(development) stages were distinguished. The calculations from the *first* stage, starting in 1988–1989 were marked by the statistical work practices that dominated in the Soviet period, based on centralization principles and the predominating Soviet statistical methodology. The *second* stage, from 1997–1998, was when the Department of Statistics of the Republic of Lithuania first prepared and released the publications "Lithuania's National Property" which presented a new property classification according to the System of National Accounts. The *third* stage is considered to have started from 2009. This was the period of state property valuation which was more related to searching for ways of increasing the effectiveness of the use and management of the active part (commercial property) of state enterprise properties.

The analysis of state property value, its structure and change showed that even today the value of state property does not reflect its true market value. The true value is the sum for which property may be sold, exchanged for property or services, or for which a mutual agreement between unrelated parties intending to sell or buy property may be calculated, or be counted as a mutual agreement. In should be noted that some state property has still not been inventorized or included in state registers or accounting calculations, which is why it does not appear on the financial reports of state institutions, offices or organizations. Depreciation is not calculated for all property, and some of the financial property appearing in accounting is irredeemable property (sums outstanding from insolvent debtors, bankrupt enterprise shares, etc.). The annual state property reports are more statistical in nature than accounting-related. Property statistics themselves are rather incomplete and fragmented. When the assessment of state property has been performed, it is seen as the entirety of collected things, ignoring the question of how all the property functions and how effectively it is being used.

We can conclude that in management practice there is no more complicated management process than state property management. This relates to several reasons. First is the structure of state property itself, where each component requires different management technologies. According to the analyzed state property structure, tangiblefixed assets requires one type of management technology, while intangible assets or financial and current assets requires other management technologies, and real estate or movable property and state enterprises require others still. All this makes it necessary to formulate independent management systems, which incidentally, are regulated by different laws implemented by different state institutions. The second reason which arises from this is the objectively different level of centralization of separate state property types The third reason is the different goals that the state sets for the management of each type of property.

In Lithuania there is a clearly decentralized state property (especially for tangible fixed assets) management model in place.

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JEL classification M41, M42

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COMPLEX PROFITABILITY ANALYSIS OF FIXED TANGIBLE ASSETS

Аналіз є головним інструментом для оцінки стану підприємства і для процесу прийняття рішення у відповідності з результатами аналізу. Стаття представляє аналіз рівня доходності основних матеріальних активів; оцінку факторів, що впливають на доходність основних матеріальних активів; аналіз відношень між доходністю та інші співвідношення. Автори статті пропонують підхід, що базується на комплексному аналізі доходності основних матеріальних активів, який би дав можливість менеджерам використовувати більш ефективні основні матеріальні активи та приймати більш ефективні бізнес-рішення.
Ключові слова: основні матеріальні активи, комплексний аналіз, доходність.

Анализ является главным инструментом для оценки состояния предприятия и для процесса принятия решения в соответствии с результатами анализа. Статья представляет анализ уровня доходности основных материальных активов; оценку факторов, влияющих на доходность основных материальных активов; анализ отношений между доходностью и другие соотношения. Авторы статьи предлагают подход, основанный на комплексном анализе доходности основных материальных активов, который дал бы возможность менеджерам использовать более эффективны основные материальные активы и принимать более эффективные бизнес-решения.
Ключевые слова: основные материальные активы, комплексный анализ, доходность.

Analysis is the main tool for evaluation of an enterprise state and for decision making process according to the results of analysis. The article presents analysis of the level of fixed assets profitability; evaluation of factors, which influence the profitability of fixed tangible assets; analysis of relationship between profitability and other ratios. Authors of the article propose complex profitability analysis of fixed tangible assets approach, which would enable managers to use more effectively fixed tangible assets and make more efficient business decisions.
Keywords: fixed tangible assets, complex analysis, profitability.

