WAYS TO IDENTIFY THE LEVEL OF THE PUBLIC DEBT LEVEL OR INTERVAL AS WELL AS POSSIBLE IN ACCORDANCE WITH THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT OBJECTIVES AT EU27 LEVEL

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Abstract:

In addition to the risks posed by climate change, there is a global view that these changes can contribute to reshaping human thinking by stressing the need for human-nature harmony, so a real opportunity for development on a sustainable basis. Internationally, in order to reduce the effects of these climate changes, huge sums of money need to be invested so that humanity can achieve the much desired climate neutrality by 2050 or on a shorter horizon, a considerable approach through targets by 2030. In this regard, the article seeks to undermine the threads of funding for sustainable development at EU27 level by developing scenarios for the evolution of public debt in the context of this goal.

Keywords: *financing, debt, debt sustainability, scenarios, sustainable development*

JEL classification: *E63, H63, Q01*

Introduction

In addition to the risks posed by climate change, there is a global view that these changes can contribute to reshaping human thinking by highlighting human-nature harmony, so a real opportunity for development on a sustainable basis. If the areas currently most affected by these changes are those related to energy efficiency, transport, agriculture, construction, trade, etc. requiring massive investment, others seem to be seen as a response to these challenges, such as technology and information. To mitigate the effects of these changes, exorbitant sums are being circulated internationally (e.g. the UN) over $ 800 billion annually by 2050, with a balanced distribution between emerging and developed states (National Committee for Macroprudential Oversight, in Romanian, CNSM, 2021). According to New Energy Outlook 2020, limiting global warming below 20C would require a significant volume of investment, with values between $ 78-130 trillion, by 2050, of which about 64 trillions of dollars to energy production and changes to distribution networks. Also in this report is expected an increase in electricity consumption of about 60% by 2050, of which photovoltaic energy will account for about 56%, nuclear and hydrogen and other renewable sources of 20%, over time, what fossil fuels would represent the energy sources around no more than 24%. According to the calculations of the CNSM Working Group for Romania, the value of green projects that are expected to be implemented by the authorities and the private sector by 2030 is considerable - almost 60 billion Euros (value that is expected to increase after the adoption of the EU package Fit for 55), amount equivalent to the total investments carried out by the public sector in a period

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of 8 years (period 2013-2020) or to that of the allocations of European funds from 2007-2020. The CNSM report (2021) also states the estimates of the High-Level Group on Sustainable Finance (HLEG) at European level on the additional investment needs of 180 billion Euros for areas such as green transport, renewable energies, energy efficiency of buildings, strengthening social infrastructure, etc., with Central and Eastern European countries requiring a significant share of these investments.

It should be noted that, depending on the institutional capacity, there are two options for implementing the transition to the green economy, identified by some reports and studies: - a disorderly one, in which the institutional organization is extremely precarious and the capacity of institutions around green projects is reduced and - an orderly transition, in which European and national programs and especially national public institutions are able to attract the necessary funds and especially are able to use them effectively to produce a strong multiplier effect in the economy.

Also, depending on the direction of coagulation of the effort, we can speak of a vertical transition, with some dominant points, from the 17 objectives of the sustainable development strategy, which will attract, by their achievement, a multiplier effect and a better achievement of the other objectives or a horizontal transition, in which all targets will be pursued equally, without implementation priorities, implicitly funding. At the same time, depending on the pace of absorption, we can speak of a constant, slow or accelerated transition, over the entire duration of economic transformation, etc.

According to the same group (CNSM), the cumulative effect on economic growth is expected to be between 1.0 and 2.3 pp. for the period 2021-2026, and in the situation of implementing green investment projects, having as source all European resources that could be mobilized, the additional impact on medium-term economic growth could reach up to about 5.7 pp. for the next six years, and the unemployment rate could be reduced by 1 percentage point in the period 2022-2023. At the same time, it should be noted that Romania failed to absorb European funds at a high capacity, absorbing only about 39% of the total volume of allocations in two financial cycles (2007-2013, 2014-2020), there is a huge growth space for financing green (CNSM, 2021). According to information from the European press of the European Regional Development Fund (ERDF) and the Cohesion Fund (CF), for the period 2014-2020, at the EU28 level the absorption rate did not exceed 49.5% (Bruegel, 2020). According to the Ministry of European Investments and Projects, on July 30, 2021, for the programs financed from the European Structural and Investment Funds (ESF) for the period 2014-2020, their absorption rate was 51.36%, and the effective absorption rate was 43,80%. Therefore, we can count, on the one hand, that Romania (as well as several other European countries) has a limited degree of absorption of European funds compared to the EU average (the gap being about 10pp.), And on the other hand, that the level of effective absorption is also limited by all EU countries. This highlights the fact that part of the financing need for the committed and future projects may come in the form of other types of financing or loans.

For this reason, national and international financial institutions should be more actively involved in attracting and conducting green financing, especially since almost half of the value added and more than half of the assets of all companies are held by carbon-intensive companies (CNSM, 2021).

Therefore, this article aims to emphasize the need for a rapid but methodical transition to the green economy, thus implicitly outlining the need for adequate funding for this goal. Specifically, the purpose of the article is, even narrower, to identify, as realistically as possible, the additional level of public indebtedness in relation to the current scenario of public indebtedness in the context of achieving the goals of sustainable development at EU level. Therefore, the article is

constructed in such a way as to identify a series of logical forecasting models for the period 2021-2027 on the evolution of public debt expressed as a percentage of GDP, taking into account strictly the possible variants of the evolution of green financing. The results of the public debt forecasts will be presented graphically for a number of EU countries such as: Romania, France, Finland and Greece, along with the European Union and the euro area.

Description of the Problem and Literature Review

Delaying the transition to the green economy and achieving the goals of sustainable development or a messy transition can be offset by substantial losses in competitiveness. More precisely by: the inability to change the model of economic growth both at national and microeconomic level of branches of the economy or companies, so that it cannot respond adequately to new challenges, losses and financial costs (e.g. financial constraints from creditors), but also the inability to capitalize on international or European funding to align with the climate agenda. At the macroeconomic level, as the green economy grows, there is a need for internal resources that are increasingly aligned with these requirements. On the contrary, both private and state-owned companies will have to import goods and services, but also raw materials suitable for the green economy, thus generating losses in budgetary and trade balances and affecting the internal labor market, creating welfare and jobs in other economies and not in the national economy, implicitly possibly also not in the European one.

Thus, regarding Romania, according to CNSM (2021), the current account deficit (% of GDP) will deteriorate by an additional 1.2 pp. in the medium term if Romania will not be able to align with the green transition and digitization requirements set by the industrial strategy for Europe, drawn up by the European Commission in 2020.

The consequences of a disorderly implementation of the transition to the circular economy and the achievement of sustainable development targets may also be of the nature of precarious sovereign ratings, with rating agencies already monitoring and assessing countries in sovereign ratings and national capacity to implement the climate agenda. Regarding the Romanian economy, the losses generated by the late start (e.g. 2 years, i.e. 2024 instead of 2022) of green projects will lead to a reduction of over 33% the favorable effect on the Romanian economy, according to CNSM analyzes (2021). Also, all European states will account for losses if the transition to this new type of economy occurs late or if the way in which each economy is restructured is not in line with making significant progress towards achieving the goals of sustainable development. It should be noted that in terms of both socio-economic and environmental targets, each EU Member State can only be seen in part as a beneficiary or bearer of favorable or unfavorable consequences for the proper or less appropriate implementation of public policies for achieving the goals of sustainable development. This is due to the fact that the challenges are increasingly regional or global, and externalities, with beneficial or detrimental effects, are reflected also, willingly or unwillingly, outside national or regional boundaries. Therefore, just as the dangers or vulnerabilities to the world's economies and the objective of achieving the goals of sustainable development manifest themselves as communicating channels, in the same manner, we can talk about the effect of funding in this regard.

In the High-Level Political Forum on sustainable development (HLPF) in 2021, it has been discussed the various aspects of the response to the COVID-19 pandemic and its impacts in order to put the world back on track to achieve the SDGs by 2030. Also, in the work of Gaspar and al. (2019) it is estimated the additional annual spending required for significant progress on the SDGs in areas such as: education, health, roads, electricity, and water and sanitation, and its main finding is that delivering on the SDG agenda will require additional spending in 2030 of

US $0.5 trillion for low-income developing countries (or an average additional spending of 15 percentage points of GDP) and US $2.1 trillion for emerging market economies. Regarding the EU, although the study signed by Kettunen and al. (2018) points out shortcomings of the EU methodology, implicitly of Eurostat, in monitoring progress related to sustainable development targets, emphasizing that: it has also been identified that the lack of consistent monitoring and evaluation systems across all funds has hampered assessment of both the fund- specific outcomes and their overall (comparative) performance and that there is a need to ensure tracking financial contributions across all 17 SDGs over time, however it speaks rather of the EU's external relationship with other parts of the world, and less of the need to track sustainable development targets and their funding at the level of EU countries.

