

The Risk of Long-Term Financing of Public Investments

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Abstract

The risk of financing of public investments is a phenomenon that accompanies development processes in a permanent manner. Investments in the public sector are generally characterized by relatively long implementation cycles and involve significant capital expenditure and the necessity of often parallel running a large number of investment projects. In the processes of this type of investment a specific risk category of financing of this type of investment is quite often taken into account, given that such projects are financed mainly from budgetary resources: the state budget and self-government budgets. Economic practice indicates an importance of the proper selection of the method of the financing of new investments and taking into account new funds from various sources. This situation is often the result of a shortage of budgetary resources from which public investments could be financed. There may be difficulties in financing investments resulting from the emergence of a risk of budgetary deficit and the public debt. This risk may have a negative impact on investment decisions and may adversely affect the future course of ongoing investment projects. The purpose of the paper is to undertake studies on the conditions of financing investments from the point of view of the possibility of budget deficit and public debt and the impact of changes in the financial situation on the overall level of risk of public investment. The text is an invitation to undertake a broader discussion on financing public investments in conditions of limited public financial resources.

Keywords: investment risk, budgetary economy, public finance, decision making.

Introduction

One of the most important directions of action of public authorities is to ensure conditions for long-term sustainable socio-economic development and, as a consequence, to improve the quality of life of inhabitants. This process should involve the preparation of efficient organizational structures in the public sector and the implementation of the established investment policy, aimed at creating the basic conditions for development. The investment policy should focus on identifying and implementing mainly infrastructural tasks, which in practice should include investments consisting in maintaining and reconstructing existing fixed assets, and should be directed towards the implementation of new investments in line with the needs of the economy and society in the future. Such necessity arises from the broadly understood needs of the developing market economy, which in turn leads to strong pressure to create good infrastructure development needs for the whole society.

The implementation of diversified investment projects related to the provision of broadly understood public services is an important direction for public sector entities and units. Such undertakings are therefore carried out at different levels of competence both at the level of local territorial self-government units, at the regional level and at the governmental level. These investments are therefore one of the most important factors of socio-economic development and significantly contribute to the direct improvement of the quality and scope of public services provided directly to citizens, as well as contribute to supporting economic processes occurring in the sphere of manufacturing enterprises. Investments in the public sector play a significant role within the public sector itself as well as within the private sector. Most often, such investments involve the implementation of new technical or social infrastructure components, and they also involve the modernization of already existing infrastructure components.

First of all, investments are connected with the necessity of maintaining the already achieved standard of living of the inhabitants, which in practice means maintaining at least not compromised technical level of social and economic infrastructure devices. This means the need to carry out replacement investments, including existing components of fixed assets of technical equipment. Public entities are therefore subject to a clear investment pressure of an endogenous character from already functioning systems and organizational structures conducting operational activities in the field of public services. Secondly, these entities are subject to pressure from initiating and the need to implement development-related investments.

Observation of the activities of entities and public sector organizational units in the area of infrastructural investments implementation in many cases indicates poor adjustment of procedures related to the preparation and implementation of investment projects, and indicates the failure to use all the possibilities faced by public authorities in the past. Empirical studies indicate that the applied methodology of implementation of investment projects in the area of local infrastructure has not always been effective, which often led to the deepening of the disproportion in the level of settlement units equipment into technical infrastructure facilities. In many cases, hazards occurring in the implementation of investment projects have not been correctly identified, which means that they have not been properly identified and the specific risk in public sector investment projects has not been taken into account (Biondi, Marzo, 2011, pp. 421-441).

From the research so far, it is clear that there is a persistent shortage of budgetary resources that can be allocated to investments in the public sector. The list of disclosed investment needs and own budgetary resources of entities responsible for investment implementation leads to the conclusion that there are often objective deficits of own budget funds for planned investments, which led to serious difficulties in the implementation of investment projects, as well as many dilemmas regarding the choice of method investment financing (Jarosiński, Grzymała, Opałka, Maśloch, 2015, pp. 60-69).

