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A classical German view of public debt and investment in Romania and other ex-socialist economies

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The article uses the angle, and it is placed under the influence of the contributions of the representatives of German classical financial economic school, from Carl Dietzel and Lorenz von Stein to Adolph Wagner, whose works, reassessed by Carl-Ludwig Holtfrerich in 2013, are comparable, through their originality, to the English and other European classical schools of economics. The section devoted to the literature review is based on the contributions of the three German economists; the section devoted to method critically analyses the ratio of public debt to GDP, highlighting both the positive aspects of this convergence indicator, and its negative sides, as a relative indicator constructed from comparing two completely different statistical indicators, i.e. stock and flow. The results and discussions focus on the evolution, over the last two decades, of the debt in Romania and other ex-socialist economies, emphasising the need to prioritise the quality of debt management through the agency of the investment factor derived from the overall impact of public debt, and the final conclusions emphasise the need for relativisation of thresholds, taking into account the behaviour of the economies analysed, placing relative emphasis on the case of Romania.

Keywords: public debt; German economics; correlation; investment factor; convergence criterion

JEL classification: F34, H63, H68

1. Introduction

This article aims to identify some specific trends of public debt in the last decade for the economies of the former socialist nations in Central and Eastern Europe, which require changes in performance and quality management in public debt management, while dealing with the possible associations between foreign direct investment (FDI), economic growth and public debt in the economies analysed, with relative focus on Romania, and also on current policies of public debt.

Contemporary economics reveals, through the analysis published by Carl-Ludwig Holtfrerich in 2013, the contributions of the representatives of the German classical financial economics school, from Carl Dietzel to Lorenz von Stein and Adolph Wagner. Their works are comparable, through their originality, to the English classical school of economics. They are increasingly praised and popular, in the context of real convergence in the EU, as an essential process, and through the public or government debt

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developments in Europe as well as worldwide. Public debt is addressed in this article exclusively as *government debt* that is all internal and external financial obligations of the state at a certain point in time; from direct loans or loans guaranteed by the government, through the Ministry of Finance, on behalf of a state, from specialised financial markets. The second theme, a bit more concisely dealt with in this article, is the issue of the optimum measurement of public debt, i.e. the statistical indicators of stock and flow, which provide the most often used statistical tool, expressed as public debt measured as a percentage of GDP, an issue which is similar to an attempt to draw a boundary through statistical thinking, between '*flowing water and frozen water*'. The research methods that were put to use in the article are of a statistical nature and descriptively pursue the distributions of data concerning public debt, and identify possible abnormalities or heterogeneous combinations using correlation matrices.

In a first approach, one of a dynamic type, the ratio of public debt to GDP simplistically shows how many years it would take to reduce the debt to zero if all incomes were exclusively dedicated to debt repayment. However the essential statistical error contained here is to compare, through the indicator of debt as a percentage of GDP, an indicator of the stock with an indicator of the flow, rather than the fact that an economy cannot afford to restrict its activities to merely paying debt. The latter was reported by Steve Keen as a misunderstanding of the concept of dynamics and comparability specific to the classical, and even the neo-classical economics schools. Expounding a number of trends resulting from the analysis of public debt and its investment impact in Romania and some other former socialist European countries, in keeping with German classical economic and financial theory, now rediscovered and revisited, represents the third theme and also our major research target.

2. Public debt in the thinking of the classical German economic and financial school

The section of the article dealing with the review of the literature begins in Britain in the seventeenth century, the century of the *financial revolution* (Dickson, 1993). This century actually preceded and made possible the famous *industrial revolution*, which lasted for nearly 100 years in England. The section goes on to deal with the contributions of the three major German economists, and finally comments on the latest financial and economic schools of thought in the rather controversial field of public debt. The modern history of public debt in the UK began in 1688, caused by the fact that Parliament had taken control of taxes and spending, and the private credit of the monarchy was turned into a public credit, based on an institutional commitment by Parliament. The Bank of England was established later, in 1694, to act as the government's banker, functioning also as a manager of public debt. The developments in British public debt in the UK underline its growth from 3.1 million pounds in 1691 to a peak of 844 million in 1819, to be reduced as late as 1913, to 711 million pounds in one of the most conservative and stable economies in the world.