Although numerous studies and reports try to identify the need for global and regional funding (in our case European funding) on the transition to this new type of economy and especially to achieve the goals of sustainable development, the real capacity for estimation is extremely limited, existing considerable differences in estimation from one evaluator to another. This variability is reflected not only in financing for sustainable development as a whole, but of course also in public indebtedness for this purpose.

Methodology and Data

Based on the information that approximately 30% of the amounts allocated at EU level (for the NextGeneration package and for the multiannual framework 2021-2027) out of a total of 1824.3 billion Euros will be allocated to this green transition and to transpose the objectives of the sustainable development strategy into reality, green spending must being also, according to the national recovery and resilience plans (PNRR, engl. NRRP) be at least 37% of the global amount for each member country (CNSM, 2021), the article aims to outline a series of logical, empirical scenarios on the impact of sustainable development on public debt. It should be noted that of the € 1824.3 billion, € 1074 billion is the EU's multiannual budget (for the period 2021-2027), while the € 750 billion is the economic recovery fund allocated to pandemic contingency and its effects. Of this, € 390 billion is non-reimbursable grants, while € 360 billion is the loans fund drawn by the European Commission on behalf of the EU for member countries. Romania has allocated approximately 80 billion Euros, of which 16.7 billion euros are loans. In the National Recovery and Resilience Plan, developed within the Recovery and Resilience Mechanism, part of the Next Generation EU economic recovery package, the expenditure budget for the green transition is 15.89 billion Euros, out of a total of 29.2 billion euro for the whole plan, more exactly a share of more than 54% of the financial envelope of the plan.

Returning to the European level, if we consider that the entire volume of loans of 360 billion Euros, will be in one form or another conditioned by the transition to the new type of economy, so to a greater or lesser extent “green”, and taking into account that the total of 1824.3 billion Euros of the EU Multiannual Financial Framework, 30% is for the green economy, i.e. 547.29 billion Euros, we can consider that, except for the presence of grants, the volume of loans is below the required level for this target. At the same time, if we refer only to loans and weigh the 360 billion at 37%, as strictly green loans, we get a volume of 133.2 billion Euros, which if we share evenly to the 27 EU countries we get about 5 (more precisely 4.9) billion Euros on average per country over the whole allocation period 2021-2027, i.e. an additional debt on average over 700 million Euros per year per country.

It should be noted that, we start from the assumption that European funding is covering the goals of sustainable development and that the aim of the study is to identify as accurately as possible the level of public debt in line with achieving sustainable development goals and that they overlap perfectly with the notion of "green" as it is understood and budgeted at EU level.

Basically, the study aims not to contest the volume of European financing or more precisely the repayable one (indebtedness), but starting from the global volume of financing for debts approved at EU level to be able to identify at country level, for EU countries, what level of public debt could be reached as a result of the additional amount of debt related to the need to transition to the green economy and thus also to the goals of sustainable development.

Thus, the article aims to identify a series of logical forecasting models on the evolution of public debt expressed as a percentage of GDP, taking into account strictly the possible variants of green financing on different scenarios and simplifying the allocation model at country level, considering that all countries of the EU receives equal amounts of green loans, which is not in line with reality, being a methodological simplification.

Also, as a limiting aspect, the article does not take into account the evolution of indebtedness according to other causes or potential crises. At the same time, if the European budgets contain a non-reimbursable and a reimbursable financing, the indebtedness foreseen in the projects and programs committed from the European funds does not mean that it will materialize in full.

On the plus side, the article incorporates information and working methods used in artificial neural networks for forecasting, including self-adaptive methods and taking into account moments of crisis or changes in the past business cycle (e.g. for GDP forecasting). The multitude of scenarios or models take into account certain predefined hypotheses in order to be able to distinguish the wide area of possibilities in the evolution of public debt. Exclusively green public debt variants are not presented separately, once - because of their relatively limited weights in relation to GDP and even to total debt, and secondly - because the debt for green projects and sustainable development should not be seen as “another” debt, but only an internal, stabilizing element for the general gross public debt. Data used come from the Eurostat database for the period 2010-2020, for gross public debt expressed as a percentage of GDP and the evolution of GDP expressed in millions of Euros, current prices. In order to reflect the funding from future European funds foreseen in the 2021-2027 multiannual frameworks and the NextGeneration package, we used information from EU reports and studies as well as from the CNSM report (2021). Thus, the forecast follows its own, logical, adaptive methodology, limiting itself to the gross public debt expressed as a percentage of GDP for the period 2021-2027, at the level of EU27 countries.

It should be noted that, in order to simplify the analysis, the beneficial multiplier effect generated by indebtedness for the environment or for sustainable development targets is not taken into account. This multiplier effect could lead to a considerable decrease in the values proposed by this study.

Results

Thus, the article builds on partial variants, different scenarios, evolutions or models, regarding different components or factors in the evolution of public indebtedness. First, the article takes into account the evolution of GDP in volume (millions of Euros) for the same period, using the evolution of GDP to outline forecasts for GDP on 2 scenarios or variants. The first option starts from the hypothesis that GDP grows annually for 7 years (2021-2027) according to the growth rates of the period 2014-2020, considering that in or after 2021, GDP will evolve similarly to the period after the sovereign debt crisis and the global financial crisis for the period 2008-2009. We can note this variant PIB1. The second variant of GDP starts from the hypothesis that GDP will grow in the next 7 years after 2020 in growth rates according to the period 2012-2018, 2012 also marking a moment of crisis at EU level amid rising sovereign debt, more of Greece, the year marking the second program to save Greece's finances from the trinomial: the European

Commission, the European Central Bank and the IMF. This suggests that in the second variant (GDP2), GDP will continue to be disrupted by shortcomings similar to the period 2012-2018.

For the “green” debt, those 700 million Euros, the article uses three variants: 1- constant, the period 2021-2027 having allocated regardless of the country, 700 million Euros debt that is added to the gross public debt (noted in DV1 models), 2- increasing evolution, the green debt evolving in the period 2021-2027 thus 500 million Euros in the period 2021-2022, with 600 million Euros in 2023, with 700, 800 and 900 million Euros respectively in the period 2024-2026 and with 900 million Euros in 2027 (noted in DV2 models), 3- decreasing evolution, i.e. exactly the inverse of the previous variant, for the period 2021-2027, 900 million Euros per country being allocated in the first year (noted in DV3 models). Taking into account the two previous variants of GDP, we will have 6 variants of evolutions of green debt in relation to GDP.

At the same time, the article takes into account the current level of public debt in GDP, for the period 2010-2020, but also the possible variants in which it could evolve, thus constructing five possible main variants:

1. gross public debt (% of GDP) will evolve steadily over the next 7 years, but taking into account recurrent or iterative previous information. Basically, the gross public debt (DPB) (% of GDP) takes into account the previous public debt, but increases with the green debt by variants (note DPBct),

2. the gross public debt (GDP) (% of GDP) is growing at a rate for the period 2014-2020, and the “green” debt is in turn constant, increasing or decreasing (note DPBc14-20),

3. - the gross public debt (GDP) (% of GDP) decreases at a rate related to the period 2014-2020, and the “green” debt is in turn constant, increasing or decreasing (DPBs14-20),

4. the gross public debt (GDP) (% of GDP) is growing at a rate for the period 2012-2018, and the “green” debt is in turn constant, increasing or decreasing (note DPBc12-18),

5. the gross public debt (DPB) (% of GDP) decreases at a rate related to the period 2012-2018, and the “green” debt is in turn constant, increasing or decreasing (note DPBs12-18). Thus, finally, taking into account the evolution of DPB and the evolution of green debt (DV) we will obtain 30 variants, scenarios or possible models presented in the table below (Table 1).

Thus, taking into account the above, in order to briefly capture the possible developments of public debt in GDP we can see graphically the result of models developed for: EU27, Euro19, Romania, France, Finland and Greece. The countries were chosen according to the geographical position of the states in the EU: north, south, east and west, but also taking into account their level of transition to the society of sustainable development.

