# INTERDEPENDENCIES BETWEEN GROSS CAPITAL FORMATION, ECONOMIC GROWTH AND EXTERNAL EQUILIBRIUM IN THE CONTEXT OF THE EUROPEAN UNION ENLARGEMENT

*Author*: Florin-Marius PAVELESCU*

***Abstract.*** *In this paper, having in view the hypothesis that the synthetic indicator of accumulation regime is the gross capital formation/GDP ratio, an improved analysis methodology of correlation between the above-mentioned indicators is proposed. The proposed methodology is applied for the 1999-2006 periods in case of 27 countries that now are belonging to European Union. It is revealed that in most of EU member states the main factor of correlation was the investment propensity growth, in conditions of external commercial balance worsening. Also, there are identified some asymmetries between the old (EU-15) and new (NMS) member countries of the European Union. In EU-15 the gross capital formation has a more reduced weight in GDP and domestic demand in comparison with NMS. Also, the foreign commercial balance register as a rule a surplus in EU-15 and deficits in NMS. On this base, it is concluded that for Romania, like the majority of new members-states, it is very important to adopt measures favouring a high growth rate of GDP at the same time with the decrease in foreign commercial deficits.*

***Key words:*** *gross capital formation, main factor of the correlation between gross capital formation and GDP, investments propensity, absorbative economic growth*

***JEL Classification:****B41, C19, E22, O47*

***UNESCO Classification:*** *5302.02, 5302.05, 5304.01, 5307.02, 5307.13, 5307.17*

A factor exercising an important influence on the sustainability of economic growth is represented by the characteristics of the correlation between accumulation and consumption. Depending on the characteristics of the productive apparatus, but also on the proportions that determine the side for consumption and the part intended for capital accumulation, quantified by means of the indicator "gross capital formation", the trajectory of economic growth is shaped. The role of gross capital formation in sustaining the gross domestic product growth might be estimated from the supply, but also from the demand perspective. On the side of supply the long-term effects of the action of the respective production factor are highlighted and its efficiency is determined. The side of demand underpins the short-term effects which the variation of gross capital formation has on the dynamics of gross domestic product, regarded as the synthetic indicator of economic growth. Nevertheless, the rate of economic growth is conditioned not only by the developments at domestic level, but also by the relationships of the respective national economy with the external environment. The competitiveness degree of the national supply of goods and services reflected implicitly in the trading balance stock might hinder speeding up the pace of value added expansion. Therefore, in assessing the premises of sustainable economic growth, an analysis instrument is determining the correlation between accumulation and consumption and the nature of the external static and dynamic (dis-)equilibria as well.

Under these circumstances, the analysis model of the contribution which gross capital formation has on the demand side to ensuring an economic growth rate capable of satisfying the demands of increasing short-term welfare as well as the ones related to the long-term sustainability of the process should include:

a) Revealing the dynamics and changes that took place within gross capital formation.

b) Determining the share of gross capital formation in increasing on short-term gross domestic product and total aggregated demand.

* *Florin Marius Pavelescu, Ph. D. in Economics, Senior Researcher, Institute of National Economy, Bucharest e-mail: pavelescu.florin @yahoo.com*

c) Identifying the characteristics of the correlation that creates capital accumulation, public and private consumption and the external (dis-)equilibria.

Applying the analysis model previously mentioned in the case of some international comparisons could provide for a series of interesting conclusions referring to the shaping factors of economic growth or to the ways of developing economic convergence processes within the European Union[1].

## 1. Improvements of the analysis methodology of the influence of gross capital formation on the economic growth rate from the demand perspective and external equilibrium

In estimating the correlation between gross capital formation and GDP it is necessary to take into account the fact that gross capital formation represents an element of domestic demand (absorption), and the difference between domestic demand and gross domestic product is represented by the net export. Therefore, the advancement index of the gross domestic product dynamics by the dynamics of gross capital formation ($I_{GCF/GDP}$) might be regarded as a product of two other advancement indexes, that is the advancement index of domestic demand by the gross capital formation ($I_{GCF/DD}$) and the advancement index of the gross domestic product by domestic demand ($I_{DD/GDP}$).