As a result, we have a situation where on the one hand we have clearly defined needs in terms of new infrastructure components at the state level and local government units of different levels, on the other hand we have to deal with the need to provide financing sources for defined investment projects. The realities of the public sector budget economy prove that in many cases investment funds are not sufficient, hence attempts to look for other additional sources of financing in the form of bonds, loans, grants and subsidies, as well as interaction with private capital in the form of public-private partnership. The actual scale of the problem covers a broader subject range. In particular, these are the procedures for long-term investment planning and the use of analytical tools that allow a comprehensive analysis of such investments in the dimension of social costs and benefits. It is also important to assess the impact of investments on the budgetary position of public sector entities in future periods, especially in the situation of financing not only individual investment projects, but also investment programs consisting of a larger number of individual projects.

Quite often, public entities already have identified infrastructure needs, which are classified in various forms, often taking the form of documents that form the basis for the formulation of specific investment projects. Such documents fit into the formula of strategic plans and are characterized by a high degree of generality. The strategic planning process here plays a leading role and allows the development of real, internally consistent investment programs along with forecasts of budget revenues and the possibility of using funds from other sources, where the use of external sources of financing both of a recurring nature and of non-returnable, funds made available for such investments on different terms. Creating a new financing structure for planned investments, including the aforementioned sources, should also include the impact of the planned investments on the future financial standing of public sector entities both during their implementation as well as the impact after construction and transition to the operational phase. In particular, it is about the impact in the further future in the financial dimension, in particular debt, as a consequence of previously signed loan agreements, or other forms of financial support. It should be remembered that it is infrastructure investments taking into account long-term investment cycles that involve risks, the effects of which may appear in the long run. For these reasons, there is a risk of no liability for potential mistakes and decisions made in respect of multi-annual investment loans.

An important element of the investment preparation process is the need to develop a long-term analysis of investment financing in the form of a scenario analysis taking into account different risk categories and the potential impact of the identified risk factors. This will allow to develop a priori an image of the future condition of public finances, taking into account the impact of new investments. An important role here lies in the long-term financial planning in the scope of income and expenditure of the commune budget and in the scope of the impact of existing debt on the possibilities of making new investments as well as achieving the objectives of current consumption. The implementation of multi-annual investment programs is a complex process, especially in the face of the need to build diversified structures for financing

investment projects. This leads to the need to assess the impact of a number of factors having a diversified nature of impact and points to the need to pay more attention to the development of multi-annual investment programs and their relationship with the results of long-term financial planning.

Crisis phenomena in Europe and in the world affect the stability of investment projects carried out in market economy conditions, it also applies to investment projects carried out in the broad sense in the public sector. Changes in external conditions may lead to an unfavourable stability of investment projects that have been begun in the past. First of all, there are changes in interest rates, risk and hence a change in the value of real discount rates, which may lead to the necessity to make adjustments to the planned efficiency of investment projects, and in particular to verify the updated net value of the venture. Changes resulting from the crisis may lead to an increase in the overall risk of investment projects, and this in turn may lead to an increase in expectations as to the risk premium for loan capital and, as a result, to the deterioration of the efficiency of many of them (Bock, Trück, 2011, pp. 105-123).

For long-term investment projects, it is important to precisely plan the financial standing of future periods. Prospective analysis is here the basic tool for assessing the feasibility of undertaken investment projects, or more broadly, investment programs covering a larger number of investment projects and may be a tool to reduce the risk related to financing such projects. The advantage of financial planning lies in the ability to trace *a priori* the course of financial phenomena associated with the planned investment project. This allows you to assess the effects of investment decisions that may occur over a longer period of time. It is particularly important to determine the strength and directions of the investments undertaken on the budgets of future periods, which will have a significant impact on the possibilities of current expenditure and investment expenditures. As a result of many years of financial planning, further analytical work in the field of financial management of investment projects may be carried out. This applies to the management of existing debt and forecast debt, as long as the possibility of financing or co-financing of investments financed under a bank loan is taken into account (Chong, Brown, 2001, pp. 34-88).