Therefore, if we look at the possible forecast, according to the methodology used, on gross public debt expressed as a percentage of GDP, we notice that there are generally 5 models more visible: 6, 12, 18, 24 and 30, all marking a decreasing evolution of "green” debt, with various evolutions of the initial gross public debt (until 2020).

For the European Union (EU27), we note that model 18 offers a maximum limit of over 100% of GDP, for 2026, and model 12 offers a minimum limit of 81.63% of GDP, so that next year to reach relatively low values. The range of variation calculated between the models used is thus about 20pp., but even the minimum possible value is well above the target of 60% of GDP proposed by the Maastricht Treaty and mandatory to reach, as a sustainability threshold, imposed by the European treaties (see Figure 1). It is possible, in the absence of other additional shocks, for example the serious budgetary problems in the United States, which will roll like a roller coaster across the EU, that the normalization of indebtedness will occur, in the

medium term, in the range of 90-100%. If additional shocks are taken into account, the values used in this forecast will become irrelevant, far exceeding the anticipated levels.

Table 1

Possible evolutions of the public indebtedness taking into account the evolution of the "green" debt

Evolution / variant on Gross government debt (% of GDP)	Evolution of green debt or to achieve sustainable development targets depending on the GDP variant to which it relates	Name of the final model for public debt	Model variant
DPBCt (1)	PIB1DV1	DPB1PIB1DV1	Model 1
	PIB1DV2	DPB1PIB1DV2	Model 2
	PIB1DV3	DPB1PIB1DV3	Model 3
	PIB2DV1	DPB1PIB2DV1	Model 4
	PIB2DV2	DPB1PIB2DV2	Model 5
	PIB2DV3	DPB1PIB2DV3	Model 6
DPBc14-20 (2)	PIB1DV1	DPB2PIB1DV1	Model 7
	PIB1DV2	DPB2PIB1DV2	Model 8
	PIB1DV3	DPB2PIB1DV3	Model 9
	PIB2DV1	DPB2PIB2DV1	Model 10
	PIB2DV2	DPB2PIB2DV2	Model 11
	PIB2DV3	DPB2PIB2DV3	Model 12
DPBs14-20(3)	PIB1DV1	DPB3PIB1DV1	Model 13
	PIB1DV2	DPB3PIB1DV2	Model 14
	PIB1DV3	DPB3PIB1DV3	Model 15
	PIB2DV1	DPB3PIB2DV1	Model 16
	PIB2DV2	DPB3PIB2DV2	Model 17
	PIB2DV3	DPB3PIB2DV3	Model 18
DPBc12-18(4)	PIB1DV1	DPB4PIB1DV1	Model 19
	PIB1DV2	DPB4PIB1DV2	Model 20
	PIB1DV3	DPB4PIB1DV3	Model 21
	PIB2DV1	DPB4PIB2DV1	Model 22
	PIB2DV2	DPB4PIB2DV2	Model 23
	PIB2DV3	DPB4PIB2DV3	Model 24
DPBs12-18(5)	PIB1DV1	DPB5PIB1DV1	Model 25
	PIB1DV2	DPB5PIB1DV2	Model 26
	PIB1DV3	DPB5PIB1DV3	Model 27
	PIB2DV1	DPB5PIB2DV1	Model 28
	PIB2DV2	DPB5PIB2DV2	Model 29
	PIB2DV3	DPB5PIB2DV3	Model 30

Source: own conception; the notations have been clarified earlier in the text.

If we refer to the euro area (EA19), we notice that model 18 offers a maximum limit of over 107.93% of GDP for 2026, and model 12 offers a minimum limit of 88.80% of GDP, because next year to reach relatively low values (see Figure 2). The range of variation calculated between the models used for the euro area is thus about 20pp., the threshold of 60% of GDP, considered the sustainability threshold, will continue to be violated. It should be noted that at EU27 level, in the event of additional shocks, internal or external, economic or non-economic, it is possible that the strongest shock will be recorded in the euro area and the public debt for the euro area to explode at 120% of GDP, and to remain high in the medium term.

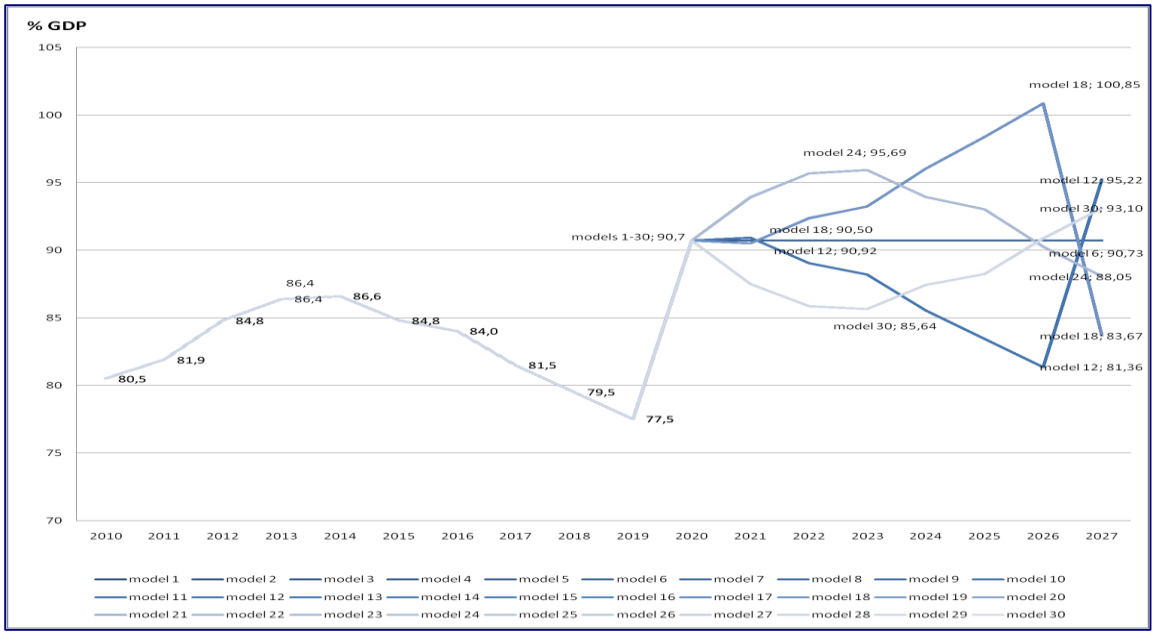

Figure 1: Forecasted evolution of public debt expressed as a percentage of GDP at EU level with 27 states

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

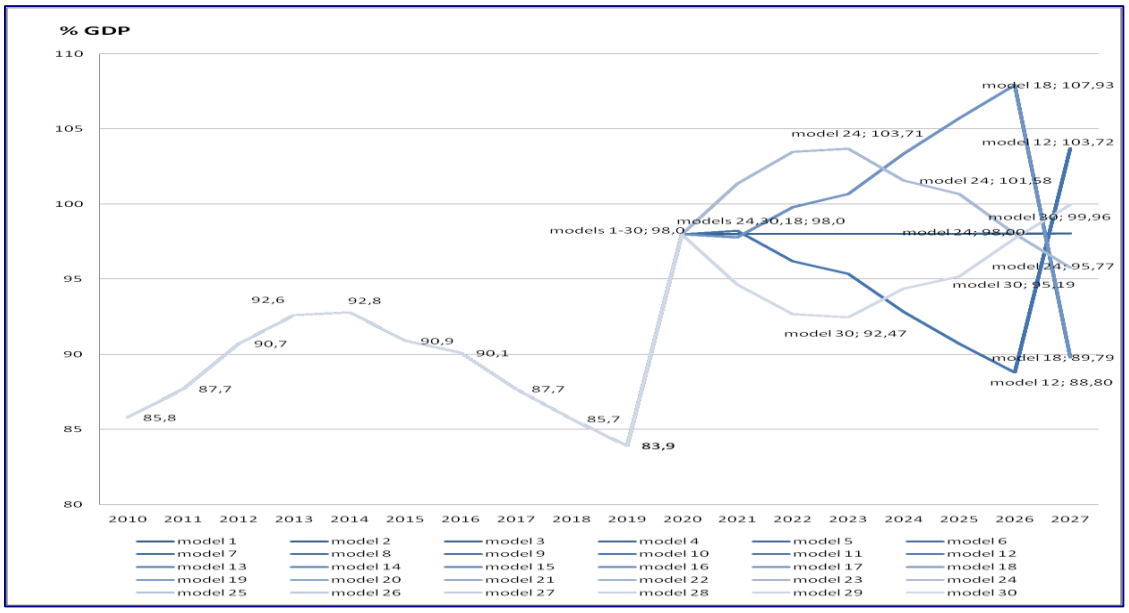

Figure 2: Forecasted evolution of public debt expressed as a percentage of GDP in the Eurozone average of 19 states

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

For Romania, if the public debt by 2010 stay below the level of 30% of GDP, it is possible that after 2021, according to the assumptions and implicitly the chosen models, DPB will explode at a level of and over 60% (see model 12), this in the absence of other additional shocks that could lead to constant exceedances of this level in the medium term. The optimistic trend could be a range of variation between around 46% and 50% of GDP (see models 30 and 6).