Depending on values higher or lower than 100% of the two above-mentioned, advancement indexes as well as on the value of the relationship between $I_{GCF/DD}$ and $I_{DD/GDP}$, that is ($I_{GCF/DD}$/ $I_{DD/GDP}$), there are 8 types of correlations between the dynamics of gross capital formation and the dynamics of domestics product which are represented in Table 1. Also, by means of the value of the $I_{GCF/DD}$/ $I_{DD/GDP}$ relationship the main factor of the correlation between the dynamics of gross capital formation and the dynamics of the gross domestic product can be determined. In the present situation, by main factor of the correlation is understood the intermediary correlation index which has the most important contribution to determining the general correlation index ($I_{GCF/GDP}$). In other words, the main factor is represented by the intermediary correlation index which has the closest value to the total correlation index.

If the logarithms of the correlation indexes are used, the main factor is represented by the intermediary correlation index which has the same sign as the general correlation index, if the logarithms of the two intermediary correlation indexes have different signs. If the two intermediary correlation indices have the same sign, the main factor is represented by the intermediary correlation index with the highest absolute value.

**Table 1**

**Correlation types of accumulation-consumption-external balance**

*%*

| Ord. No. | $I_{GCF/GDP}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$/ $I_{DD/GDP}$ | Type of correlation |
|---|---|---|---|---|---|
| 1 | >100 | >100 | >100 | >100 | Increasing the share of gross capital formation in the gross domestic product and domestic demand in the context of external trade balance deterioration. The main factor is increasing the share of gross capital formation in domestic demand. |
| 2 | >100 | >100 | >100 | <100 | Increasing the share of gross capital formation in the domestic gross product and domestic demand in the context of external trade balance deterioration. The main factor is the deterioration of the external trade balance. |
| 3 | >100 | >100 | <100 | >100 | Increasing the share of gross capital formation in the gross domestic product and domestic demand in the context of improving the external trade balance. The main factor is increasing the share of gross capital formation in domestic demand. |
| 4 | >100 | <100 | >100 | <100 | Increasing the share of gross capital formation in the gross domestic product in the context of diminishing the share of gross capital formation in domestic demand and deterioration of the external trade balance. |
| 5 | <100 | <100 | <100 | <100 | Diminishing the share of gross capital formation in the gross domestic product and domestic demand in the context of improving the external balance trade. The main factor is the diminution in the share of gross capital formation in domestic demand. |
| 6 | <100 | <100 | <100 | >100 | Diminishing the share of gross capital formation in gross domestic |

[1] *It can be mentioned that the first steps of the proposed model were made in our article "Gross capital formation and economic growth during early 2000's in EU-members and candidates states" published in* Romanian Economic Journal *no. 1/ 2008.*

| Ord. No. | $I_{GCF/GDP}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$/ $I_{DD/GDP}$ | Type of correlation |
|---|---|---|---|---|---|
| | | | | | product and domestic demand in the context of improving the external trade balance. The main factor is improving the external trade balance. |
| 7 | <100 | <100 | >100 | <100 | Diminishing the share of gross capital formation in the gross domestic product and domestic demand in the context of external trade balance deterioration. The main factor is diminishing the share of gross capital formation in domestic demand. |
| 8 | <100 | >100 | <100 | >100 | Diminishing the share of gross capital formation in the gross domestic product in the context of increasing the share of gross capital formation in the domestic demand and improving the external balance trade. |

## 2. Characteristic features of the correlation between the gross capital formation and gdp during EU enlargement

The computation of the advancement index of the gross domestic product dynamics by the dynamics of the gross capital formation for the Old Member States of the European Union reveals the fact that in the period 1999-2006 the respective indicator has values higher than 100% in nine countries. The most significant increases of the share of gross capital formation in the gross domestic product were recorded in Spain, Ireland and Denmark (Table 2). The respective development occurred mainly due to the increase of the share of gross capital formation in total domestic demand on the background of the external trade balance stock deterioration. The same resizing model of the relationship between gross capital formation and GDP but of a lower intensity can be detected also in Italy or France.