There is also the possibility of conducting an indicator analysis at any stage of investment planning. This in turn gives the opportunity to reduce the risk of project failure that may occur as a result of specific circumstances at any point in the implementation of the project. Financial planning for assessing the feasibility of investments in the public sector should be a routine action of public authorities, regardless of other procedures adopted to ensure the effectiveness of the use of investment funds, such as public procurement procedures. Due to the importance of these problems and the high risk of losing the budget liquidity, there is a need for a thorough and multifaceted assessment of the project's impact along with its internal dependencies on the finances of a given organizational unit if the investment project is poorly developed.

It should be noted that making investment decisions is always made under conditions of uncertainty. The probability of success depends, however, on the reliability of assumptions adopted in the analysis, stability of the economic situation and a number of other factors affecting the risk of project implementation. Multi-criteria of investment decisions is widely known, which is why the detail and insight of pre-investment analyses should be a generally accepted principle. It should not, however, be a tool to justify decisions already taken in administrative mode. Such possibilities also exist because of the hypothetical nature of the *ex ante* analysis. It should be recognized that multi-annual financial planning is an important instrument supporting the process of planning and implementing investments in the area of the public sector. There are here the possibilities of simultaneously analyzing a number of investments creating a multi-annual investment program. The implementation of such programs requires conducting analyses preceding the decision-making process. This is necessary due to the large number of variables and the increase in investment risk.

Multi-annual planning and financial analysis is an important link in the process of preparing, evaluating and selecting investment projects in the area of public sector investment. Due to the high capital intensity of investment projects and the public nature of funds targeted at investments, the long-term financial analysis of investment projects allows to limit the investment risk. This is particularly important when financing investment projects from external returnable sources of financing in the form of bank loans and credits, as well as investments implemented in the public-private partnership formula. The effects of the lack of a reliable investment risk assessment, an error in the strategic planning of development, bad financial planning may be revealed later, after transferring the investment to the operational phase and causing further negative effects, the scope of which may be difficult to predict. The situation of new public investments is often complicated by the fact that the specificity of investment projects in the public sector results in the inability to make profits or allows to collect profits at a low level, which results in limited financing possibilities of investments within own funds.

Risks of the investment projects in the public sector

The new project investments in the public sector are associated with many risk categories of such investments. The main category of risk may be understood here as the probability of underachievement of the planned results and losses of incurred financial outlays and losses of own resources. This problem concerns the expenditure of public funds accumulated in the state budget, budgets of local government units at the regional and local level, and public funds of other entities entitled to conduct their own investment policy and implement their own investments. The implementation of investments in the public sector requires the attention to various risk categories. Therefore, a broader risk factors in this case of public investments should be taken into account than those taken into account for typical and repetitive investments of enterprises that focus on achieving a financial surplus.

The risk can be understood here as the probability of occurrence of various unfavorable phenomena. This risk can also be presented as the probability of failure to achieve the intended goals, material results and results of a financial nature, as well as the loss of incurred financial expenses. This problem is particularly complex due to the possibility of losing public funds, collected in the form of taxes and various public levies, which are in the resources of the state budget, budgets of local government units at the regional and local level, as well as budgets of other public entities. Thus, investments in the public sector due to the public nature of resources are associated with slightly different risk categories than investments in the enterprise sector, which focus on achieving a financial surplus. Here we can indicate the main risk categories common to all investments.

Recognition of risk occurring in relation to public investment projects is associated with the identification of factors that may hinder or prevent the implementation of the project or may negatively affect its operational phase. This, in turn, may cause negative results in the sphere of quality and quantity of public services provided. From a theoretical point of view, many of the risk factors that may have an impact on the definition and implementation of investments projects in the public sector may have a similar impact on projects implemented in the private sector. This is connected with the genesis of such a risk (e.g. risk categories of a macroeconomic nature) and a similar approach to differentiated projects. However, some risk categories, however, have their only recourse to projects carried out in the public sector. It results from the specificity of such projects and other purpose of the entities implementing the investment and conducting the operational phase. An important matter is the different function of the public entity's objective in relation to the private entity conducting production or service activity. In the public sector, for many reasons, we are dealing with price regulation, and in this situation we have an indirect impact on the company's financial result. Regulators can influence the operational activity of the company, not always giving the opportunity to make a profit. Some categories of public services do not entail direct collection of service fees, such as urban road engineering or some social services (urban areas, parks, city lighting), we are guided by the principle of social benefits and related costs. This can generate completely new risk categories.