Any size, type and activity companies in free market competition are interested in increase of profit. Profit is necessary for keeping up financial capability, for expanse of activity and ensuring its going concern. However, total amount of profit does not show effectiveness of company's activity. Several companies, which earned the same amount of profit, may be very different in their financial, investment, production or commercial activity effectiveness. That is why in the purpose of evaluating effectiveness of different companies various profitability ratios are calculated. Though, many questions occur e.g., how and which profitability ratios have to be calculated, how they have to be called, explained, their results evaluated. There may be found various explanations of profitability terms

and various formulas of profitability ratios or their analysis. Profitability could be described as division of profit (gross, net) by some indicator of a company's activity. Especially strong relationship is between profit and sales revenue, assets, equity. According to this relationship there could be defined such groups of profitability ratios: 1) profitability of sales (gross, net); 2) profitability of equity (authorized, owner's, constant); 3) profitability of assets (total assets, fixed assets, current assets). These groups are very important to information users, which according to their needs and purposes, are interested in some profitability ratios. Buyers and suppliers are most interested in profitability of sales, investors – in profitability of equity, and many internal and external information users are interested in profitability of assets. Managers of companies are interested in good results of profitability ratios from any group, but special attention must be paid to profitability of assets. As level and variation of this group of profitability ratios make impact on possibilities of a company's going concern and expansion or competitiveness. Besides, this group of profitability shows efforts of a company's employees to use assets economically. The special place is taken by fixed tangible assets, which makes about 76 per cent of total amount of assets in Lithuania [8]. Thereby, the complex analysis of fixed tangible assets is necessary, which would disclose changes of ratios during the analysed period, factors, which influenced the results of ratios, and relationship between other ratios.

The goal of the article is to prepare the methodology of complex analysis of fixed tangible assets, which is used by companies managers, would help them objectively to evaluate the level of fixed tangible assets profitability, factors, which make impact on the results of profitability ratios, and make decisions for rational exploitation of fixed tangible assets.

Resources of the research – Lithuanian and foreign authors' scientific literature, data bases of Statistics Lithuania, business accounting standards, etc.

Methods of the research – analysis of scientific literature and statistical data, systematisation, comparison and summary of information, explanation of factors.

The scheme of complex analysis of fixed tangible assets

The profitability of fixed tangible assets shows its effectiveness, ability of managers to manage and control it. It is considered that it may evaluate company's economic, production and investment activity according to the profitability of fixed tangible assets [5]. Profitability of fixed tangible assets usually is calculated as division of net profit by fixed tangible assets:

$$\text{Profitability of fixed tangible assets} = \frac{\text{Net profit}}{\text{Fixed tangible assets}}$$

This ratio expresses, how much monetary units of net profit fall to one monetary unit of fixed tangible assets, how managers of companies are capable of using fixed tangible assets and earn profit. Other authors [1, 6] propose in calculation of profitability of fixed tangible assets to use indicator – profit before taxes (pre-tax profit):

$$\text{Profitability of fixed tangible assets} = \frac{\text{Pre-tax profit}}{\text{Fixed tangible assets}}$$

Concept of this calculation is that pre-tax profit expresses better the earned profit as taxes are not related with the effectiveness of the activity. Other authors [9] propose to calculate the gross profitability of fixed tangible assets and for calculation of this ratio in the numerator use indicator – gross profit, but the authors of this article think that gross profit is more functional in evaluating the profitability of sales. In calculation of this ratio there may be used average amount of fixed tangible assets, if there are significant fluctuations of the value of fixed tangible assets.

Attention must be paid to the fact, that many authors [1, 6, 8] usually in the process of analysis of fixed tangible assets profitability just give ratio calculation formula and short explanation. But this is not enough for evaluation of fixed tangible assets profitability, factors, which influence this ratio, possibilities to use more effectively fixed tangible assets, earn more profit and so on. Practice of the Lithuanian companies shows, that many companies don't calculate profitability of fixed tangible assets. According to the results of the questionnaire research, which was made in October of 2007, 47,9 per cent of 73 companies calculated only net profitability of assets, and 4 companies calculated fixed assets and current assets net profitability. It has to be emphasized, that those companies, which calculated profitability of assets, didn't make detailed analysis, which would help to disclose the changes of ratio, factors, which influence the ratio and determine, relationship with other ratios and so on.