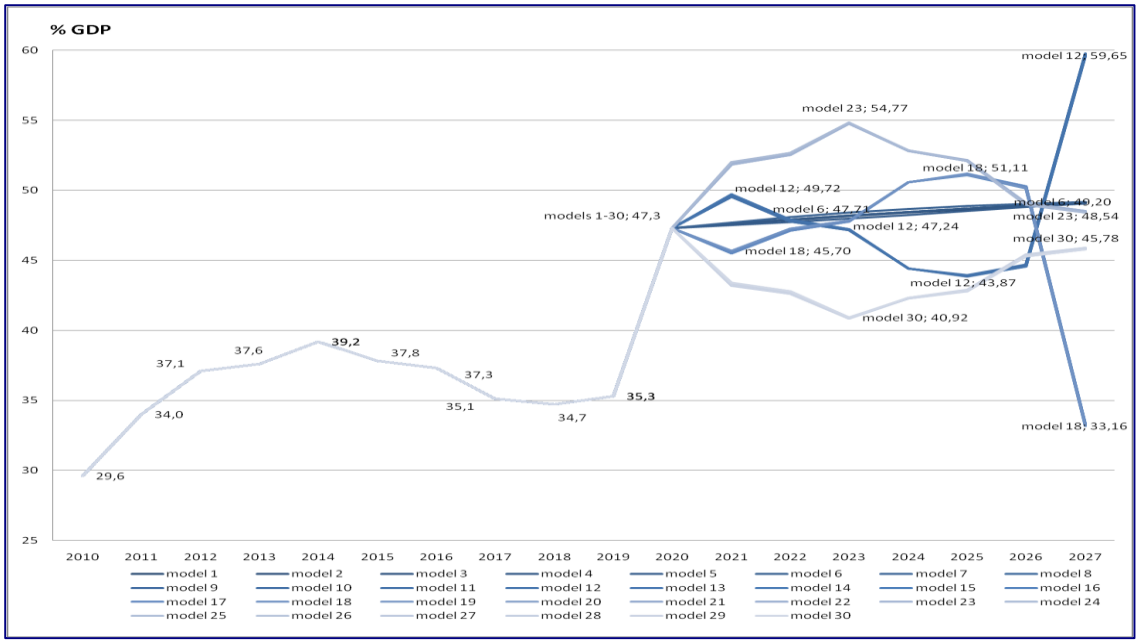

Figure 3: The forecasted evolution of public debt expressed as a percentage of GDP for Romania

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

If we refer to France, the maximum variation range of gross public debt is between about 90 and 145% of GDP according to the proposed models (see figure 4), but optimally we could consider values between approx. 100 and 130% of GDP. Compliance with the 60% threshold is practically impossible, as it has been violated by this country since 2002-2003.

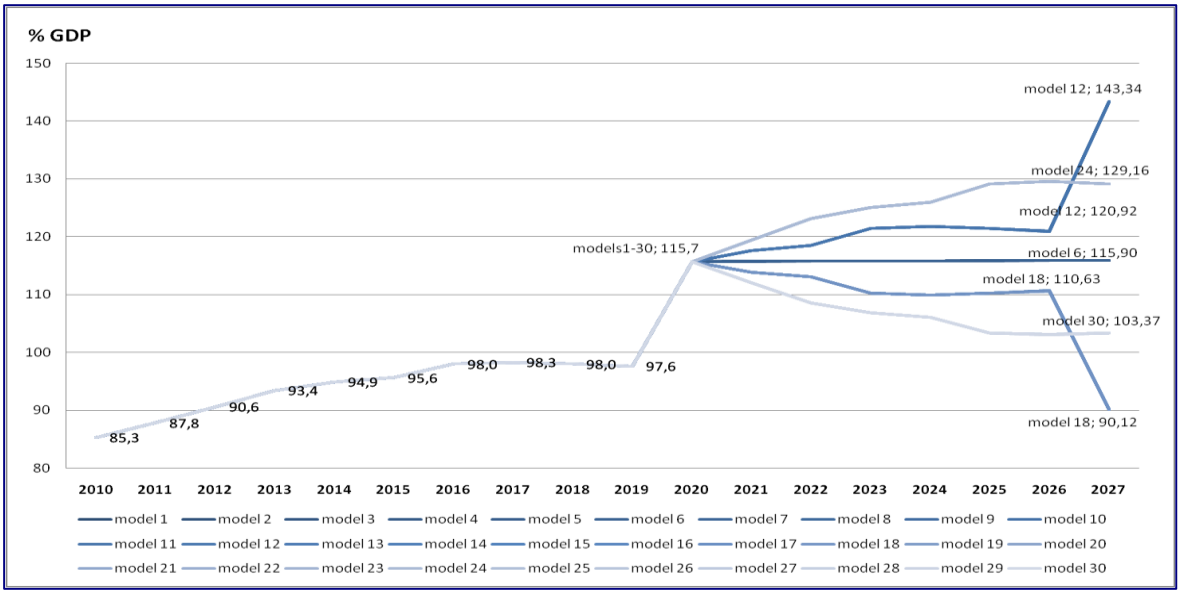

Figure 4: Projected evolution of public debt expressed as a percentage of GDP for France

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Regarding the evolution of gross public debt expressed as% of GDP for Finland, we note that in the period 2010-2019 this country was able to broadly fall within the sustainability threshold of

60% of GDP, but the year 2020 marked an explosion of public debt of approx. 10pp, this of course leading to projected future developments at levels in the range of about 50 - 90% (Fig 5).

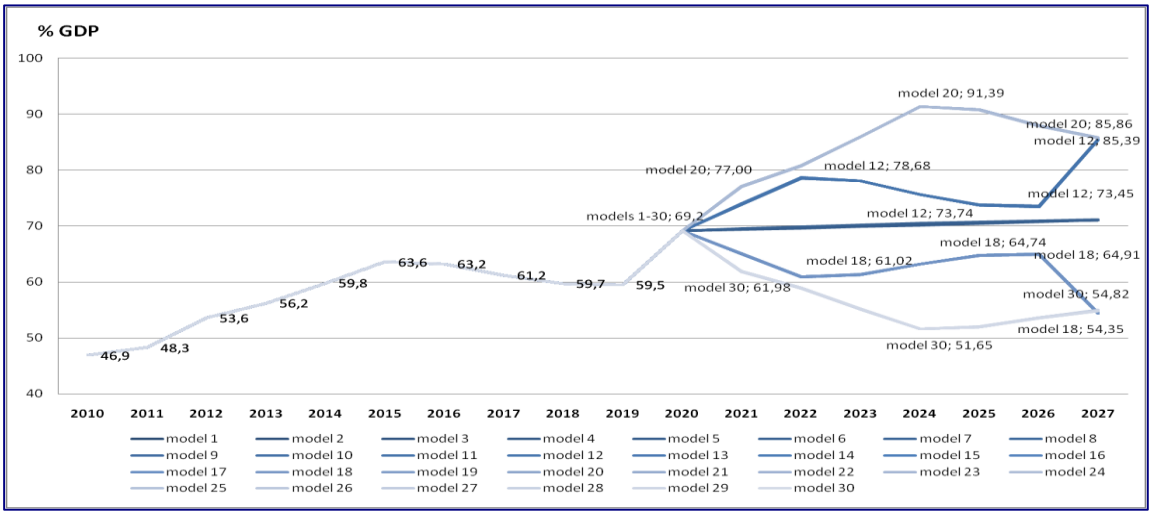

Figure 5: Projected evolution of public debt expressed as a percentage of GDP for Finland

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

If we refer to Greece (see figure 6), the country massively affected by the public debt crisis, although the variations on models or scenarios do not seem worrying, not as explosive as in previous situations, however, the extremely high level reached in 2020, outlines a future of public debt for the period 2021-2027 between the values of about 175% and 240%. For this country, the ideal scenario level would be within a maximum of 200%-210% in the medium term (in the case study, of 7 year).