At present, it is possible to point out the classification of specific risk occurring in relation to projects carried out in the public sector. Unambiguous delimitation of risk factors specific to investments carried out in the public sector and investments carried out in the private sector is not feasible. In the sectors mentioned, there are both common risk categories and specific categories. With regard to the risk occurring in the public sector, one can indicate for: administration, project acceptance procedures, commercial or non-commercial projects, communication, environmental protection, investment policy, resources, strategic goals, subcontractors, technical solutions, financing, knowledge and information, legal and organizational framework (Martyniuk, 2012, pp. 83-93). It is worth noting that some categories of risk are common and of a general nature, e.g. liquidity risk in the implementation of current tasks, risk of investment financing stability or international or global risk categories. The most frequently identified risk categories in relation to the implemented investments are: operational risk, legal risk and liquidity risk in the implementation of investment projects. These risk categories occur quite frequently, such as the failure to meet the conditions for financing investments included in the cost estimate and exceeding the assumed level of investment expenditures (Vose, 2008, pp. 29-31).

From the point of view of the objective of the study, it is important to pay attention to those risk factors that may be relevant to projects implemented over a longer period, including the attention to financial risks. An important task here is the recognition and quantification of those risk categories that may have a long-term nature of referring to the course of ongoing investment projects. In particular, it is about the importance of risk analysis of future investments in conditions of uncertainty, unforeseen crises, deepening budget deficit and excessive public debt at the state level, as well as in local self-government at the regional and local level (Sawyer, 2011, pp. 7-22).

The identification of long-term risk factors related to public investments should be carried out taking into account the specificity of long-term forecasting of future phenomena and in this context, with reference to general identified conditions and, to a lesser extent, the conditions and financial consequences of such investment projects. It should be emphasized that the long-term nature of future events is usually associated with greater risk than in the case of short- and medium-term planning. This results from theoretical conditions that form the basis for unstable socio-economic forecasts. According to the theoretical approach, as the forecast period expands, the value of the forecast error increases. From the point of view of the long-term impact of risk on the investment projects being undertaken, the scale of error regarding the actual level of risk, in the future with respect to events and factors recognized in the base period of the project also increases. Due to this regularity, it is necessary to start the project management process in the long run, including strategic management of various risk categories (Termini, 1999, pp. 9-11).

In relation to public investments, we can talk about the risk recognized for a given project and public sector entity implementing the project or about the risk of a group of projects and projects implementing. Therefore, it is advisable to determine the appropriate risk analysis sections. The cross-sections should include different risk categories, as well as lack of risk awareness, indifference to risk, and thus no pre-emptive actions in this area or risks related to the possibility of violating financial discipline. We can also identify the risk occurring at the level of several public entities, in particular cooperating local government units, which focus on the implementation of joint investment projects.

Financing large and complex investment projects in the changing conditions of the business environment is becoming more and more difficult. Due to the growing uncertainty of future socio-economic phenomena, there may be an increase in investment risk, which may lead to an increase in the costs of future investments. This applies to both investments in the real sphere, but also investment projects in the public sector, which until now were characterized by lower investment risk due to the good market situation of enterprises. In the analysis of infrastructure investment projects, the risk element plays an important role, which results from the specificity of the investment. The implementation of investments, especially in the field of technical infrastructure is a long-term process both for technical and economic reasons. Investments have a generally higher than the industry capital intensity, which significantly affects the level of demand for funds targeted to their implementation (Jarosiński, 2015, pp. 23-39).

In line with the above regularities, changes in general management conditions resulting even from the emergence of financial crisis phenomena may lead to the necessity to verify the original assumptions of investment projects that have been started in the past and have not been closed yet, as well as those investment projects in relation to which decisions about the desirability of their implementation have not yet been made. As a result, we are dealing with a situation that forces the correction of undertakings started in the past under conditions of another economic reality and new investments for which scenarios should be developed, assuming a more difficult situation in terms of the possibility of raising capital and generating a financial surplus.