Authors of this article propose to pay special attention to the importance of profitability of fixed tangible assets ratio and recommend the scheme of its complex analysis, which is provided in Figure 1.
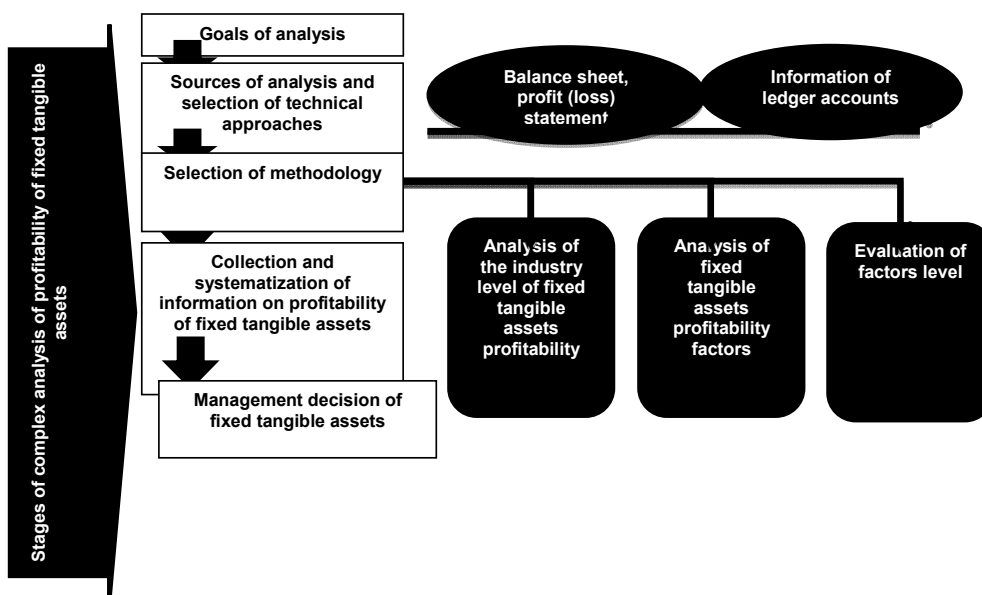

Fig. 1. Complex analysis of fixed tangible assets profitability

Source: Compiled by authors

As the Figure 1 indicates, that first of all there has to be set goals of the fixed tangible assets profitability, selected concrete analysis sources and approaches. Recommended fixed tangible assets profitability methodology consists of some phases: analysis of the industry level of fixed tangible assets profitability; analysis of fixed tangible assets profitability factors; evaluation of factors level. Results of the analysis must be collected and systemized, presented to the managers of a company, that they could use this information in the decision making process.

In order to evaluate the level of companies fixed tangible assets profitability, company's results it has to be compared with the level of industry.

Analysis of fixed tangible assets profitability in Lithuania

Profitability of fixed tangible assets in Lithuania during the period 2006 – 2010 was 16,45 per cent (Table 1).

Table 1. **Profitability of Tangible Fixed Assets, 2006 – 2010, per cent**

Title of activity	2006	2007	2008	2009	2010
TOTAL	14,45	22,39	6,84	-6,35	6,17
Forestry and logging, Fishing and aquaculture	18,49	20,51	2,17	1,74	6,58
Mining and quarrying	55,21	47,17	51,17	27,82	25,68
Manufacturing	17,81	13,62	7,23	-1,00	12,26
Electricity, gas, steam and air conditioning supply	3,33	3,14	0,31	-6,57	1,73
Water supply; sewerage, waste management and remediation activities	2,53	1,10	1,18	1,17	3,52
Construction	39,50	36,14	19,01	-10,31	0,22
Wholesale and retail trade; repair of motor vehicles and motorcycle	34,89	49,27	19,56	-5,38	16,51
Transportation and storage	2,31	6,28	-35,31	-15,50	-3,32
Accommodation and food service activities	3,18	0,61	-8,34	-11,93	-1,63
Information and communication	29,95	38,29	25,19	5,44	15,68
Real estate activities	15,66	15,01	0,52	-7,67	0,57
Professional, scientific and technical activities	91,88	182,67	191,04	2,80	220,19
Administrative and support service activities	11,63	13,04	9,60	5,84	8,92
Education	26,96	30,16	6,62	10,96	18,02
Human health and social work activities	-83,77	43,90	-1,81	5,28	7,83
Arts, entertainment and recreation	4,57	7,58	10,03	-8,02	2,73
Repair of computers and personal and household goods; Other personal service activities	12,88	9,16	2,59	-0,67	2,13

Source: Compiled by the authors according to the database of Statistics Lithuania

In 2006 the value of this ratio was 16,75 per cent and in 2007 increased almost twice to 30,00 per cent, but in 2008 this value decreased and in 2009 under influence of world economic crisis profitability of fixed tangible assets was negative – 0,69 per cent, in 2010 situation stabilized and the value of the ratio reached 19,10 per cent. The Table 1 reflects dynamics of profitability of fixed tangible assets according to the types of economic activities in Lithuania.