In the other four countries where an increase was recorded in the relationship between gross capital formation and gross domestic product there can be detected different models from the one previously presented. Thus, in Greece and Sweden a significant increase was registered for the share of gross capital formation in domestic demand on the background of a slight improvement of the trade balance stock. In turn, in the United Kingdom and Finland the main factor of the correlation between the dynamics of gross capital formation and domestic product was the diminution of the share of gross capital formation in domestic demand on the background of the external trade balance deterioration.

**Table 2**

**Advancement indexes of the gross domestic product dynamics by the dynamics of domestic demand and of gross capital formation in the European Union Member States in the period 1999-2006**

*%*

| Country | $I_{GCF/GDP}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$/ $I_{DD/GDP}$ |
|---|---|---|---|---|
| *EU-15* | | | | |
| Austria | 93.21 | 97.17 | 95.93 | 101.29 |
| Belgium | 99.03 | 97.30 | 101.78 | 95.60 |
| Denmark | 113.13 | 110.80 | 102.11 | 108.51 |
| France | 108.51 | 104.77 | 103.58 | 101.15 |
| Finland | 100.53 | 95.33 | 105.45 | 90.40 |
| Germany | 83.57 | 87.54 | 95.46 | 91.71 |
| Greece | 109.46 | 110.99 | 98.62 | 112.54 |
| Ireland | 116.74 | 112.80 | 103.49 | 108.99 |
| Italy | 106.12 | 103.28 | 102.75 | 100.51 |
| Luxembourg | 77.87 | 87.04 | 89.47 | 97.29 |
| Netherlands | 87.77 | 91.10 | 96.35 | 94.56 |
| Portugal | 79.10 | 80.87 | 97.82 | 82.67 |
| Spain | 123.17 | 118.18 | 104.22 | 113.40 |
| Sweden | 104.68 | 106.73 | 98.08 | 108.81 |
| United Kingdom | 100.58 | 98.17 | 102.46 | 95.82 |
| *NMS-12* | | | | |
| Bulgaria | 174.67 | 157.27 | 111.06 | 141.61 |
| Czech Rep. | 92.59 | 96.01 | 96.44 | 99.55 |
| Cyprus | 109.66 | 104.86 | 104.58 | 100.27 |
| Estonia | 134.66 | 130.27 | 103.37 | 126.02 |
| Hungary | 93.56 | 96.38 | 97.07 | 99.29 |
| Latvia | 148.28 | 135.08 | 109.77 | 123.05 |

| Country | $I_{GCF/GDP}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$ | $I_{GCF/DD}$/ $I_{DD/GDP}$ |
|---|---|---|---|---|
| Lithuania | 105.00 | 104.90 | 100.09 | 104.81 |
| Malta | 86.94 | 87.69 | 99.15 | 88.44 |
| Poland | 81.56 | 85.68 | 95.18 | 90.02 |
| Romania | 143.86 | 134.62 | 106.86 | 125.97 |
| Slovakia | 90.10 | 89.76 | 100.38 | 89.42 |
| Slovenia | 97.73 | 101.12 | 96.64 | 104.64 |

*Source: Computed after UNECE Statistical Division Database.*

In countries where a diminution was recorded with respect to the share of gross capital formation in GDP, the dominant model identified in four cases (Germany, the Netherlands, Luxembourg and Portugal) is the one in which the main factor is the diminution of the share of gross capital formation in domestic demand under the conditions of the external trade balance deterioration. The exceptions from the rules were recorded in Austria where the main factor was represented by the significant improvement of the external balance trade, simultaneously with the diminution of the gross capital formation in domestic demand and Belgium where, on the background of external trade balance deterioration, the diminution of the gross capital formation share in domestic demand contributed essentially to changing the relationship between gross capital formation and GDP.

