,023	0,011	0,0125	0,102	**No**
6	Growth rate: TΔp > TΔr > TΔa (7)	**No**	**No**	**No**	**No**	Done

Compiled by the author based on the reporting documents of the enterprise CHEMKOR JSC

The following key findings stand out from the results table:

First, the table compares the growth in invested capital and the growth in equity capital. Comparing these indicators allows us to determine the growth rate of equity relative to the growth rate of invested capital.

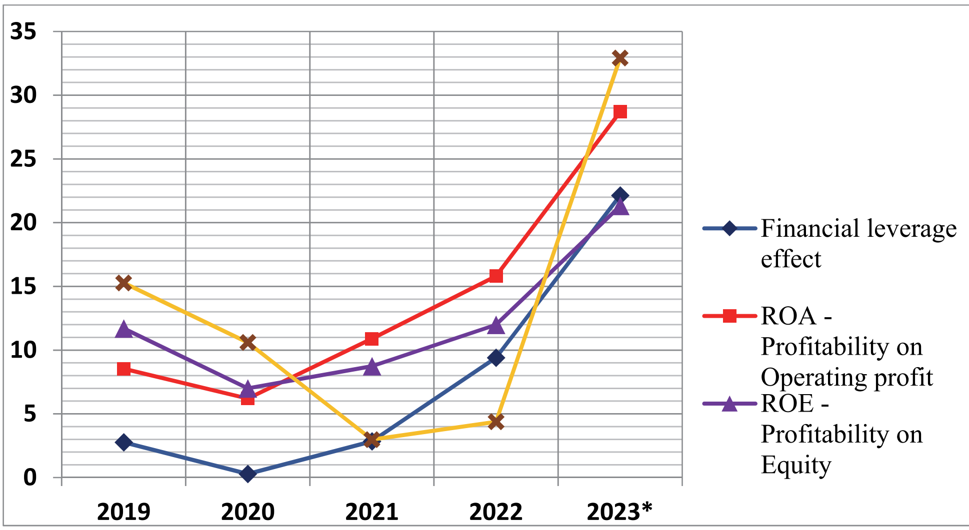
Secondly, the higher growth rates of invested capital compared to the growth rate of equity indicate the creation of added value. For a sustainable growth rate, the following condition must be met:

$$\mathrm{T\Delta irr} < \mathrm{T\Delta cs} < \mathrm{T\Delta pic} < \mathrm{T\Delta tr} < \mathrm{T\Delta pr} \quad (8)$$

Thirdly, the actual growth rate in the period 2017-2021 was higher only in 2019-2020, compared to the growth rate of equity capital. In other years, the growth rate of equity capital exceeded the growth of the actual (invested capital) of CHEMKOR JSC.

Fourthly, the company was checked for compliance with the ‘golden rule of economics’. The rule was only complied with in 2021. In the previous period, growth rates did not correspond to the logical inequality of the growth rates of revenue and assets. Return on equity has increased since 2018. (Diagram 3).

Diagram 3
Change in the main components of the sustainable growth model



Compiled by the author based on reporting documents of CHEMKOR JSC

Where:
TΔp – profit growth rate;
TΔr – growth rate of revenue from sales of goods (products, works, services);
TΔa – asset growth rate;
TΔirr – internal rate of return (IRR);
TΔcs – a concession rate to a supplier or buyer;
TΔpic – profit from the growth of invested capital or profit from the nature of invested capital;
TΔtr – trading revenue;
TΔpr – profit after taking into account costs, “profitability” or “profit rate”.

Positive factors contributing to increased economic growth stability in terms of growth factors (Formula 1) included return on assets, caused by an increase in asset turnover.

The company actively attracted capital. Over a five-year period, equity capital increased by 64,354 million roubles. Dividend payments during this period - the capitalization ratio ranged from 36 to 111% of net profit.

On several occasions, dividend payments exceeded the net profit of CHEMKOR JSC, which is a negative factor affecting the financing of assets and improving operational efficiency. It should be noted that the growth of CHEMKOR JSC was achieved, to a large extent, through cheaper credit facilities.

Conclusions

First statement

At the macroeconomic level, measures to increase the sustainable growth rate of innovation are determined by: the effectiveness of import substitution policies, the degree of cooperation between innovative enterprises within the country, and international integration to form new value chains.

Second statement

Improving efficiency through increasing tangible and intangible assets presupposes a high degree of financial independence through the use of investment funds and affordable borrowed financial resources.