The English classical school of economics, from its founders, David Hume, Adam Smith, David Ricardo, Thomas Robert Malthus and John Stuart Mill, generated the major adverse opinion of public or government debt as a real impediment to economic progress (Smith, 2001). John Stuart Mill's way of thinking and reasoning, as far as debt is concerned, presented in his *Principles of Political Economy*, make a major contribution, virtually unique at the time. This way of thinking transited, very cautiously, into the favourable zone of debt solution, by the pragmatism of the manner it distinguished

the three sources of capital available from which debt financing could be made: (1) foreign capital, accumulated in the world, which is ‘overflowing’; (2) capital sent abroad to seek jobs; and (3) capital accumulated and looking for higher rates of profit, annually intercepted and mobilised by the government (Mill, 1909). Without John Stuart Mill’s innovative effort, the theories of economy and taxation would have constantly lagged behind real events; he was joined by the pioneering contributions of Jean François Melon in France, and Isaac de Pinto in Spain, who, in a similar manner, argued for the economically expansionary effects of a moderate use of debt (de Pinto, 1771; Melon, 1738).

The contributions of three German economists considered classics, Carl Dietzel, Lorenz von Stein and Adolph Wagner, may be less known, but it remains important in terms of the impact of public debt in today’s context of globalisation. In the nineteenth century they published several books devoted to the issue of public debt, which generated a subtle and well differentiated analysis, and described favourable assessments and arguments concerning debt as an instrument of development, theorising some creative uses of debt finance by governments, proved by significant results. As a matter of synthesis, the most spectacular and innovative contribution belongs to Carl Dietzel, whose doctoral thesis – written when he was only 26-years-old – rejected the British classical theory of government debt. He synthetically addressed credit in macroeconomics and, apparently to a smaller extent, the issue of public debt, but practically demonstrated that the immense material and intellectual progress, as well as the well-being of developed economies and the most advanced nations of modern Europe was largely due to the development process of public credit (Dietzel, 1855). The concrete mechanism of Carl Dietzel’s theory is centred on arguments that are economically and financially valid even today:

- (1) The bonds from public debt are designed as the basis of accumulation in a fixed capital stock of the nation;
- (2) Issuing state bonds attracts private funds, not only to the detriment of private capital accumulation, but also at the expense of private consumption;
- (3) Continued growth of public credit is a way to provide equity investment opportunities, for which the private sector has nothing better to offer;
- (4) The continued presence of public debt beyond financing extraordinary expenses is evidence of an economy with intentions of predictability. With the advent of public debt and bond systems, they are retained at the source – the national product, from which the flow into capital accumulation stopped.

Carl Dietzel’s theory also proves realistic in recognising some of the limits of its application.

As long as a national economy progresses and its elements of development are continuously visible, there will be no problem financing the fees needed to pay interest to public debt, but once new fees are necessary to cover interest payments, this implies a considerable disadvantage for private capital accumulation. It basically kills the productive power of capital accumulation through the channel of public bonds (Stettner, 1948).

Then there was the contribution made by Lorenz von Stein, one of the first German economists who founded the science of public administration, by publishing a memorable book devoted entirely to public debt, or synthetically to credit. He extended the

language and theory of Carl Dietzel, filling the theoretical gaps through necessary forms, institutions and historical evolutions of public debt in major European countries. He associated the lack of economic development of a country to the underdevelopment of its fiscal authority and its inability to make use of public debt, or loans in general, while linking together public debt efficiency to productivity. The distinction between directly productive public debt (which finances government investment in state enterprises, whose profits more than cover the debt service) and indirectly productive debt (which finances projects that the private economy would benefit from, to such an extent that productivity growth would generate additional tax revenue necessary for the debt service) is due to Lorenz von Stein. Von Stein, in his capacity as a practitioner, rejected the idea of expressing public debt in absolute or relative figures, as ratio of debt to income, arguing it by the lack of importance of these quantifications, except for the *relationship between public debt and state revenue* (von Stein, 1871, 1886). Von Stein also identified government abuse in the use of public debt in order to substitute frequent productivity growth for investment spending, and demanded constitutional protection against such actions adverse to development, identifying three functions where the public debt ought to serve public finance:

- (1) Increasing overall economic productivity, and fiscal revenue sufficient to the full service of the additional debt;
- (2) Integration and the assurance function of public debt, which would make people identify themselves with the state;
- (3) Sharing of intergenerational tasks, anticipating the modern *pay-as-you-use* principle. (Holtfrerich, 2013)

Lorenz von Stein analysed John Stuart Mill's favourable opinions of the public, took them over and clearly marked the distinction between domestic market and external public debt financed from abroad. Also formulating a famous dictum, which still retains its freshness: 'A state without public debt either cares little for its future, or asks too much of its present' (Holtfrerich, 2013).

The third great representative of the German classical school of economics, Adolph Wagner, an economist and member of the German Parliament, also formulated rules, such as the Wagner law, known as *the law of growth of public spending*. At the same time, these rules respected, and adhered to the point of view according to which, in public finances, unlike private finances, public revenues should comply with the expenditure.