In the New Member States of the European Union the most intense increases of the gross capital formation / GDP ratio were recorded in Bulgaria, Latvia, Romania, and Estonia while moderate intensities can be highlighted in Cyprus and Lithuania. The determinant factor of the respective development was constituted by the increase of the share of gross capital formation in domestic demand against the background of external trade balance deterioration.

In some countries where the share of gross capital formation in the gross domestic product diminished, the dominant model was the one in which the main factor is represented by the diminution of the share of gross capital formation in domestic demand simultaneously with the improvement of the trade balance. This situation was recorded in the following countries: the Czech Republic, Hungary, Malta and Poland. Within this sub-group of countries a first exception to the rule was Slovakia where the diminution of the relative importance of capital formation in domestic demand took place simultaneously with the deterioration of the external balance trade. The second exception was Slovenia where the diminution of the share of gross capital formation in GDP reveals firstly an improvement of the external trade balance, gross capital formation increasing its share in domestic demand.

## 3. Differentiation of the gross capital formation/GDP ratio in the EU member countries

As a result, in 2006, the gross capital formation/GDP ratio was comprised in the Old Member States of the European Union between 17.8% in Germany and Luxemburg and 30.6% in Spain. Values below 20% were recorded in the Netherlands, Sweden and the United Kingdom, and of over 24% in Greece and Ireland (Table 3).

In the New Member States the share of the respective indicator is somewhat higher, ranging between 19.6% in Cyprus and 38.2% in Estonia. Values comprised between 20.2% and 23% were recorded in Poland, Malta and Hungary, between 24.2% and 29.0% in Romania, the Czech Republic, Lithuania, Slovenia and Slovakia and of over 31% in Bulgaria and Latvia. Hence it reflected the effect of a higher propensity towards investment due to the imperatives of faster restructuring of the productive apparatus and of its compatibility with the demands of European integration, but also the influence of the external trade balance stock.

**Table 3**

**Relationship between gross capital formation and gross domestic product in the European Union countries in the period 1999-2006**

*%*

| Country | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 23.4 | 23.4 | 22.5 | 20.7 | 21.8 | 21.4 | 20.7 | 20.9 |
| Belgium | 21.1 | 21.8 | 20.5 | 19.2 | 19.1 | 20.3 | 20.9 | 22.0 |
| Denmark | 19.8 | 21.2 | 20.4 | 20.4 | 19.6 | 19.9 | 20.8 | 23.2 |
| France | 19.3 | 20.5 | 20.1 | 19.0 | 18.8 | 19.6 | 20.2 | 21.1 |
| Finland | 18.9 | 20.1 | 19.7 | 18.3 | 18.5 | 18.8 | 20.6 | 20.6 |
| Germania | 21.5 | 21.8 | 19.5 | 17.3 | 17.4 | 17.1 | 17.1 | 17.8 |