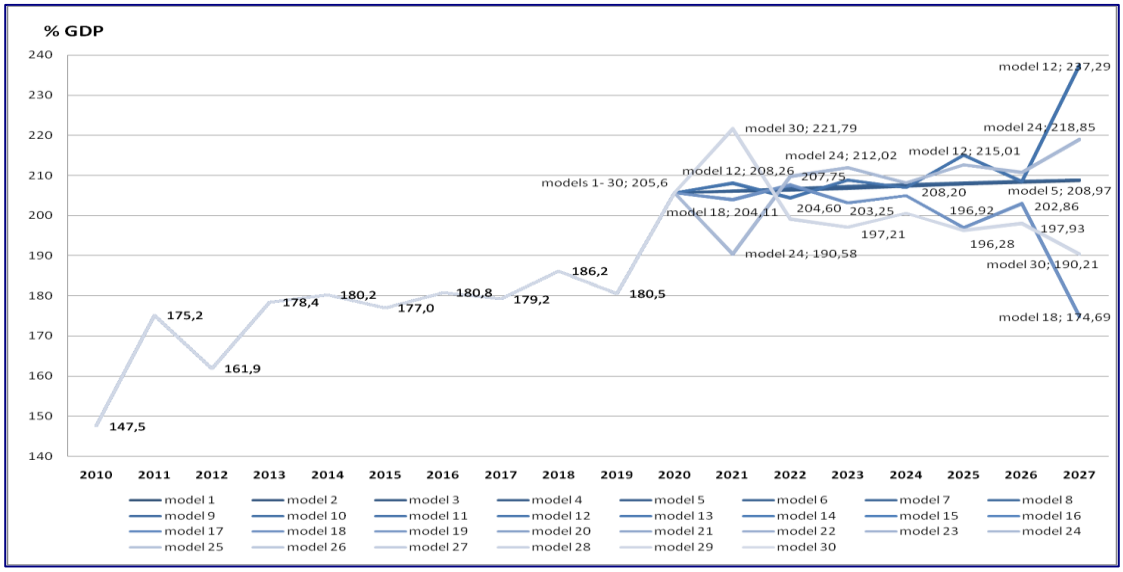

Figure 6: Projected evolution of public debt expressed as a percentage of GDP for Greece

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Conclusions

The sovereign debt crisis in Europe, which resulted as a side effect of the global financial crisis in the United States between 2007 and 2008, seems to have a much more aggressive copy in the COVID-19 crisis, which disrupted public finances around the world in 2020. This crisis indicates today that the world's problems are beyond the epidemiological, medical sphere, a crisis of ethics, balance, normality, public finances feeling fully, the inability to quickly bend to new realities.

Identified in the past as growing problems, but neglected by some experts and authorities, climate but also social problems, inequities of any kind, natural cataclysms and climate imbalances seem to have an echo in EU funding to address them, and to achieve an economy as green as possible and to implement sustainable development targets. This is in line with the need to control the pandemic, with financial funding being allocated at EU level in line with the response to these combined challenges. Basically, EU funds support the catalysis of a wide range of opportunities amid the rapid but wise transition to a green economy that can mean that the economy can restructure in favor of producing higher value-added products, can better contribute to attracting investment, which will to better achieve the goals of sustainable development, through massive investments in supporting the use of renewable energy and in supporting digitalization, especially at local and rural level.

Of the overall volume of funding at EU level, funding for the environment and the transition to the green economy occupies at least 30% of this financial envelope (of € 1824.3 billion), with green spending also being to be kept to at least of 37% minimum of the overall amount for each Member State. At the same time, if we refer strictly to loans and share the 360 billion, allocated to the EU for repayable financing, at 37%, as strictly green loans, we get a volume of 133.2 billion Euros which if we share evenly the 27 of EU countries we get about 5 (exactly 4.9) billion Euros on average per country over the entire allocation period 2021-2027, more exactly, an additional debt on average over 700 million Euros per year per country. Thus, based on this information, the article is constructed so as to identify a series of logical forecasting models for the period 2021-2027 on the evolution of public debt expressed as a percentage of GDP, taking into account strictly the possible variants of green financing. The results of the public debt forecasts are presented graphically for EU27, EA19, Romania, France, Finland and Greece, and in the annex, the values obtained for the models considered the most important are presented.

The overall conclusion is that environmental indebtedness at EU27 level can put pressure on public indebtedness, as well as, through the multiplier effect, this impact could be substantially reduced. For the sake of methodological simplification, this aspect of multiplier effect was not taken into account in the present study. It should be noted that environmental indebtedness may or may not occur at the forecast level, taking into account that the values offered are those proposed and not those that will actually be accessed by Member States for this purpose. At the same time, the article does not take into account the effects of other influences, factors or shocks on public debt at EU level. The evolution of public debt is mainly based on the evolution of past public debt and less on the evolution of environmental indebtedness. The 60% sustainability threshold is still clearly violated by EU member states, and the additional “green” debt has a chance to decongest this situation, rather than inflame it, as it may seem at first glance.

Future Directions

The study presents a lot of conceptual and empirical limitations and these can be analyzed in turn and corrected by future analyzes. The analysis can also be improved by an econometric study such as Box Jenkins ARIMA.

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Annex

Table 1

Forecasted evolution of the PDB (% of GDP) according to model 6, the PDB is initially constant, but takes into account the previous debt, GDP evolves after scenario 2, green debt decreases

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EU27	80.5	81.9	84.8	86.4	86.6	84.8	84.0	81.5	79.5	77.5	90.7	90.71	90.71	90.72	90.72	90.73	90.73	90.73
EU19	85.8	87.7	90.7	92.6	92.8	90.9	90.1	87.7	85.7	83.9	98.0	98.01	98.02	98.02	98.03	98.03	98.04	98.04
EU18	86.0	87.9	90.9	92.8	93.0	91.1	90.3	87.9	85.9	84.1	98.2	98.21	98.22	98.22	98.23	98.23	98.24	98.24
BE	100.3	103.5	104.8	105.5	107.0	105.2	105.0	102.0	99.8	98.1	114.1	114.29	114.49	114.65	114.79	114.91	115.00	115.09
BG	15.4	15.2	16.7	17.1	27.1	26.0	29.3	25.3	22.3	20.2	25.0	26.46	27.92	29.19	30.23	31.07	31.72	32.33
CZ	37.1	39.7	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.3	38.1	38.52	38.96	39.35	39.66	39.92	40.12	40.30
DK	42.6	46.1	44.9	44.0	44.3	39.8	37.2	35.9	34.0	33.3	42.2	42.48	42.76	43.00	43.20	43.37	43.50	43.63
DE	82.5	79.9	81.2	78.8	75.7	72.3	69.3	65.1	61.8	59.7	69.8	69.83	69.85	69.87	69.89	69.91	69.92	69.93
EE	6.6	6.1	9.8	10.2	10.6	10.0	9.9	9.1	8.2	8.4	18.2	21.32	24.28	26.76	28.87	30.58	31.89	33.09
IE	86.0	111.0	119.9	119.9	104.2	76.7	74.1	67.0	63.0	57.4	59.5	59.74	59.97	60.16	60.28	60.38	60.46	60.53
GR	147.5	175.2	161.9	178.4	180.2	177.0	180.8	179.2	186.2	180.5	205.6	206.19	206.80	207.35	207.84	208.26	208.61	208.95
ES	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5	120.0	120.08	120.17	120.24	120.30	120.35	120.39	120.43
FR	85.3	87.8	90.6	93.4	94.9	95.6	98.0	98.3	98.0	97.6	115.7	115.74	115.78	115.81	115.84	115.86	115.88	115.90
HR	57.7	64.3	70.1	81.2	84.8	84.3	80.8	77.6	74.3	72.8	88.7	90.56	92.44	94.12	95.55	96.72	97.65	98.52
IT	119.2	119.7	126.5	132.5	135.4	135.3	134.8	134.1	134.4	134.6	155.8	155.86	155.91	155.96	156.00	156.04	156.07	156.09
CY	56.4	65.9	80.3	104.0	109.1	107.2	103.1	93.5	99.2	94.0	118.2	122.60	127.35	131.71	135.43	138.44	140.80	143.02
LV	47.9	43.7	42.2	40.0	41.6	37.1	40.4	39.0	37.1	37.0	43.5	46.30	49.02	51.36	53.34	54.98	56.26	57.45
LT	36.2	37.1	39.7	38.7	40.5	42.5	39.7	39.1	33.7	35.9	47.3	49.02	50.67	52.07	53.27	54.25	55.01	55.72
LU	20.2	19.0	22.0	23.7	22.7	22.0	20.1	22.3	21.0	22.0	24.9	26.27	27.58	28.66	29.56	30.30	30.89	31.45
HU	80.2	80.4	78.4	77.4	76.7	75.8	74.9	72.2	69.1	65.5	80.4	81.08	81.74	82.30	82.77	83.16	83.45	83.73
MT	65.3	69.3	65.9	65.8	61.6	55.9	54.2	48.5	44.8	42.0	54.3	60.78	66.79	71.64	75.35	78.37	80.58	82.63
NL	59.3	61.7	66.3	67.7	67.9	64.7	61.9	56.9	52.4	48.7	54.5	54.61	54.72	54.82	54.90	54.97	55.03	55.08
AT	82.7	82.4	81.9	81.3	84.0	84.9	82.8	78.5	74.0	70.5	83.9	84.13	84.36	84.56	84.73	84.86	84.97	85.08
PL	53.5	54.7	54.4	56.5	51.1	51.3	54.2	50.6	48.8	45.6	57.5	57.67	57.84	57.98	58.10	58.20	58.27	58.35
PT	100.2	114.4	129.0	131.4	132.9	131.2	131.5	126.1	121.5	116.8	133.6	134.07	134.52	134.93	135.27	135.55	135.77	135.98
RO	29.6	34.0	37.1	37.6	39.2	37.8	37.3	35.1	34.7	35.3	47.3	47.71	48.09	48.41	48.67	48.89	49.05	49.20
SL	38.3	46.5	53.6	70.0	80.3	82.6	78.5	74.1	70.3	65.6	80.8	82.76	84.71	86.39	87.81	88.98	89.90	90.76
SK	41.0	43.4	51.8	54.7	53.6	51.9	52.4	51.5	49.6	48.2	60.6	61.55	62.49	63.31	63.99	64.57	65.03	65.47
FI	46.9	48.3	53.6	56.2	59.8	63.6	63.2	61.2	59.7	59.5	69.2	69.58	69.94	70.27	70.55	70.78	70.96	71.14
SE	38.1	37.2	37.5	40.2	45.0	43.7	42.3	40.7	38.9	35.0	39.9	40.08	40.26	40.42	40.55	40.66	40.75	40.85