Adolph Wagner emphasised the fact that government revenues should in principle be procured from both sources (Holtfrerich, 2013):

- (1) Ordinary and extraordinary taxation;
- (2) The use of public credit, which is also set at a maximum limit of public debt, which can meet all expenses resulting from increased revenue or saving public expenditure in future budget years, as well as abnormal non-recurring expenses, as in cases of war or natural disasters. Adolph Wagner treated any foreign credit as being advantageous, rejecting the idea that external sources of public debt would be much more dangerous than domestic sources at the moment of debt recovery. His wording proves his great historical intuition, in stating that: '*evil is not caused by being indebted abroad, but by previous unproductive use of credit*', external credit being practically used for expenditures, which are financed through taxation (Wagner, 1867). Also, Wagner emphasised the positive

impact of public debt on the expansion of employment in the public sector, and as a major, universally recognised theorist of the German school of historical and institutional economics, he has shown much deeper concern about social problems and possible solutions to them, together with providing a positive image of government activity in the economy.

Later contributions can also be added, either individually or belonging to original economic schools that completed the modern theory of public debt (Salsman, 2012):

- (1) The contribution of Irving Fisher who, in *The Purchasing Power of Money*, correlates financial crisis with excess borrowing in the expansion or upsurge phase and changing purchasing power and, especially, the dramatic *collapse of credit* and dramatic fall in prices, formulating then the theory of the great depressions, focusing on the relationship between debt and deflation (Fisher, 1911), over-indebtedness shortly followed by deflation, which become significant factors of crisis onset (the most controversial subject in the context of the last global recession);
- (2) John Maynard Keynes' theory – according to which budget deficit and public debt have a positive impact on economic activity in a country, in particular through the mechanism of public spending multiplication, and additionally, budget deficit and public debt – also provides an argument indicating their prevalence in public spending, as a result of expansionary fiscal policies which ultimately increase national production and help private investors to perceive the future economic situation in a more optimistic, by increasing investments (Keynes, 1937);
- (3) The clarification made by James Buchanan in *Public Principles of Public Debt*, which shattered the classical and Keynesian theory, synthesising their errors through three negations, or rather affirmations that are nonspecific to them: (1) the creation of public debt in the theories that preceded it involves no transfer of real burden to the future generations; (2) the analogy made by previous theories between private and public debt is erroneous in all its essentials; and (3) there is, and there will always be a clear and important distinction between domestic and foreign debt (Schumpeter, 1974);
- (4) The theory formulated by Finn Kydland and Edward Prescott, based on the concept of *real business cycle* – where business cycles are caused by fluctuations in the growth rate of total productivity of production factors – abandons the distinction between the short- and long-term in analysing economic fluctuations, including the case of public debt. It also considers public debt, no less than fiscal policy, as being effective only if it generates sustainable growth in GDP, which transforms the problem of public debt into a purely instrumental issue, while public debt is reconsidered as useful to the extent that it was caused by productive public expenditure (education, R&D, public investment) and generates sustainable growth effects of macroeconomic outcomes;
- (5) The Austrian school of economics (Carl Menger, Eugen von Böhm-Bawerk, Friedrich von Wieser, Ludwig von Mises, Friedrich Hayek, Israel Kirzner, Murray Rothbard) – which started on the premise that individual preferences are the decisive factor in people's economic behaviour, constructing the most complex theory of price to date, and establishing private property as the groundwork of economics, and thus supporting liberalism and advocating a policy of state

non-intervention in the economy (Hayek, 1989) – declared its interest through small public spending and a government kept to a minimum where possible (Rothbard, 1992);

- (6) Other contemporary individual approaches – following the direction generated by the classical German school – we can use Franco Modigliani's (2005) approach as an example. Modigliani shows, econometrically and with the clarity of statistical determination, that increasing public debt is correlated and always represents an exogenous factor of economic growth, affecting, either positively or negatively, the increased rate of GNP (in comparison with the economy's own level of development, technological advance, and a certain level of indebtedness, expressed in a relative manner). Paul Krugman's (1998) limited accumulation of debt to the concept of *debt overhang*, i.e. a debt considered much too visible, and implicitly big. Carmen Reinhart and Kenneth Rogoff (2010) reached the unsurprising conclusion that excessive accumulation of public debt tends to reduce a nation's rate of economic growth, based on analysing a series of data for as many as 44 states over a period of nearly two centuries. They rather synthetically formulated a more pragmatic theory of public debt supported by the argument that 'a high public debt is frequently associated with smaller rates of long-term economic growth', identifying the threshold from which economic growth is affected negative; the threshold could be placed around 90% of GNP for developed countries, and c.60% for developing or less developed countries (a threshold from which the intensity of the negative influence on GNP is concretely the highest). A recent analysis of the public debt and economic growth of the Central, Eastern and South-Eastern European countries reveals negative correlations (Časni, Badurina, & Sertić, 2014). In the long-term, public debt influences the GDP growth and the result is a negative sign pointing out that government gross debt lowers the GDP growth. The correlation has the same sign in the short-term, when public debt maintains its negative influence on GDP growth, controlling for other major determinant factors of growth, such as FDIs or total investments. Some studies evaluate the direct or indirect impact of higher indebtedness on economic growth for countries in the EU which were in the epicentre of the extended sovereign debt crisis (Mencinger, Aristovnik, & Verbić, 2014).