The risk of public investment implementation, due to the complex nature of such investments, is always multidimensional. As already mentioned, the implementation of investments in the public sector is related to the entire economy, including the management conditions in the private sector. For this reason, the classification and typology of risk occurring in the implementation of public investments should take into account narrowly understood conditions typical for public sector management conditions, as well as contain risk categories characteristic of investment projects undertaken in the private sector. The risk typology may be of a general nature, and thus include an extensive list of effects on the project differentiated from the immediate environment of the project or having exogenous character and covering other macro-economic or macroeconomic conditions. It should be noted that from the point of view of individual projects, it should be borne in mind that the risk will always be individualized. This means that in relation to individual projects, some risk categories may have a particularly strong impact, while others may not occur at all.

The risk typology in investment projects in the public sector is related to the specificity of projects that can be relatively easily classified in the public sector. This is related to the partial replication of projects with respect to their overall concept and technologies, because the scope of investments in the public sector is usually limited by the scope of tasks resulting from legal and organizational regulations. It means that despite the existence of certain differences between projects, resulting from the specificity of the place where projects are implemented, due to a similar form of functioning of public sector enterprises, oriented to provide various types of public services, we can recognise similar risk categories. From the point of view of projects implemented in the public sector, the risk may be divided into 5 main categories: organizational and legal risk, technical risk, financial risk, risk of failure to achieve social effect and other risk categories that may appear

similarly to projects in the private sector (Hardcastle, Boothroyd, 2003, pp. 38-40, Grimsey, Lewis, 2002, pp. 109-111, Arrow, Lind, 2003, pp. 160-178).

The risk categories proposed are fully adequate to situations that may arise during work on investment projects implemented in the public-private partnership formula. This solution seems to correspond to real phenomena that may occur in the planning and implementation of projects in the PPP formula, because there we deal with the occurrence of partners representing the public sector who is interested in achieving quantitative and qualitative effects in the sphere of public services and business partners from the sector private, whose expectations are focused on achieving a specific rate of return on invested capital. The proposed risk categories therefore take into account the interests of both parties who, working in the framework of cooperation between PPPs, strive to achieve consensus and maintain the developed formula of action in the longer term. However, not all public investments are implemented as part of cooperation between public and private entities (Allocating..., 2016, pp. 15-204).

However, when we look at investments implemented entirely as part of initiatives undertaken by public sector entities, the distribution of individual risk categories may look slightly different. With this in mind, it is possible to propose a slightly different division of risk that may occur during the planning and implementation of public investments. In this context, specific risk categories that may arise during the planning and implementation of investments within public entities should be indicated: legislative regulation risks (e.g. future planning regulations), design, construction and technology risk, and economic risk (including fall in revenue) financing, operating phase, revenue tariffs, etc.), Feasibility studies (failure to identify key downsides with the intended project), organizational risk, corruption risk, project management ability risk (may be inadequate for the present task).

The above risk categories do not refer to complex and diverse occurrences that may pose a risk to investment projects, but include the most important ones. The main issue here is the problem related to long-term financing of investment projects and threats, the deterioration or loss of the possibility to finance investment projects in the long-term, and therefore the risk of project financing comes to the fore. The long-term risk of investment financing is associated with many separate risk categories that exist objectively during the preparation and implementation of investment projects, and may be related to the uncertainty of future events, distant in time for which the forecasting can only be carried out approximately. This is the case with regard to budget revenues of diversified public entities, including in particular the state and local government of various levels (Drennan, McConnell, Stark, 2015, pp. 2-10).

Bearing in mind the goal of the study, it is necessary to pay attention to risk factors that have a financial dimension in the long-term approach to public sector investment. In particular, it is important to determine the impact of the future investment risk on the changes of the budget deficit and on the general government debt (Spikin, 2013, pp. 89-126). The conducted research shows that the most commonly identified risk categories in relation to public investments may be: operational risk, legal risk and liquidity risk during project implementation, political risk and corruption risk. These categories of risk in the conditions of the market economy play a very important role in the financial risk assessment. The risk of excessive budget deficit and the risk of excessive government debt may in the long term significantly reduce the possibilities of public investment financing under own budgetary resources and may lead to a further increase in indebtedness with negative consequences for the economy and society that may be revealed in the future.