In human health and social work activities the values of profitability of fixed tangible assets fluctuation was the highest among other activities: from -83,77 per cent in 2006 to 43,90 per cent in 2007, and was 3,76 per cent in average during 2008 – 2010. The most effective usage of fixed tangible assets were in mining and quarrying activity and in professional, scientific and technical activities, where average value of this ratio was accordingly 41,41 per cent and 137,72 per cent. The lowest value of profitability of fixed tangible assets was in transportation and storage activity and made -9,11 per cent in average during period under analysis.

Analysis of factors, which influence fixed tangible assets profitability

It is easier to analyse factors, which influence fixed tangible assets profitability by using Du Pont pyramidal analysis methodology. The essence of this methodology is that multiplying numerator and denominator of the fraction by sales revenue, there may be calculated new ratios – factors, which give additional information about the reasons of fluctuation of fixed tangible assets profitability. The disaggregation of factors may be expressed like that:

$$\text{Profitability of fixed tangible assets} = \frac{\text{Net profit}}{\text{Fixed tangible assets}} * \frac{\text{Sales revenue}}{\text{Sales revenue}} =$$

$$\frac{\text{Net profit}}{\text{Fixed tangible assets}} * \frac{\text{Sales revenue}}{\text{Sales revenue}} = \text{Net profit margin} * \text{Turnover of fixed tangible assets}$$

According to the disaggregation of factors there may be found out that two factors net profit margin and turnover of fixed tangible assets, influence profitability of fixed tangible assets. Influence of these factors is very important: increase of net profit margin increases profitability of fixed tangible assets, acceleration of turnover of fixed tangible assets improves company's financial condition and also increases profitability of fixed tangible assets. And vice versa, if net profit margin decreases and turnover of fixed tangible assets slows down, the profitability of fixed tangible assets decreases.

According to Du Pont pyramidal analysis methodology there may be evaluated the factors of other levels, which influence the profitability of fixed tangible assets in the first stages of its formation. Attention must be paid that various authors [1, 3, 4, 7] present differently Du Pont pyramidal analysis methodology schemes: although they use the same principle of methodology, but for disaggregation of factors they use different absolute and comparative ratios. The authors of this article offer to analyse profitability of fixed tangible assets according to Figure 2.
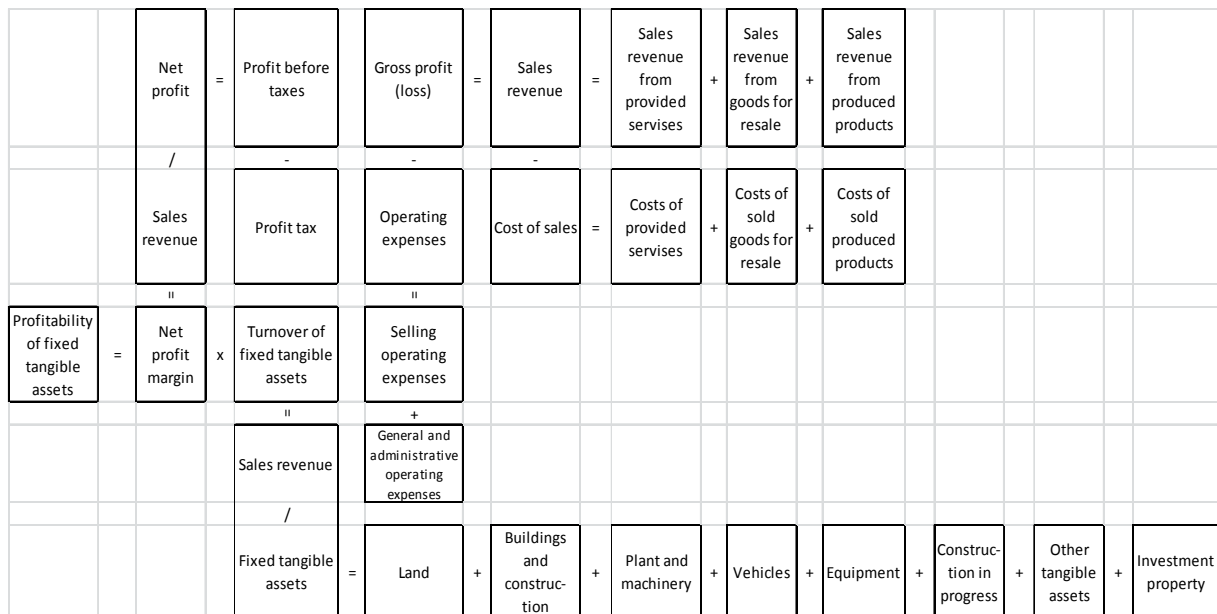
		Net profit	=	Profit before taxes		Gross profit (loss)	=	Sales revenue	=	Sales revenue from provided servises	+	Sales revenue from goods for resale	+	Sales revenue from produced products		
		/		-		-		-								
		Sales revenue		Profit tax		Operating expenses		Cost of sales	=	Costs of provided servises	+	Costs of sold goods for resale	+	Costs of sold produced products		
Profitability of fixed tangible assets	=	Net profit margin	x	Turnover of fixed tangible assets		" Selling operating expenses										
		"		"		+										
				Sales revenue		General and administrative operating expenses										
				/												
				Fixed tangible assets	=	Land	+	Buildings and construc-tion	+	Plant and machinery	+	Vehicles	+	Equipment	+	Construc-tion in progress