After two centuries of various public debt developments in world economies, the public indebtedness has shown that high levels of debt require some serious constraints on the behaviour of the economy and the independent fiscal and monetary policies. A monetary policy of accommodation can lead to the devaluation of the national currency and substantial negative effects, so the lower amounts of public debt are preferred that promote sustainable development and growth of the economy. But none of that would have been possible without the essential contribution of the German classical economic school. The path of the public debt theory is torturous, sometimes even oscillating from the British and German classical theories to today's context, and is often used only to provide a justification of further modern theories formulated by individuals or schools, which are much better suited to the reality of a mobile process.

3. Method and databases

The method of descriptive statistical analysis is complemented by the method of correlation matrices and that of the comparison or statistical confrontation of databases on the

phenomenon of public debt in former socialist countries, emphasising the importance of Eastern Europe and insisting on the Romanian economy.

The abnormal growth of public debt in the last decade – with emphasis on its spectacular growth during the global recession, as well as the existence of questions related to the confrontation of debt developments to FDI and economic growth – is potentially or theoretically able to explain the exceptional dynamics of government debt in the ex-socialist economies, exploiting descriptive statistics and correlation matrices. The problem of econometric models has not been investigated in this article for reasons related to comparable statistical data, which are limited with respect to time, which are exclusively provided after 2003 by *The Global Debt Clock – Economist Unit*, available on line at: http://www.economist.com/content/global_debt_clock (i.e. the main source of the data used in the article).

Systemic analysis of external debt exploits four essential indicators: debt per overall economy, public debt per capita, the ratio of government debt to GDP, and the annual rate of public debt change. Critical analysis of the ratio of government debt to GDP highlights both the positive aspects of this convergence indicator as a solution of rapid and prompt analysis, and its negative sides as a relative indicator, built by comparing two completely different statistical indicators, i.e. stock and flux. The substrate of the answer given by Irving Fisher is a relatively better adapted response to the issue of flow-stock conversion, in keeping with which stock is not opposed to flow (ΔS), but to flow rate (Fisher, 1896, 1911, 1933). The core problem of the flow-stock transfer, or vice versa, is still intricate in terms of statistics, because a flow as a concept under quality impact is not necessarily an increase or a decrease in the stock. It results in incorporation of a new variable, namely time, in order to turn the flow to what can be called a *stock distributed on time*. Thus, by analogy, the new pair of variations (ΔS) of the variable S and (Δt) of the time variable, or t , automatically generates the *flow rate* ($\Delta S/\Delta T$). A similar response seems to have been the classic answer given by Georgescu-Roegen (1971), in whose terminology and signification, the stock and flow are concepts that are distinct ‘dimensionalities’, and should hence be subject to different operations. When the classical logic of statistical thinking is violated, there occurs a number of consequences that can radically depreciate the quality of both statistical indicators and temporal and spatial analyses of the complex economic aggregate processes like GDP type or public debt.

The overall issues of stock and flow indicators, especially approaching them in the light of specific adjustments, have seen a long enough retrospective history in statistical theory and are solved with the help of restrictive economic thought, the specific logic of interrogation and investigation typical of statistical science, and finally by means of validation through the physical model supported by the first author of this paper. The economic process, as a quantified difference between two temporal stocks, viewed as an equation of value by Nicholas Georgescu-Roegen, also implies an apparently material flux. So, the solution identified by him as early as 1978 was entropy itself. But unfortunately it was Georgescu-Roegen himself who recognised that it did not allow economic theories to say exactly what would happen in the future. It did not give prediction power, and did not seem to facilitate temporal connections and corrections. Time durations or intervals overlap (extending moments), while time moment, or lack of extension, becomes relative, and the real economic process becomes a compromise between these interval limits and moments in time (a fluctuating interval of moments bringing together moments hard to describe, independently and rigorously in practice), in accordance with Bergson’s opinion: ‘what is real is something intermediate between divided extension and total lack of extension’, where Georgescu-Roegen recognises time interval

and the moment in statistical thinking. Guy Debelle, Rory Robertson and Steve Keen reported the critical error related to quantifying public debt as a percentage of GDP, statistically and economically redefined. This involves comparing a stock indicator with a flow indicator, as a result of partial knowledge of the concept of comparability or statistical confrontation of economic indicators, which ultimately generated application of a quantitative, descriptive and associative analysis focused on a wider range of indicators, using the investment databases of the World Bank (<http://data.worldbank.org/indicator>) and of the journal *Economist Unit*, for public debt (http://www.economist.com/content/global_debt_clock), recognised for the quality and timeliness of the information, and also the reliability of their forecasts (Keen, 2009).