Risk of public debt in empirical studies

Bearing in mind the theoretical considerations concerning various risk categories that may arise during the implementation of public investments, in particular their high complexity, during empirical research it was recognized that the risk associated with financing investment projects, especially the risks associated with excessive public debt, which can significantly limit the investment potential of public entities undertaking specific projects. From the point of view of the objective of the study, it was approached to study changes and the level of public debt in individual countries as well as the public debt ratio in relation to the value of GDP. According to the full source data collected during the study, it should be stated that the current financial situation of public sector entities in many European Union countries, as well as in the world, may negatively affect their investment potential. For the purposes of the text, table 1 summarizes the figures for GDP in selected countries of 2004-2018. Table 2 shows similar data for selected countries of the world.

With respect to selected European Union countries in the years 2000-2018, the situation in the field of public debt changed in many directions. In some countries, the public debt-to-GDP ratio has been significantly increased. In this group, 18

countries reported a deterioration in the public debt situation. In 2000, the average ratio for 28 countries, current EU members was 60.1%, while in 2018 it was already 80.0%. It should be noted that 2018 was another year of the indicator's decline. The highest level reached this average in 2014, i.e. 86.6%. Public debt ratio in relation to GDP in 20 Member States was below the average, while in 8 countries it exceeded this value. In 2018 the lowest level of the index was recorded in Estonia - 8.4%. In this country in the whole period the indicator fluctuated within a few percent, only in 2013 and in 2014 it exceeded 10.0%, respectively 10.2% and 10.5%. The relatively low level of the indicator was recorded, among others, in Bulgaria, in Luxembourg, as well as in Denmark and Lithuania.

Table 1: General government gross debt as a percentage of gross domestic product (GDP) in selected countries of European Union in the years between 2004 and 2018

Specification	2004	2006	2008	2010	2012	2014	2015	2017	2018
Estonia	5.1	4.4	4.5	6.6	9.7	10.5	9.9	9.2	8.4
Luxembourg	7.3	7.8	14.9	19.8	22.0	22.7	22.2	23.0	21.4
Bulgaria	36.0	21.0	13.0	15.3	16.7	27.1	26.2	25.6	22.6
Czechia	28.5	27.7	28.3	37.4	44.5	42.2	40.0	34.7	32.7
Denmark	44.2	31.5	33.3	42.6	44.9	44.3	39.8	35.5	34.1
Lithuania	18.7	17.2	14.6	36.2	39.8	40.5	42.6	39.4	34.2
Romania	18.9	12.4	12.4	29.8	37.0	39.2	37.8	35.2	35.0
Poland	45.0	46.9	46.3	53.1	53.7	50.4	51.3	50.6	48.9
EU (28 countries)	60.9	60.1	60.7	79.0	84.0	86.6	84.6	81.7	80.0
United Kingdom	38.6	40.7	49.7	75.2	84.1	87.0	87.9	87.1	86.8
Spain	45.3	38.9	39.5	60.1	85.7	100.4	99.3	98.1	97.1
France	65.9	64.6	68.8	85.3	90.6	94.9	95.6	98.4	98.4
Belgium	96.5	91.0	92.5	99.7	104.3	107.5	106.4	103.4	102.0
Cyprus	64.8	59.3	45.6	56.8	80.1	108.0	108.0	95.8	102.5
Portugal	62.0	69.2	71.7	96.2	126.2	130.6	128.8	124.8	121.5
Italy	100.1	102.6	102.4	115.4	123.4	131.8	131.6	131.4	132.2
Greece	102.9	103.6	109.4	146.2	159.6	178.9	175.9	176.2	181.1

Sources: Own study based on data from Eurostat https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_17_40&lang=en, connection of 11.04.2019, IMF <https://www.imf.org/external/datamapper/>, connection of 11.04.2019, OECD <https://data.oecd.org/gga/general-government-debt.htm>, connection of 11.04.2019, Central Statistical Office in Poland, Ministry of Finance 2018, <http://www.finanse.mf.gov.pl/web/wp/>, connection of 11.04.2019.