(continued columns: + Other tangible assets + Investment property)

Fig. 2. Pyramidal analysis scheme of fixed tangible assets profitability

Source: Compiled by the authors

According to the scheme of Du Pont pyramidal analysis methodology managers of the companies would get additional useful information, which could be the basis for reasonable decisions and for choosing the proper strategy.

This scheme makes it possible to evaluate different levels of factors, which influence fixed tangible assets profitability, to predict tools for reducing operating expenses or cost of sales, to determine proper structure of fixed tangible assets.

Analysis of factors, which influence fixed tangible assets profitability

It is also very important to estimate the values of factors, which influence fixed tangible assets profitability and their changes during some period. So, the question occur, what level of fixed tangible assets profitability and other ratios – factors, which influence fixed tangible assets profitability may be evaluated as good, that managers of the companies could be sure, that the usage of fixed tangible assets is effective, that their accounting and control system is reliable.

Statistics Lithuania and public company "Researches of statistics" prepared guide methodology for evaluation of company's financial ratios. Table 2 presents guided values of fixed tangible assets profitability and other ratios.

T a b l e 2. **The level of evaluation of fixed tangible assets and its factors**

No.	Title of ratio	Evaluation level				
		Very good	Good	Satisfactory	Unsatisfactory	Bad
1.	Fixed tangible assets profitability (per cent)	>25	>20	>10	<10	negative
2.	Net profit margin (per cent)	>25	>10	<10	<5	negative
3.a)	Turnover of fixed tangible assets (coefficient) in manu-facturing	>2,6	>1,3	1,3	<1,3	-
3.b)	Turnover of fixed tangible assets (coefficient) in trading	>6,6	>3,9	3,9	<3,9	-

Source: Compiled by the authors according to [2]

As the Table 2 shows, profitability of fixed tangible assets may be estimated as very good, if its value is more than 25 per cent. Practitioners state, that fixed tangible assets profitability may be compared with stock market interests rates and level of this ratio has to be 2-3 per cent bigger.

The guide level of fixed tangible assets profitability and other ratios may be very useful for evaluation of company's financial state and effectiveness of activity, its results, but it is worth noticing, that these values depend on company's activity and industry characteristics. Company and industry are influenced by five main factors – political, economic, social, ecological environment and technological progress. It may be estimated the impact of these factors on a concrete company and make decisions to strengthen or weaken this influence by comparing fixed tangible assets profitability of different companies working in the same industry. Managers of companies could make exact estimations for guided levels of ratios according to industry fixed tangible assets profitability and other ratios, and com-pany's activity specifics. Guided levels of ratios would be more exact, if they are estimated by evaluating ratios level of 5-6 latest years. Guided levels may be estimated for certain, for example 2-3 years period, considering current dynamism of business and increasing level of competition.

Conclusion. Most authors presenting the process of analysis of profitability of fixed tangible assets just give ratio calculation formula and short explanation or use of other ratios for evaluation of effectiveness of fixed tangible assets. These tools help to evaluate profitability of fixed tangible assets and express different aspects of effective-ness of fixed tangible assets. But for more detailed analy-sis, which would help to disclose the changes of the ratio, factors, which influence the ratio and causes, relationship with other ratios, there has to be made a complex analysis of fixed tangible assets profitability.