4. Results and discussion

Classical study findings indicate that public debt has a significant positive relationship on economic growth, while investment in general is not a significant predictor of economic growth. Numerous modern studies have underlined the new tendencies of public debt and its relationships with other factors and apparently unknown and unexplained variables and effects (Campos, Jaimovich, & Panizza, 2006; Seiferling, 2013).

The statistical and econometric analysis was focused on the economies of Eastern Europe's former socialist nations, considered as relatively homogeneous in the geographical vision of OECD. It highlighted the specific evolution of Romania (Săvoiu & Manea, 2014), but it was extended to other former socialist economies in Central Europe, and even to Russia and Germany, as landmark components of an intercontinental nature. On the other hand, the analysis has a limiting nature, namely over the period 2003–2013. It separately details the 2014 and 2015 estimates, starting with the classical approach, considered, as shown, beyond the statistical logic of public debt expressed as a percentage of GDP (Table 1).

The upward trend of public debt has increased since 2003 throughout Eastern Europe, but also in almost all former socialist countries except Bulgaria, Moldova, Russia and Macedonia. At the end of the period under analysis, a slightly downward trend was found, or even an evolution that is stationary towards its end. This, again, confirms the arguments of the theorists of German classical economics about the existence of a state without public debt. The major downward trend can be accounted for thus: *either because that state cares little for its future, or it asks too much of its present, or else because of its inability to make use of its public debt or loans, or on account of government misuse of public debt, followed by inherent subsequent debt difficulties*. However, there are exaggerated growing trends, going beyond the 60% threshold specific to the general economic development of the area, e.g. in Hungary, Croatia and Serbia, while Romania is approaching a limiting threshold, correlated to its own specific degree of development of 40%, as assessed by Carmen Reinhart and Kenneth Rogoff (2009, 2010).

The dynamic approach, via the annual rates of public debt, records various trends accelerated prior to the wave of new nations joining the EU in 2004 or 2007, and decelerated gradually under the impact of global recession. The only exceptions to these common developments are Russia, Estonia and Serbia (Clowes & Bilan, 2014). The highest average debt rate, between 2003 and 2013, is that of Belarus with 39.1%, followed by Latvia (28.7%) and Ukraine (18.9%) (Bilan, Gazda, & Godziszewski, 2012). Romania has one of the highest annual rates of public debt growth in the EU in 2006–2009. In 2007, the first year after EU accession, it reached the highest annual

Table 1. The ratio of government debt to GDP, as percentage, in former socialist countries, focusing on Central and Eastern Europe.

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<i>Germany</i>	63.2	65.8	67.9	68.1	66.0	66.2	72.1	80.7	82.3	82.5	83.5
Belarus	5.9	5.8	5.7	7.9	10.7	12.5	19.4	23.1	38.7	46.3	47.7
Bulgaria	46.9	39.2	30.4	23.4	18.5	14.8	14.3	15.8	15.7	15.7	16.1
Moldova	54.6	43.9	35.9	31.0	25.4	20.2	22.7	22.4	19.8	18.0	16.6
Poland	45.7	46.1	46.4	47.1	45.4	46.1	48.5	51.7	53.3	53.4	53.3
Czech R.	28.4	29.1	28.9	28.7	28.4	28.9	33.1	37.0	40.2	43.0	45.6
Romania	26.9	25.1	18.6	16.2	18.2	20.3	24.6	27.8	30.4	32.9	35.4
Russia	33.9	24.9	16.8	10.5	7.7	6.7	7.8	9.1	8.6	8.2	8.2
Slovakia	31.2	31.8	28.7	26.9	26.6	27.5	33.3	39.4	42.7	44.6	46.3
Ukraine	30.4	26.0	19.8	15.7	13.1	17.7	30.3	38.1	39.2	40.8	43.4
Hungary	57.8	59.2	61.0	64.6	66.7	71.1	77.6	80.8	80.8	81.8	83.5
Albania	42.9	58.1	56.7	56.1	54.1	53.5	56.1	57.2	58.9	59.7	59.7
Bosnia	31.9	28.4	26.2	23.1	29.6	31.7	34.5	38.5	42.2	44.8	47.0
Croatia	43.8	44.2	44.7	43.1	41.1	41.2	47.2	55.6	61.2	63.9	65.9
Estonia	5.6	5.2	4.7	4.5	3.9	4.3	6.4	6.8	6.1	7.4	9.5
Macedonia	39.5	36.3	37.5	33.9	26.4	21.7	22.9	24.4	27.1	27.2	25.7
Latvia	14.3	4.9	13.3	11.2	9.5	16.5	31.6	42.3	44.0	44.0	44.5
Lithuania	22.4	19.9	18.7	18.1	17.2	16.0	25.3	35.9	37.0	37.6	39.3
Serbia	68.7	58.8	53.1	42.1	33.0	29.7	33.1	40.4	44.4	53.4	65.3
Slovenia	25.9	24.9	24.4	24.6	23.5	22.6	28.7	32.9	39.4	42.0	42.0