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Table 2

Forecasted developments of the DPB according to model 12, DPB increases according to the rate similar to the period 2014-2020, GDP evolves according to scenario 2, green debt decreases

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EU27	80.5	81.9	84.8	86.4	86.6	84.8	84.0	81.5	79.5	77.5	90.7	90.92	89.03	88.19	85.56	83.46	81.36	95.22
EU19	85.8	87.7	90.7	92.6	92.8	90.9	90.1	87.7	85.7	83.9	98.0	98.22	96.21	95.36	92.82	90.70	88.80	103.72
EU18	86.0	87.9	90.9	92.8	93.0	91.1	90.3	87.9	85.9	84.1	98.2	98.42	96.41	95.56	93.02	90.90	89.00	103.92
BE	100.3	103.5	104.8	105.5	107.0	105.2	105.0	102.0	99.8	98.1	114.1	115.92	113.97	113.72	110.45	108.05	106.19	123.49
BG	15.4	15.2	16.7	17.1	27.1	26.0	29.3	25.3	22.3	20.2	25.0	41.08	39.47	44.11	38.03	33.44	30.18	37.16
CZ	37.1	39.7	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.3	38.1	36.38	34.50	31.80	29.66	27.80	26.20	32.88
DK	42.6	46.1	44.9	44.0	44.3	39.8	37.2	35.9	34.0	33.3	42.2	42.77	38.45	35.92	34.63	32.78	32.07	40.60
DE	82.5	79.9	81.2	78.8	75.7	72.3	69.3	65.1	61.8	59.7	69.8	67.08	64.07	61.41	57.68	54.76	52.89	61.84
EE	6.6	6.1	9.8	10.2	10.6	10.0	9.9	9.1	8.2	8.4	18.2	22.04	20.80	20.14	18.35	16.35	16.29	33.68
IE	86.0	111.0	119.9	119.9	104.2	76.7	74.1	67.0	63.0	57.4	59.5	51.95	38.29	36.96	33.37	31.37	28.56	29.60
GR	147.5	175.2	161.9	178.4	180.2	177.0	180.8	179.2	186.2	180.5	205.6	208.26	204.60	208.92	207.01	215.01	208.37	237.29
ES	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5	120.0	126.22	124.47	124.33	123.57	122.06	119.67	150.35
FR	85.3	87.8	90.6	93.4	94.9	95.6	98.0	98.3	98.0	97.6	115.7	117.60	118.46	121.43	121.80	121.42	120.92	143.34
HR	57.7	64.3	70.1	81.2	84.8	84.3	80.8	77.6	74.3	72.8	88.7	94.50	93.96	89.94	86.20	82.34	80.45	97.77
IT	119.2	119.7	126.5	132.5	135.4	135.3	134.8	134.1	134.4	134.6	155.8	159.27	159.15	158.55	157.72	158.07	158.30	183.23
CY	56.4	65.9	80.3	104.0	109.1	107.2	103.1	93.5	99.2	94.0	118.2	128.40	126.59	121.54	109.99	115.76	109.20	136.56
LV	47.9	43.7	42.2	40.0	41.6	37.1	40.4	39.0	37.1	37.0	43.5	48.04	43.06	46.28	44.39	41.98	41.52	48.49
LT	36.2	37.1	39.7	38.7	40.5	42.5	39.7	39.1	33.7	35.9	47.3	51.22	53.59	49.92	48.99	42.18	44.63	58.51
LU	20.2	19.0	22.0	23.7	22.7	22.0	20.1	22.3	21.0	22.0	24.9	25.22	24.42	22.20	24.33	22.80	23.71	26.72
HU	80.2	80.4	78.4	77.4	76.7	75.8	74.9	72.2	69.1	65.5	80.4	80.35	79.40	78.37	75.46	72.17	68.33	83.79
MT	65.3	69.3	65.9	65.8	61.6	55.9	54.2	48.5	44.8	42.0	54.3	57.32	52.14	49.58	43.74	39.98	36.88	46.85
NL	59.3	61.7	66.3	67.7	67.9	64.7	61.9	56.9	52.4	48.7	54.5	54.77	52.20	49.93	45.89	42.25	39.26	43.93
AT	82.7	82.4	81.9	81.3	84.0	84.9	82.8	78.5	74.0	70.5	83.9	86.92	87.84	85.65	81.18	76.50	72.87	86.69
PL	53.5	54.7	54.4	56.5	51.1	51.3	54.2	50.6	48.8	45.6	57.5	52.17	52.37	55.30	51.61	49.77	46.48	58.59
PT	100.2	114.4	129.0	131.4	132.9	131.2	131.5	126.1	121.5	116.8	133.6	135.59	133.86	134.10	128.55	123.81	118.98	136.05
RO	29.6	34.0	37.1	37.6	39.2	37.8	37.3	35.1	34.7	35.3	47.3	49.72	47.93	47.24	44.42	43.87	44.57	59.65
SL	38.3	46.5	53.6	70.0	80.3	82.6	78.5	74.1	70.3	65.6	80.8	94.65	97.29	92.29	86.96	82.32	76.64	94.13
SK	41.0	43.4	51.8	54.7	53.6	51.9	52.4	51.5	49.6	48.2	60.6	60.33	58.44	58.87	57.74	55.53	53.86	67.57
FI	46.9	48.3	53.6	56.2	59.8	63.6	63.2	61.2	59.7	59.5	69.2	74.01	78.68	78.14	75.63	73.74	73.45	85.39
SE	38.1	37.2	37.5	40.2	45.0	43.7	42.3	40.7	38.9	35.0	39.9	44.85	43.55	42.14	40.53	38.72	34.83	39.69

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Table 3

Forecasted developments of the DPB according to model 18, DPB decreases according to the rate similar to the period 2014-2020, GDP evolves according to scenario 2, green debt decreases