The authors of this article offer a scheme of complex analysis of fixed tangible assets profitability, which in-cludes: establishment of purposes of analysis; selection of

sources and technical approaches of analysis; comparability of fixed tangible assets profitability with industry level, .analysis of fixed tangible assets profitability factors; evaluation of factors level; systematization of information on profitability of fixed tangible assets; decision on fixed tangible assets.

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ASSESSMENT OF CONDITIONS FOR THE SUSTAINABILITY OF THE BALTIC STATES' BALANCES OF PAYMENTS

Одним з основних статистичних звітів, що відображають зв'язок зі світом, є платіжний баланс, аналіз якого дозволяє скласти думку про ефективність міжнародної економічної діяльності та побудови його в процесі формування економічної політики. З виявленням можливості займу на міжнародних ринках, країни можуть підтримувати дефіцит поточного рахунку; однак, це збільшує зовнішній борг, і країни, можливо, стикаються з валютними або борговими кризами. У статті розглядається міжчасова модель обмеження платоспроможності для поточного рахунку платіжного балансу; отримані та перевірені міжчасові умови обґрунтованості платоспроможності для Прибалтики.

Ключові слова: баланс виплат, поточний рахунок, міжчасова теорія платоспроможності, коінтеграція, стаціонарність.

Одним из основных статистических счетов, отражающих связь с миром, является платежный баланс, анализ которого позволяет составить мнение об эффективности международной экономической деятельности и составление его в процессе формирования экономической политики. С обнаружением возможности займа на международных рынках, страны могут поддерживать дефицит текущего счета; однако, это увеличивает внешний долг, и страны, возможно, сталкиваются с валютными или долговыми кризисами. В статье рассматривается межвременную модель ограничения платежеспособности для текущего счета платежного баланса; получены и проверены межвременные условия обоснованности платежеспособности для Прибалтики.

Ключевые слова: баланс выплат, текущий счет, межвременная теория платежеспособности, коинтеграция, стационарность.

One of the main statistical accounts reflecting the link with the world is the balance of payments, the analysis whereof allows making judgements about the efficiency of international economic activity and drawing upon it in the process of forming economical policy. With the opening up of possibilities to borrow on international markets, countries can maintain current account deficits; however, it increases external debt, and countries may be faced with currency or debt crises. The paper reviews an intertemporal solvency constraint model for the current account of the balance of payments; intertemporal solvency validity conditions for the Baltic States are derived and checked.

Keywords: balance of payments, current account, intertemporal solvency theory, cointegration, stationarity.

International links of each country are shown by the balance of payments and real exchange rate. In the accounts of the balance of payments, all country's economic links with other countries of the world are reflected, which allows making judgements about the efficiency of international economic activity and, on this basis, adjusting the economic policy process.

Economic openness poses a risk of large current account deficits. Countries can cover the current account deficit having borrowed funds on financial markets. However, a country that has borrowed funds to finance the current account deficit may face debt management problems and currency crisis. Meanwhile, if there is a possibility to borrow funds within the country, it is possible to maintain the desirable consumption and investment level and have a current account deficit that it is expected to be covered from the current account surplus in the future – when the economy is on the rise. It is the basis for one of the main views on the balance of payments – an intertemporal solvency constraint model. In the paper, the current accounts of the balances of payments of the Baltic States are assessed based on the conditions derived from the intertemporal solvency constraint model. The model was applied to three Baltic States – for the assessment of these countries' current account deficits.

Recently, as European countries faced the debt crisis, more attention has been paid to the size of a country's debt. The current account deficit is directly related to the growth in the public debt, and if a country does not have debt management problems in the future, the deficit may be considered as acceptable.

1. Intertemporal solvency constraint model

This model is based on an intertemporal choice approach to the sustainability of the balance of payments. From the point of view of this approach, saving and investment are conditioned by future expectations for productivity and interest rates, while the current account deficit is caused by intertemporal utility maximisation. Consumers try to maximise utility in all periods, and they do it by assessing income flows now and in the future. A country with a current account surplus produces more than it consumes, exports more than it imports; therefore, it can lend to the rest of the world. A country with a current account deficit borrows from the rest of the world because its imports exceed exports. An assumption is made that borrowing and lending are optimal; thus, countries behave rationally.

Based on a model proposed by C. Hakkio and M. Rush (1991), intertemporal budget constraint may be described as follows:

$$-B_t + r_t D_{t-1} = D_t - D_{t-1} \qquad (1),$$

where B – the budget deficit, r – the debt interest rate, D – the size of the debt.