Source: *The Global Debt Clock – Economist Unit*. Data available online at: http://www.economist.com/content/global_debt_clock.

Table 2. The annual rate of public debt in former socialist countries.

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<i>Germany</i>	26.9	17.2	-2.4	7.2	12.2	2.9	7.1	9.5	3.4	-7.3	0.0
Belarus	24.3	33.0	30.5	78.3	64.3	48.7	41.0	25.2	35.9	-5.0	-22.3
Bulgaria	9.0	3.4	-18.9	-10.2	2.8	-7.9	0.6	7.0	1.1	3.2	5.0
Moldova	7	-3.7	-2.9	0	7.0	2.8	6.3	8.6	2.4	0.0	0.0
Poland	19.3	29.0	8.1	15.5	24.4	1.5	8.6	10.4	-1.2	6.7	11.1
Czech R.	43.3	27.4	3.5	16.7	24.8	7.4	15.7	11.6	4.4	13.4	15.8
Romania	26.3	28.9	-13.8	18.4	47.7	23.6	18.1	7.8	12.6	10.1	7.3
Russia	-3.6	-0.3	-15.4	-17.7	0	-2.4	9.3	26.6	7.6	0.3	16.5
Slovakia	26.8	25.5	-8.0	7.5	22.5	12.5	19.3	15.8	10.8	9.1	8.3
Ukraine	1.7	8.4	0.4	0.6	8.3	31.6	56.5	41.8	15.7	6.9	5.8
Hungary	29.9	27.9	2.3	16.9	21.3	9.7	5.7	-1.3	-7.8	3.7	9.4
Albania	-	61.2	3.2	9.9	17.9	8.6	3.5	-0.1	10.9	7.3	3.7
Bosnia	25.6	10.5	-8.4	0.6	68.3	18.7	10.7	7.5	10.0	9.2	7.7
Croatia	27.8	20.8	4.2	10.2	16.6	10.0	14.9	9.8	5.4	5.3	5.2
Estonia	29.8	17.6	-5.9	17.3	17.6	11.5	31.8	4.1	-7.5	25.8	32.2
Macedonia	9.6	10.3	2.8	0	-3.2	-4.7	8.8	4.1	12.1	4.7	0.0
Latvia	27.3	29.8	-2.8	5.9	24.1	102.8	65.1	20.5	8.4	4.6	3.3
Lithuania	12.1	10.4	0.3	15.1	24.4	6.4	41.2	32.9	9.2	3.4	3.3
Serbia	10.4	-1.8	-7.6	-1.9	4.8	-1.9	8.2	10.1	14.0	15.4	13.6
Slovenia	23.9	15.7	-2.5	11.8	16.7	4.1	25.8	9.0	18.8	6.2	-1.0

Source: *The Global Debt Clock – Economist Unit*. Data available online at: http://www.economist.com/content/global_debt_clock.

value – 47.7%. Bulgaria has a negative rate of -2.1%, a public debt trend which coincides with the statement of Carl Dietzel: ‘for an economy, not having recourse to public debt becomes a freedom that is tantamount to a luxury offered at too high a price, and at the expense of general welfare’. The series described by the annual rate of public debt are all heterogeneous, which confirms the evolutionary abnormality of the decade examined, where the processes of EU accession and the global recession generated relatively high rates, or else greatly reduced rates (Table 2).

The descriptive statistical analysis provides altogether new aspects concerning the homogeneity and asymmetry of the two variables discussed above, and Table 3 selects a few series of descriptive indicators of Romania, in a temporally homogeneous order, and those of another four states whose debt behaviour is placed in the extreme point of heterogeneity.