The most difficult situation regarding the value of the indicator occurred in 2018 in Greece, where the public debt in relation to GDP reached the value of 181.1%, it is worth noting that it was the highest rate in that country in the analyzed period of 2000-2018. Also, the difficult situation in terms of public debt was recorded in Italy, where in 2018 this indicator was 132.3%, also in this country in 2018 the value of the indicator was the highest in the examined period of 2000-2018 and, what is characteristic, it remained at a relatively high level in throughout the period under discussion. It is also worth paying attention to the public debt in Portugal, where in 2018 the level of the index reached 124.8%, however, since the year 2014 a slow decline in value has been observed. Indicator analysis of public debt in the EU indicates large differences between individual Member States in this respect.

According to the source data, in the analyzed period it was generally difficult in the EU Member States to significantly reduce public debt. In some countries only, the negative trend in the deepening of public debt has been reversed. At this point one should pay attention to the situation in Ireland, where in the years 2012-2018 the value of this indicator was reduced by almost a half from 119.9% to 64.8%. It is also worth paying attention to the situation in Germany, where in 2012-2018 the index value was reduced by 18.8 percentage points. Due to the extensive empirical material acquired during the research, due to formal reasons, it was not possible to present complete data, so it was limited to presentation in Table 1 and Table 2 of results for selected years from the period covered by the study and the results presented are graphically illustrated in Figure 1.

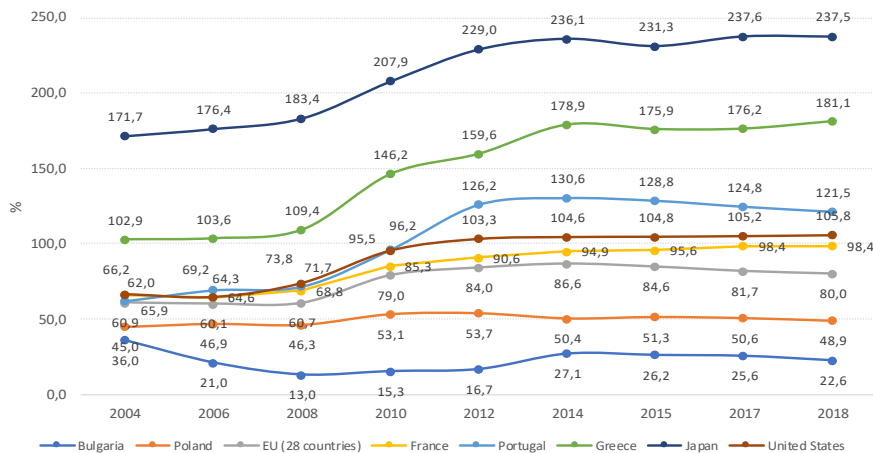
Table 2: General government gross debt as a percentage of gross domestic product (GDP) in selected countries in selected years between 2004 and 2018

Specification	2004	2006	2008	2010	2012	2014	2015	2017	2018
Australia	12.0	10.0	11.8	20.5	27.8	34.1	37.8	40.8	41.9
Brazil	68.1	64.7	61.5	62.5	61.6	61.6	71.7	83.1	87.9
Canada	72.1	70.1	67.8	81.1	84.8	85.0	90.5	89.7	90.6
China, People's Republic of	26.2	25.4	27.0	33.7	34.3	39.9	41.1	47.0	47.6
Japan	171.7	176.4	183.4	207.9	229.0	236.1	231.3	237.6	237.5
United States	66.2	64.3	73.8	95.5	103.3	104.6	104.8	105.2	105.8
Turkey	57.7	44.7	38.1	40.1	32.7	28.8	27.6	28.3	56.7
Ukraine	23.9	14.3	19.7	40.6	37.5	70.3	79.3	71.0	87.7

Sources: Own study based on data from Eurostat https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_17_40&lang=en, connection of 11.04.2019, IMF <https://www.imf.org/external/datamapper/>, connection of 11.04.2019, OECD <https://data.oecd.org/gga/general-government-debt.htm>, connection of 11.04.2019, Central Statistical Office in Poland, Ministry of Finance 2018, <http://www.finanse.mf.gov.pl/web/wp/>, connection of 11.04.2019.