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EU27	80.5	81.9	84.8	86.4	86.6	84.8	84.0	81.5	79.5	77.5	90.7	90.50	92.38	93.25	96.02	98.38	100.85	83.67
EU19	85.8	87.7	90.7	92.6	92.8	90.9	90.1	87.7	85.7	83.9	98.0	97.80	99.80	100.68	103.36	105.71	107.93	89.79
EU18	86.0	87.9	90.9	92.8	93.0	91.1	90.3	87.9	85.9	84.1	98.2	98.00	100.00	100.88	103.55	105.91	108.13	90.00
BE	100.3	103.5	104.8	105.5	107.0	105.2	105.0	102.0	99.8	98.1	114.1	112.67	114.56	114.75	118.00	120.52	122.55	102.57
BG	15.4	15.2	16.7	17.1	27.1	26.0	29.3	25.3	22.3	20.2	25.0	11.84	12.26	10.70	11.76	12.83	13.77	10.61
CZ	37.1	39.7	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.3	38.1	40.67	42.79	46.05	48.98	51.91	54.74	40.69
DK	42.6	46.1	44.9	44.0	44.3	39.8	37.2	35.9	34.0	33.3	42.2	42.19	46.45	49.42	51.11	53.77	54.84	40.21
DE	82.5	79.9	81.2	78.8	75.7	72.3	69.3	65.1	61.8	59.7	69.8	72.57	75.83	78.97	83.75	87.99	90.98	75.59
EE	6.6	6.1	9.8	10.2	10.6	10.0	9.9	9.1	8.2	8.4	18.2	20.61	21.43	21.14	22.28	23.88	22.93	-2.40
IE	86.0	111.0	119.9	119.9	104.2	76.7	74.1	67.0	63.0	57.4	59.5	67.53	85.28	88.12	96.48	102.21	111.27	107.19
GR	147.5	175.2	161.9	178.4	180.2	177.0	180.8	179.2	186.2	180.5	205.6	204.11	207.75	203.25	204.97	196.92	202.86	174.69
ES	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5	120.0	113.94	115.53	115.63	116.32	117.73	120.01	89.23
FR	85.3	87.8	90.6	93.4	94.9	95.6	98.0	98.3	98.0	97.6	115.7	113.88	113.04	110.20	109.86	110.19	110.63	90.12
HR	57.7	64.3	70.1	81.2	84.8	84.3	80.8	77.6	74.3	72.8	88.7	86.63	87.14	90.49	93.75	97.42	99.12	77.63
IT	119.2	119.7	126.5	132.5	135.4	135.3	134.8	134.1	134.4	134.6	155.8	152.45	152.56	153.12	153.90	153.55	153.32	129.17
CY	56.4	65.9	80.3	104.0	109.1	107.2	103.1	93.5	99.2	94.0	118.2	116.80	119.11	123.10	133.51	124.89	130.63	97.46
LV	47.9	43.7	42.2	40.0	41.6	37.1	40.4	39.0	37.1	37.0	43.5	44.56	48.99	44.51	45.60	47.39	47.15	39.00
LT	36.2	37.1	39.7	38.7	40.5	42.5	39.7	39.1	33.7	35.9	47.3	46.82	44.52	47.10	47.59	53.78	50.11	34.38
LU	20.2	19.0	22.0	23.7	22.7	22.0	20.1	22.3	21.0	22.0	24.9	27.32	28.05	30.14	26.79	28.12	26.68	23.21
HU	80.2	80.4	78.4	77.4	76.7	75.8	74.9	72.2	69.1	65.5	80.4	81.80	82.74	83.62	86.51	90.13	94.71	73.22
MT	65.3	69.3	65.9	65.8	61.6	55.9	54.2	48.5	44.8	42.0	54.3	64.25	69.12	69.88	75.58	80.36	84.40	60.16
NL	59.3	61.7	66.3	67.7	67.9	64.7	61.9	56.9	52.4	48.7	54.5	54.45	57.01	59.46	64.24	69.30	74.17	65.34
AT	82.7	82.4	81.9	81.3	84.0	84.9	82.8	78.5	74.0	70.5	83.9	81.35	80.47	82.43	86.67	91.60	95.90	77.68
PL	53.5	54.7	54.4	56.5	51.1	51.3	54.2	50.6	48.8	45.6	57.5	63.16	62.92	59.34	63.25	65.48	69.74	51.56
PT	100.2	114.4	129.0	131.4	132.9	131.2	131.5	126.1	121.5	116.8	133.6	132.54	134.22	133.86	139.28	144.29	149.80	128.28
RO	29.6	34.0	37.1	37.6	39.2	37.8	37.3	35.1	34.7	35.3	47.3	45.70	47.28	47.85	50.59	51.11	50.18	33.16
SL	38.3	46.5	53.6	70.0	80.3	82.6	78.5	74.1	70.3	65.6	80.8	70.87	68.89	71.94	75.62	79.17	84.14	64.80
SK	41.0	43.4	51.8	54.7	53.6	51.9	52.4	51.5	49.6	48.2	60.6	62.77	64.72	63.98	64.93	67.20	68.96	51.31
FI	46.9	48.3	53.6	56.2	59.8	63.6	63.2	61.2	59.7	59.5	69.2	65.14	61.02	61.36	63.24	64.74	64.91	54.35
SE	38.1	37.2	37.5	40.2	45.0	43.7	42.3	40.7	38.9	35.0	39.9	35.32	36.33	37.47	38.85	40.54	44.58	38.35

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Table 4

Forecasted developments in public debt according to model 24, GDP increases at a similar rate to the period 2012-2018, GDP evolves after scenario 2, green debt decreases

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EU27	80.5	81.9	84.8	86.4	86.6	84.8	84.0	81.5	79.5	77.5	90.7	93.92	95.69	95.91	93.92	93.03	90.26	88.05
EU19	85.8	87.7	90.7	92.6	92.8	90.9	90.1	87.7	85.7	83.9	98.0	101.36	103.48	103.71	101.58	100.69	98.00	95.77
EU18	86.0	87.9	90.9	92.8	93.0	91.1	90.3	87.9	85.9	84.1	98.2	101.56	103.68	103.90	101.78	100.89	98.20	95.97
BE	100.3	103.5	104.8	105.5	107.0	105.2	105.0	102.0	99.8	98.1	114.1	115.73	116.50	118.12	116.11	115.87	112.54	110.11
BG	15.4	15.2	16.7	17.1	27.1	26.0	29.3	25.3	22.3	20.2	25.0	28.92	29.59	45.84	43.81	49.03	42.26	37.28
CZ	37.1	39.7	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.3	38.1	42.84	43.04	40.60	38.42	35.38	33.02	30.99
DK	42.6	46.1	44.9	44.0	44.3	39.8	37.2	35.9	34.0	33.3	42.2	41.38	40.55	40.79	36.64	34.22	33.00	31.25
DE	82.5	79.9	81.2	78.8	75.7	72.3	69.3	65.1	61.8	59.7	69.8	70.96	68.86	66.15	63.18	60.56	56.88	54.00
EE	6.6	6.1	9.8	10.2	10.6	10.0	9.9	9.1	8.2	8.4	18.2	32.36	33.39	34.11	31.94	31.25	28.45	25.67
IE	86.0	111.0	119.9	119.9	104.2	76.7	74.1	67.0	63.0	57.4	59.5	64.51	64.50	56.04	41.24	39.82	35.99	33.84
GR	147.5	175.2	161.9	178.4	180.2	177.0	180.8	179.2	186.2	180.5	205.6	190.58	209.97	212.02	208.20	212.59	210.64	218.85
ES	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5	120.0	148.24	164.55	172.95	170.53	170.35	169.31	167.25
FR	85.3	87.8	90.6	93.4	94.9	95.6	98.0	98.3	98.0	97.6	115.7	119.43	123.12	125.09	126.01	129.17	129.56	129.16
HR	57.7	64.3	70.1	81.2	84.8	84.3	80.8	77.6	74.3	72.8	88.7	98.57	113.89	118.66	117.72	112.63	107.97	103.37
IT	119.2	119.7	126.5	132.5	135.4	135.3	134.8	134.1	134.4	134.6	155.8	164.71	172.52	176.28	176.15	175.49	174.57	174.96
CY	56.4	65.9	80.3	104.0	109.1	107.2	103.1	93.5	99.2	94.0	118.2	148.43	191.29	200.05	196.00	187.93	170.07	180.14
LV	47.9	43.7	42.2	40.0	41.6	37.1	40.4	39.0	37.1	37.0	43.5	44.81	42.53	43.76	38.90	41.85	40.11	38.12
LT	36.2	37.1	39.7	38.7	40.5	42.5	39.7	39.1	33.7	35.9	47.3	52.34	50.98	53.03	55.38	51.60	50.61	43.67
LU	20.2	19.0	22.0	23.7	22.7	22.0	20.1	22.3	21.0	22.0	24.9	30.20	32.36	30.83	29.74	27.08	29.82	28.08
HU	80.2	80.4	78.4	77.4	76.7	75.8	74.9	72.2	69.1	65.5	80.4	79.08	78.06	77.27	76.27	75.29	72.50	69.38
MT	65.3	69.3	65.9	65.8	61.6	55.9	54.2	48.5	44.8	42.0	54.3	58.12	57.57	53.12	47.51	45.48	40.22	37.15
NL	59.3	61.7	66.3	67.7	67.9	64.7	61.9	56.9	52.4	48.7	54.5	58.68	59.91	60.07	57.23	54.75	50.32	46.34
AT	82.7	82.4	81.9	81.3	84.0	84.9	82.8	78.5	74.0	70.5	83.9	83.62	83.01	85.73	86.61	84.45	80.04	75.45
PL	53.5	54.7	54.4	56.5	51.1	51.3	54.2	50.6	48.8	45.6	57.5	57.35	59.56	53.86	54.04	57.08	53.27	51.37
PT	100.2	114.4	129.0	131.4	132.9	131.2	131.5	126.1	121.5	116.8	133.6	151.12	153.91	155.61	153.56	153.85	147.49	142.10
RO	29.6	34.0	37.1	37.6	39.2	37.8	37.3	35.1	34.7	35.3	47.3	52.02	52.69	54.85	52.85	52.10	48.99	48.42
SL	38.3	46.5	53.6	70.0	80.3	82.6	78.5	74.1	70.3	65.6	80.8	95.10	123.58	141.21	144.95	137.58	129.68	123.02
SK	41.0	43.4	51.8	54.7	53.6	51.9	52.4	51.5	49.6	48.2	60.6	73.28	77.32	75.66	73.15	73.74	72.37	69.69
FI	46.9	48.3	53.6	56.2	59.8	63.6	63.2	61.2	59.7	59.5	69.2	77.17	80.89	86.00	91.40	90.78	87.87	85.71
SE	38.1	37.2	37.5	40.2	45.0	43.7	42.3	40.7	38.9	35.0	39.9	40.40	43.29	48.42	47.01	45.48	43.74	41.82