The data series of most former socialist states of Eastern Europe are homogeneous and moderately asymmetrical, which translates as a normal evolution. This range includes Romania, while Latvia, Bulgaria, Belarus and Russia are exceptions to the state of time-homogeneous debt: their data series of public debt to GDP are clearly heterogeneous. In theory, FDIs could be considered an important factor, which showed a significant positive effect on economic growth, and sometimes also on the specific dynamics, level or dimension of economy. The same variable of FDIs has a significant negative relationship with economic growth. A correlation matrix of public debt and FDI in the 10 former socialist countries of Eastern Europe describes significant associations between variables only for Belarus, Romania and Slovakia. However, the significance of indirect correlation holds only for Romania and Slovakia (Table 4).

A matrix of correlation between public debt and economic growth in Central and Eastern Europe reveals significant associations between the two described variables, only for Bulgaria, Belarus, Poland, Slovakia and Hungary. But of the significance of an indirect correlation for the last four countries, Bulgaria remains the only country that presents a positive correlation (Table 5). The forecast for public debt in Central and Eastern Europe in the short-term, for 2014 and 2015, is detailed in Table 6, for former socialist countries:

Table 3. Descriptive statistics of the variable defined by the ratio of government debt to GDP in %.

	Public debt in GDP (%)				
	ROMANIA	BULGARIA	BELARUS	LATVIA	RUSSIA
Mean	25.12727	22.80000	20.33636	25.10000	12.94545
Median	25.10000	16.10000	12.50000	16.50000	8.600000
Maximum	35.40000	46.90000	47.70000	44.50000	33.90000
Minimum	16.20000	14.30000	5.700000	4.900000	6.700000
Std. Dev.	6.307946	11.21312	16.46659	16.13481	8.800837
Skewness	0.121303	1.211258	0.744381	0.197351	1.550175
Kurtosis	1.850362	3.007075	1.943734	1.278436	3.998124
Jarque-Bera	0.632741	2.689791	1.527217	1.429804	4.862195
Probability	0.728789	0.260567	0.465982	0.489240	0.087940
Sum	276.4000	250.8000	223.7000	276.1000	142.4000
Sum Sq. Dev.	397.9018	1257.340	2711.485	2603.320	774.5473

Notes: Software used: Eviews. Source: authors' calculation.

Table 4. Matrix of correlation between public debt and FDIs.

PD/FDI	Belarus	Bulgaria	Czech R.	Moldova	Poland	Romania	Russia	Slovakia	Ukraine	Hungary
Belarus	0.755274									
Bulgaria		-0.362832								
Czech R.			-0.349999							
Moldova				-0.153081						
Poland					-0.449242					
Romania						-0.631885				
Russia							0.231172			
Slovakia								-0.580849		
Ukraine									-0.127936	
Hungary										-0.026751

Notes: Software used: EViews. Source: authors' calculation.

Table 5. Matrix of correlation between public debt and economic growth.

PD/EG	Belarus	Bulgaria	Czech R.	Moldova	Poland	Romania	Russia	Slovakia	Ukraine	Hungary
Belarus	-0.759646									
Bulgaria		0.540074								
Czech R.			-0.652844							
Moldova				0.236437						
Poland					-0.614907					
Romania						-0.421312				
Russia							0.364471			
Slovakia								-0.568727		
Ukraine									-0.233927	
Hungary										-0.639017

Notes: Software used: EViews. Source: authors' calculation.

Table 6. The forecast for public debt in Central and Eastern Europe.

Country	Public debt		Public debt per person		Public debt as % of GDP		Total annual public debt change (%)	
	2014	2015	2014	2015	2014	2015	2014	2015
Estonia	2,546,994,536	3,045,628,415	1,928.78	2,297.77	11.6	13.8	24.3	19.6
Latvia	12,777,595,628	13,176,502,732	5,868.92	6,097.30	45.0	45.5	3.2	3.1
Lithuania	16,046,994,536	16,545,628,415	5,154.48	5,390.83	41.1	42.9	3.2	3.1
Poland	316,886,885,246	345,608,196,721	8,350.45	9,121.34	53.2	53.1	10	9.1
Czech Republic	116,415,846,995	130,377,595,628	11,038.92	12,362.30	48.2	50.8	13.6	12.0
Slovakia	49,228,961,749	52,719,398,907	9,125.44	9,798.60	48.0	49.7	7.6	7.1
Hungary	119,892,896,175	129,366,939,891	12,024.92	12,983.30	85.2	86.9	8.6	7.9
Slovenia	19,661,202,186	19,461,748,634	9,542.50	9,426.81	42	42.0	-1.0	-1.0
Croatia	42,087,978,142	44,082,513,661	9,607.87	10,077.58	67.9	69.9	5.0	4.7
Bosnia	9,016,393,443	9,614,754,098	2,374.49	2,526.07	49.2	51.4	7.1	6.6
Serbia	25,173,770,492	27,866,393,443	3,492.49	3,875.44	77.2	89.0	12.0	10.7
Macedonia	2,700,000,000	2,700,000,000	1,291.75	1,282.78	24.2	22.7	0.0	0.0
Albania	8,608,196,721	8,907,377,049	2,705.62	2,801.36	59.7	59.7	3.6	3.5
Bulgaria	8,777,595,628	9,176,502,732	1,228.19	1,296.01	16.5	16.9	4.8	4.5
Romania	65,414,754,098	69,603,278,689	3,057.41	3,254.87	37.9	40.4	6.8	6.4
Moldova	1,300,000,000	1,300,000,000	316.43	295.48	15.2	13.8	0.0	0
Ukraine	68,898,360,656	72,488,524,590	1,529.99	1,614.76	46.0	48.6	5.5	5.2
Belarus	8,671,038,251	5,180,601,093	927.61	560.62	49.1	50.5	-28.7	-40.3
Russia	209,613,114,754	235,641,803,279	1,486.08	1,671.57	8.1	8.0	14.2	12.4
Germany	2,793,744,808,743	2,792,946,994,536	34,209.75	34,200.78	84.5	85.5	0	0