| Country | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|
| Greece | 22 | 23.4 | 23.5 | 23.6 | 25.3 | 25.2 | 23.8 | 24.8 |
| Ireland | 24.4 | 25.1 | 23.6 | 22.9 | 23.9 | 24.7 | 27.1 | 28.0 |
| Italy | 20.1 | 20.7 | 20.6 | 21.1 | 20.7 | 20.8 | 20.6 | 21.2 |
| Luxembourg | 23.9 | 23.2 | 24.4 | 21.9 | 21.9 | 21.1 | 21.3 | 17.8 |
| Netherlands | 22.9 | 22.0 | 21.5 | 19.7 | 19.3 | 19.3 | 19.3 | 19.9 |
| Portugal | 27.8 | 27.7 | 27.1 | 25.2 | 22.9 | 23.1 | 22.5 | 22.0 |
| Spain | 25.1 | 26.3 | 26.4 | 26.6 | 27.4 | 28.3 | 29.5 | 30.6 |
| Sweden | 17.3 | 18.3 | 17.5 | 16.6 | 16.4 | 16.3 | 17.1 | 17.9 |
| United Kingdom | 18.4 | 18.0 | 17.8 | 17.4 | 17.0 | 17.5 | 17.5 | 18.4 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 17.7 | 18.1 | 20.5 | 19.8 | 21.7 | 23.1 | 28.0 | 31.9 |
| Czech Rep. | 27.1 | 29.5 | 29.5 | 28.6 | 27.2 | 27.5 | 26.1 | 26.4 |
| Cyprus | 17.0 | 18.3 | 16.4 | 18.8 | 17.4 | 20.2 | 19.4 | 19.6 |
| Estonia | 25.7 | 28.7 | 28.1 | 32.4 | 33.0 | 36.2 | 35.2 | 38.2 |
| Hungary | 28.3 | 30.4 | 26.9 | 25.5 | 25.2 | 26.1 | 23.7 | 23.0 |
| Latvia | 23.3 | 23.7 | 26.6 | 26.7 | 28.8 | 33.2 | 34.4 | 37.9 |
| Lithuania | 22.5 | 19.8 | 20.6 | 22.1 | 23.2 | 24.0 | 25.1 | 27.0 |
| Malta | 18.2 | 26.2 | 17.6 | 14.3 | 16.5 | 16.6 | 21.0 | 20.8 |
| Poland | 25.3 | 24.8 | 20.8 | 18.6 | 18.7 | 20.1 | 19.3 | 20.6 |
| Romania | 15.3 | 18.5 | 21.5 | 20.6 | 21.8 | 23.8 | 22.7 | 24.2 |
| Slovakia | 27.6 | 25.9 | 29.6 | 29.0 | 24.6 | 26.0 | 29.2 | 29.0 |
| Slovenia | 27.5 | 26.8 | 24.1 | 23.4 | 24.7 | 26.8 | 26.0 | 27.4 |

*Source: Computed after UNECE Statistical Division Database.*

The examination of the relationship between domestic demand and GDP indicates the fact that in 2006 in nine Old Member States of the European Union the external trade balance is in surplus. In a relative manner, the highest external trade surplus was recorded in Luxembourg (27.8% from the gross domestic product). Values representing over 7.5% of the size of the gross domestic product were recorded in Ireland and the Netherlands (Table 4).