The diversified situation regarding public debt in the EU Member States shows that there is a significant diversification of investment potential in the public sector. It is obvious that higher public debt can be more easily tolerated in large, wealthy countries with a developed economy than in smaller states that have the status of developing countries. The economic potential of individual countries creates a diverse situation when it comes to the possibility of financing investments from public funds. Therefore, one can notice a relatively high volume of public investment in rich countries with a relatively high debt ratio than in poor countries, where the debt ratio is relatively lower. There is no doubt, however, that the situation regarding public debt is a negative phenomenon and carries the risk of successfully financing public investments in the long run.

Figure 1: General government gross debt as a percentage of gross domestic product (GDP) in selected countries in selected years between 2004 and 2018



Source: own based on data in Table 1 and Table 2.

Current research shows that the phenomenon of public debt is quite common, it affects not only European Union Member States, but also is observed all over the world and occurs in poor countries, economically underdeveloped countries, as well as in countries with a relatively high level of GDP. It is worth paying attention to the situation that took place in Japan, where in 2018 the discussed indicator reached the level of 237.5% and was the highest indicator in the group of countries surveyed. It is also worth paying attention to the situation regarding public debt in the USA, where in 2018 the discussed

index reached the value of 105.8%, which in comparison to 2000 meant almost double the value of the indicator. The increase in the value of the index was also recorded in Australia, Brazil, Canada and Ukraine, while in Turkey and the Russian Federation there was a decrease in the value of the indicator in the group of the countries surveyed. The research results prove that economic development is taking place in conditions of surplus expenditure of public finance sector entities. Bearing in mind the internal structure of budget expenditures, currently there is an increase in current expenditure related to the financing of diversified public services: health protection, social security, pension system. As a result, the investment potential is diminishing, which leads to the use of funds from outside the budget and thus the increase of the budget deficit, and in the long run to excessive budget deficit.

Conclusions

The conducted research shows that the most commonly identified risk categories in relation to public investments may be: financial risk, operational risk, legal risk and liquidity risk during project implementation, political risk and also corruption risk. From a financial point of view, it was considered that two categories of risk in the conditions of the state budget economy and local government units play the most important role in the financial dimension of risk assessment. They are the risk of an excessive budget deficit and the risk of excessive government debt, which in the long term may significantly limit the possibilities of financing public investment within their own budget and may lead to increased debt and adverse effects on the economy and society. Excessive budget deficit and excessive public debt have an impact on the course of investment processes financed from other sources, in particular from funds received in the form of the bank loans.

Difficulties with the budget balance of public finance sector entities, visible in the form of budget deficits, must lead to a much more complex difficulties in the form of excessive public debt in the long run. As a result, the general financial situation of public sector entities deteriorates. High expenses related to servicing excessive debt may be particularly dangerous. The increase in debt servicing costs directly affects the deterioration of the possibility of financing investments from own resources. In the longer term, there is a real risk of a slowdown in the growth of budget revenues, which as a derivative of the economic situation may fluctuate along with changes in the business cycle. The reduction in budget revenues was clearly visible as a result of the global financial crisis in 2008-2010. In the longer term, one should always take into account the increase in public spending and the increase in the costs of their implementation. This may aggravate the negative effects of debt and lead to a further reduction in the volume of undertaken public investments.

The risk of excessive indebtedness of public sector entities must lead in the long-term to seeking new management methods in the sphere of investment. In conditions of increasing the risk of new investments, strategic management should become the basic instrument for optimizing the public economy. In the group of the European Union Member States, the quality of operational management has been significantly improved as well as the effectiveness of risk management has been improved. In many Member States, cohesion policy and related subsidies for co-financing public investment have significantly contributed to raising investment rates in the economy and investment rates in the public sector. The applied solutions allowed to mitigate the effects of excessive public debt and to maintain the upward trend in public spending even in the situation of a drop in the volume of GDP, which allowed to reduce the investment risk. It seems that in the future, a higher level of development will create the basis for increasing budget revenues and limiting the long-term risk of financing public investment.

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