Source: *The Global Debt Clock – Economist Unit*. Data available online at: http://www.economist.com/content/global_debt_clock.

As mentioned above, the sharp upward trends mostly disappeared, except for Serbia, which, together with Croatia and Hungary, are former socialist states, and Central and Eastern Europe states respectively, which go beyond the accepted threshold of public debt. Romania will exceed its individualised 40% threshold in 2015, which critically requires a competitive and innovative management of public debt.

5. Conclusion

The normal way of evolution for private debt in a market economy is still to be settled. Nevertheless, the contemporary reality – in terms of individual actions, and even community actions – denies the uniqueness of this reasoning, extending the alternatives through which debt may be settled partially or totally. It can be annulled by the lender voluntarily, according to the libertarian views of the Austrian school, relaxing or even saving the borrowers. Thus, future transactions will be practically possible, and, essentially the economy can survive. In a free market economy, which respects the rights of property, the amount of private debt controls itself by the very need for the creditor to repay the debt rather than by the decisions of a government or the state, in the spirit of interventionism – in the Keynesian model of thinking. The rate of interest that must be paid by a borrower depends not only on the overall rate and its evolution over time, but also on the degree of risk by the borrower to the lender: a prodigal borrower will have to pay a much higher interest rate, in proportion to the degree of risk of such misguided loans, and the future will no longer allow their access to capital markets. Such a negative standing generates praxeological loans, or, in the spirit of the Austrian economics school, unpayable loans, and simultaneously impossible to grant. This is actually the context generated by the false Keynesian assumptions of the *aggregate relations* in the economy, when the origin of recessions and their causative factors remain normally microeconomic. The developments of the debts of former socialist economies in Central and Eastern Europe over the last decade highlight the requirement to change the performance and quality of public debt management by the agency of the investment factor derived from its overall impact. The conclusions stress the need for relativistic thresholds, taking into account the behaviour of analysed economies, focusing on Romania, which must change its current policy of budget deficit and public debt (Keho, 2010).

Many correlations in economies are unstable and complex, and the firm relationships between macroeconomic variables as public debt and economic growth or FDIs represent the study objects of both classic and new economic theories (Časni et al., 2014; Pescatori et al., 2014). Some theories reveal that sometimes decreasing government spending and national debt can enhance economic growth, while on other occasions increasing government spending and national debt can be more desirable. Ex-socialist economies are connected to the EU and all these economies are connected by a long series of factors or effects (Săvoiu & Apostol, 2013). The intensity of the correlations between national debt and economic growth and FDIs remain under the sign of ambiguity or uncertainty in a significant proportion (sometimes more than 20–30%).

This article has tried to identify the specific features of public debt developments, confining itself to identifying the existence, the abnormality, the direction and intensity of major statistical correlations able, or not, to explain the exceptional dynamics of the phenomenon. Along with the existence and availability of comparable information over a period of at least a decade and a half, or two, embedded in common databases and provided by *The Global Debt Clock – Economist Unit*. In future research, the authors

propose to build a number of validated econometric models (tested with Durbin-Watson), outlining the specific features of policies of government debt in some of the most expressive of the ex-socialist economies.

There was and still exists a paradox of classical theory about public debt (Săvoiu & Dinu, 2015): public debt has bad effects on economic development in one hand but on the other hand public debt is an imperative source of financing government budget deficit. The answer could be a better utilisation of public debt that can promote economic growth and thus can improve welfare and social inclusion.

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