**Table 4**

**The relationship between domestic demand and gross domestic product in the European Union countries in the period 1999-2006**

*%*

| Country | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 98.3 | 98.6 | 97.5 | 95.3 | 96.7 | 95.7 | 95.1 | 94.3 |
| Belgium | 95.7 | 97.1 | 96.5 | 95.3 | 95.6 | 95.9 | 97 | 97.4 |
| Denmark | 95.0 | 94.0 | 93.4 | 94.2 | 93.8 | 95.1 | 95.3 | 97.0 |
| France | 97.9 | 99.1 | 98.9 | 98.3 | 99.0 | 99.9 | 100.9 | 101.4 |
| Finland | 89.9 | 89.9 | 89.4 | 89.4 | 91.7 | 91.9 | 94.4 | 94.8 |
| Germany | 99.1 | 99.6 | 98 | 95.4 | 96 | 95 | 94.8 | 94.6 |
| Greece | 109 | 110.9 | 109.7 | 109.7 | 109.6 | 108.9 | 107.2 | 107.5 |
| Ireland | 85.9 | 86.4 | 84.3 | 82.9 | 84 | 85.1 | 87.3 | 88.9 |
| Italy | 98.1 | 99.1 | 98.6 | 99.0 | 99.4 | 99.3 | 100.1 | 100.8 |
| Luxembourg | 80.7 | 79.0 | 82.4 | 79.8 | 79.4 | 79.0 | 78.7 | 72.2 |
| Netherlands | 95.8 | 94.5 | 94.2 | 93.5 | 93.7 | 92.8 | 92.3 | 92.3 |
| Portugal | 110.2 | 110.9 | 110.0 | 108.3 | 106.6 | 107.8 | 108.6 | 107.8 |
| Spain | 101.9 | 103.1 | 102.5 | 102.1 | 102.4 | 104.0 | 105.4 | 106.2 |
| Sweden | 93.8 | 94.1 | 93.5 | 93.3 | 93.4 | 92.0 | 92.4 | 92.0 |
| United Kingdom | 101.7 | 102.0 | 102.7 | 102.9 | 102.6 | 103.0 | 103.6 | 104.2 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 106.7 | 106.3 | 108.5 | 108.9 | 111 | 110.9 | 116.2 | 118.5 |
| Czech Rep. | 101.2 | 103.0 | 102.5 | 102.1 | 102.3 | 100.6 | 98.1 | 97.6 |
| Cyprus | 98.3 | 99.2 | 97.9 | 101.6 | 101.2 | 102.5 | 102.6 | 102.8 |
| Estonia | 103.8 | 103.6 | 102.5 | 107.4 | 107.5 | 109.6 | 104.5 | 107.3 |
| Hungary | 102.5 | 103.6 | 101.2 | 102.0 | 103.9 | 103.2 | 101.5 | 99.5 |
| Latvia | 109.5 | 107.0 | 109.5 | 109.7 | 112.6 | 115.6 | 114.4 | 120.2 |
| Lithuania | 110.1 | 106.3 | 105.5 | 105.7 | 105.8 | 107.1 | 107 | 110.2 |
| Malta | 105.3 | 110.6 | 104.7 | 97.6 | 101.7 | 103.9 | 105.8 | 104.4 |
| Poland | 105.9 | 106.4 | 103.7 | 103.4 | 102.6 | 102.0 | 100.3 | 100.8 |
| Romania | 104.9 | 105.5 | 107.5 | 105.5 | 107.5 | 109.1 | 110.3 | 112.1 |
| Slovakia | 104.4 | 102.5 | 108.1 | 107.2 | 101.9 | 102.7 | 105.1 | 104.8 |
| Slovenia | 104.2 | 103.5 | 100.7 | 98.6 | 100.1 | 101.2 | 100.5 | 100.7 |