Third statement

The resource-based sustainable growth rate model allows for planning and projecting the growth rate of return on invested capital, return on assets, and regulating the effect of financial leverage to ensure a balanced increase in the growth rate of borrowed capital, depending on the growth rate of equity capital and capital structure.

Fourth statement

The most controllable factors in the return on invested capital model are: a) the resource component of growth; b) sustainable growth due to the share of reinvested profits not distributed among shareholders; c) sustainable growth due to leverage and differential (leverage effect).

Fifth statement

A sustainable growth forecast model can be implemented in the EkFinAnalysis program by developing an additional "resource module" for manual data entry into the forecast balance sheet and the forecast financial results form. This program can also implement various variations for increasing or decreasing resource costs in revenue, allowing for optimal selection.

References

1. Bianco, M. & P. Sestito (2008) *Reforms in Local Public Services: Bad Design or Badly Managed Implementation?* Giornale degli Economisti, GDE (Giornale Degli Economisti e Annali di Economia), Bocconi University, vol. 67(2), pages 231-272
2. Wagner, J.A. (1994) Participation's effects on performance and satisfaction: A reconsideration of research evidence. *The Academy of Management Review*, vol. 19(2), pages 312–330. [Electronic resource] URL: https://doi.org/10.2307/258707.(Date of access: 10/26/2025)
3. Dao Yin & Xinguo Ming, Xianyu Zhang (2020) Sustainable and smart product innovation ecosystem: An integrative status review and future perspectives, *Journal of Cleaner Production*, Vol. 274, ISSN 0959-6526, [Electronic resource] URL: https://doi.org /10.1016/j.jclepro.2020.123005. (Date of access: 10/26/2025)
4. Ryabova, E.V. (2018) Factors of sustainable growth of Russian companies / E. V. Ryabova, M. A. Samodelkina // *Finance: theory and practice*. T. 22, No. 1 (103), pages 104-117, DOI 10.26794/2587-5671-2018-22-1-104-117 – EDN YRSFTU. [Electronic resource] URL: Factors of sustainable growth of Russian companies - the topic of a scientific article on economics and business (Date of access: 10/28/2025)
5. Mengistae T. (2006) Competition and entrepreneurs' human capital in small business longevity and growth. *Journal of Development Studies*, vol. 42, pages 812–836. doi10.1080/00220380600742050s://www.researchgate.net/publication/24084099_Comp

etition_and_entrepreneurs'_human_capital_in_small_business_longevity_and_growth/citation/download. (Date of access: 10/28/2025)

6. The Federal Customs Service carries out foreign trade with all countries. [Electronic resource] URL: https://customs.gov.ru/statistic/vneshn-torg/vneshn-torg-countries.(Date of access: 10/27/2025)
7. Idiano D'Adamo & Massimo Gastaldi, Piergiuseppe Morone (2022) Economic sustainable development goals: Assessments and perspectives in Europe, *Journal of Cleaner Production*, Volume 354, 131730, ISSN 0959-6526, [Electronic resource] URL: https://doi.org/10.1016 /j. jclepro.2022.131730. (Date of access: 10/27/2025)
8. Buchik, T.A. (2012) Formation and functioning of working capital in the system of ensuring financial stability. [Electronic resource] URL: http://dep.nlb.by/jspui/handle/nlb/42232.(Date of access: 10/28/2025)
9. Porter, M.E. (1990). *The competitiveness advantage of Nations. Part 1. The dynamic of Nation Advantage*, page 149. Originally published: New York: Free Press, ISBN 0-684-84147-910.
10. Factor analysis of return on assets (FAROA): Why is it needed and what stages [Electronic resource] URL: https://www.fd.ru/articles/160916-faktornyy-analiz-rentabelnosti-aktivov-faroa-zachem-nujen-i-kakie-etapy. (Date of access: 10/27/2025)
11. CHEMCOR JSC: accounting and financial analysis. [Electronic resource] URL: Accounting and financial statements. CHEMCOR analysis for 2011-2023 (TIN 5249092440) (Audit-it.ru) (Date of access: 10/25/2025)
12. Sustainable Growth Rate. [Electronic resource] https://corporatefinanceinstitute.com/resources/valuation/sustainable-growth-rate/ (Date of access: 10/25/2025)
13. Seergeev, A.A. (2023) Upravlenia faktorami v modelyah ustoichivogo rosta innovazionnyh predpriyatii. *Financial Markets and Banks magazine*, Knorus Publishing House LLC, №6, ISSN 2658-3917, pages 212-218