Source: own conception, according to the elaborated methodology; primary data - Eurostat.

Table 5

Forecasted evolutions of public debt according to model 30, PDB decreases according to the rate similar to the period 2012-2018, GDP evolves after scenario 2, green debt decreases

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EU27	80.5	81.9	84.8	86.4	86.6	84.8	84.0	81.5	79.5	77.5	90.7	87.50	85.84	85.64	87.42	88.25	90.87	93.10
EU19	85.8	87.7	90.7	92.6	92.8	90.9	90.1	87.7	85.7	83.9	98.0	94.66	92.67	92.47	94.36	95.19	97.73	99.96
EU18	86.0	87.9	90.9	92.8	93.0	91.1	90.3	87.9	85.9	84.1	98.2	94.86	92.87	92.67	94.56	95.39	97.93	100.16
BE	100.3	103.5	104.8	105.5	107.0	105.2	105.0	102.0	99.8	98.1	114.1	112.86	112.11	110.49	112.32	112.51	115.70	118.19
BG	15.4	15.2	16.7	17.1	27.1	26.0	29.3	25.3	22.3	20.2	25.0	23.99	23.45	10.40	10.54	9.14	10.08	11.15
CZ	37.1	39.7	44.2	44.4	41.9	39.7	36.6	34.2	32.1	30.3	38.1	34.21	34.06	35.91	37.70	40.57	43.15	45.77
DK	42.6	46.1	44.9	44.0	44.3	39.8	37.2	35.9	34.0	33.3	42.2	43.58	44.44	44.10	48.52	51.65	53.41	56.23
DE	82.5	79.9	81.2	78.8	75.7	72.3	69.3	65.1	61.8	59.7	69.8	68.69	70.72	73.50	76.79	79.98	84.82	89.12
EE	6.6	6.1	9.8	10.2	10.6	10.0	9.9	9.1	8.2	8.4	18.2	10.28	9.83	9.08	9.08	8.76	8.92	9.57
IE	86.0	111.0	119.9	119.9	104.2	76.7	74.1	67.0	63.0	57.4	59.5	54.97	54.96	62.08	78.35	80.99	88.71	93.99
GR	147.5	175.2	161.9	178.4	180.2	177.0	180.8	179.2	186.2	180.5	205.6	221.79	199.28	197.21	200.64	196.28	197.93	190.21
ES	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5	120.0	91.93	81.82	77.63	78.69	78.76	79.23	80.19
FR	85.3	87.8	90.6	93.4	94.9	95.6	98.0	98.3	98.0	97.6	115.7	112.05	108.59	106.84	106.05	103.38	103.06	103.37
HR	57.7	64.3	70.1	81.2	84.8	84.3	80.8	77.6	74.3	72.8	88.7	82.56	69.79	66.59	66.72	69.18	71.62	74.58
IT	119.2	119.7	126.5	132.5	135.4	135.3	134.8	134.1	134.4	134.6	155.8	147.00	140.03	136.96	137.06	137.56	138.27	137.96
CY	56.4	65.9	80.3	104.0	109.1	107.2	103.1	93.5	99.2	94.0	118.2	96.77	69.86	66.28	66.71	68.42	73.85	69.35
LV	47.9	43.7	42.2	40.0	41.6	37.1	40.4	39.0	37.1	37.0	43.5	47.80	50.05	47.79	52.33	47.52	48.76	50.97
LT	36.2	37.1	39.7	38.7	40.5	42.5	39.7	39.1	33.7	35.9	47.3	45.71	46.74	44.40	42.07	44.55	44.98	51.03
LU	20.2	19.0	22.0	23.7	22.7	22.0	20.1	22.3	21.0	22.0	24.9	22.34	20.65	21.25	21.69	23.32	20.70	21.84
HU	80.2	80.4	78.4	77.4	76.7	75.8	74.9	72.2	69.1	65.5	80.4	83.08	84.11	84.77	85.66	86.59	89.61	93.42
MT	65.3	69.3	65.9	65.8	61.6	55.9	54.2	48.5	44.8	42.0	54.3	63.45	63.06	65.54	70.02	71.34	77.73	83.31
NL	59.3	61.7	66.3	67.7	67.9	64.7	61.9	56.9	52.4	48.7	54.5	50.55	49.48	49.32	51.63	53.85	58.18	62.77
AT	82.7	82.4	81.9	81.3	84.0	84.9	82.8	78.5	74.0	70.5	83.9	84.64	85.26	82.40	81.49	83.47	87.77	92.79
PL	53.5	54.7	54.4	56.5	51.1	51.3	54.2	50.6	48.8	45.6	57.5	57.98	55.75	61.04	60.78	57.33	61.11	63.27
PT	100.2	114.4	129.0	131.4	132.9	131.2	131.5	126.1	121.5	116.8	133.6	117.01	114.84	113.48	114.86	114.54	119.17	123.50
RO	29.6	34.0	37.1	37.6	39.2	37.8	37.3	35.1	34.7	35.3	47.3	43.40	42.79	40.92	42.32	42.82	45.28	45.78
SL	38.3	46.5	53.6	70.0	80.3	82.6	78.5	74.1	70.3	65.6	80.8	70.42	49.47	42.20	40.79	42.49	44.55	46.73
SK	41.0	43.4	51.8	54.7	53.6	51.9	52.4	51.5	49.6	48.2	60.6	49.82	47.08	47.88	49.24	48.66	49.37	51.15
FI	46.9	48.3	53.6	56.2	59.8	63.6	63.2	61.2	59.7	59.5	69.2	61.98	58.99	55.19	51.65	51.93	53.52	54.82
SE	38.1	37.2	37.5	40.2	45.0	43.7	42.3	40.7	38.9	35.0	39.9	39.76	36.91	32.50	33.41	34.46	35.73	37.31

Source: own conception, according to the elaborated methodology; primary data - Eurostat.