*Source: Computed after UNECE Statistical Division Database.*

Deficits in the external trade balance which represented more than 6% of the GDP value were recorded in Greece, Spain and Portugal. At the same time, the domestic demand exceeded the level of the GDP also in Italy, France and the United Kingdom.

In ten of the countries which acceded in the period 2004-2007 to the European Union external trade deficits were recorded in 2006. Values of 7% of the GDP were recorded in Bulgaria, Estonia, Latvia, Lithuania and Romania. As an exception to the rule, in the Central-European area, the Czech Republic and Hungary registered slight surpluses of the external trade after the previous years in which the trend of imports exceeded in value exports.

Under these conditions, the share of gross capital formation in domestic demand is differentiated sometimes to a non-negligible extent from the proportion of capital formation in GDP. Thus, in the Old Member States of the European Union the share of gross capital formation in domestic demand is comprised between 17.7% in the United Kingdom and 31.5% in Ireland (Table 5).

**Table 5**

**Share of gross capital formation in domestic demand in the European Union countries in the period 1999-2006**

*%*

| Country | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 23.8 | 23.7 | 23.1 | 21.7 | 22.5 | 22.4 | 21.8 | 22.2 |
| Belgium | 22.0 | 22.5 | 21.2 | 20.1 | 20.0 | 21.2 | 21.5 | 22.6 |
| Denmark | 20.8 | 22.6 | 21.8 | 21.7 | 20.9 | 20.9 | 21.8 | 23.9 |
| France | 19.7 | 20.7 | 20.3 | 19.3 | 19.0 | 19.6 | 20.0 | 20.8 |
| Finland | 21.0 | 22.4 | 22.0 | 20.5 | 20.2 | 20.5 | 21.8 | 21.7 |
| Germany | 21.7 | 21.9 | 19.9 | 18.1 | 18.1 | 18.0 | 18.0 | 18.8 |
| Greece | 20.2 | 21.1 | 21.4 | 21.5 | 23.1 | 23.1 | 22.2 | 23.1 |
| Ireland | 28.4 | 29.1 | 28.0 | 27.6 | 28.5 | 29.0 | 31.0 | 31.5 |
| Italy | 20.5 | 20.9 | 20.9 | 21.3 | 20.8 | 20.9 | 20.6 | 21.0 |
| Luxembourg | 29.6 | 29.4 | 29.6 | 27.4 | 27.6 | 26.7 | 27.1 | 24.7 |
| Netherlands | 23.9 | 23.3 | 22.8 | 21.1 | 20.6 | 20.8 | 20.9 | 21.6 |
| Portugal | 25.2 | 25.0 | 24.6 | 23.3 | 21.5 | 21.4 | 20.7 | 20.4 |
| Spain | 24.6 | 25.5 | 25.8 | 26.1 | 26.8 | 27.2 | 28.0 | 28.8 |
| Sweden | 18.4 | 19.4 | 18.7 | 17.8 | 17.6 | 17.7 | 18.5 | 19.5 |
| United Kingdom | 18.1 | 17.6 | 17.3 | 16.9 | 16.6 | 17.0 | 16.9 | 17.7 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 16.6 | 17.0 | 18.9 | 18.2 | 19.5 | 20.8 | 24.1 | 26.9 |
| Czech Rep. | 26.8 | 28.6 | 28.8 | 28.0 | 26.6 | 27.3 | 26.6 | 27.0 |
| Cyprus | 17.3 | 18.4 | 16.8 | 18.5 | 17.2 | 19.7 | 18.9 | 19.1 |
| Estonia | 24.8 | 27.7 | 27.4 | 30.2 | 30.7 | 33.0 | 33.7 | 35.6 |
| Hungary | 27.6 | 29.3 | 26.6 | 25.0 | 24.3 | 25.3 | 23.3 | 23.1 |
| Latvia | 21.3 | 22.1 | 24.3 | 24.3 | 25.6 | 28.7 | 30.1 | 31.5 |
| Lithuania | 20.4 | 18.6 | 19.5 | 20.9 | 21.9 | 22.4 | 23.5 | 24.5 |
| Malta | 17.3 | 23.7 | 16.8 | 14.7 | 16.2 | 16.0 | 19.8 | 19.9 |
| Poland | 23.9 | 23.3 | 20.1 | 18.0 | 18.2 | 19.7 | 19.2 | 20.4 |
| Romania | 14.6 | 17.5 | 20.0 | 19.5 | 20.3 | 21.8 | 20.6 | 21.6 |
| Slovakia | 26.4 | 25.3 | 27.4 | 27.1 | 24.1 | 25.3 | 27.8 | 27.7 |
| Slovenia | 26.4 | 25.9 | 23.9 | 23.7 | 24.7 | 26.5 | 25.9 | 27.2 |

*Source: Computed after UNECE Statistical Division Database.*

Values below 20% of the respective indicator were recorded in Germany and Sweden and of over 23% in Spain, Luxembourg, Denmark and Greece.

In the New Member States the share of gross capital formation in domestic demand is higher than the one in countries which represented the European Union before May 1st 2004. The lowest values were recorded in Cyprus (19.1%) and the highest in Estonia (35.6%) and Latvia (31.5%). In Poland, Romania and Hungary the share of resources allotted to investment processes represented between 20.1% and 23.1% of the domestic demand, and in Bularia, the Czech Republic, Slovenia and Slovakia between 26.9% and 27.7%.

## 4. Conclusions and proposals for improving the assessment of the gross capital formation contribution to sustaining economic development

From the realised analysis it results that during the period 2000-2006 which represents in the case of the countries of the European Union before May 1st 2004 the period of using Structural and Cohesion Funds, and for the countries that adhered on May 1st 2004 and January 1st 2007 a preparation stage in view of accession and then integration into the European Economic Area, all 27 countries recorded GDP growths.

Thus, within the Old Member States of the European Union, the averages of the yearly rates comprised between 2.5% and 3.0% regarded in the specialised literature as representing "normal" values for a market economy with a high development level were recorded only in Sweden and the United Kingdom. Above the level of 3% were placed Ireland, Spain and Greece, countries that benefited from significant allotments from the Structural and Coehsion Funds, as well as Finland. The remaining EU-15 countries registered averages of the yearly rates of GDP growth under 2.05% (Annex 2).

Within the New Member States of the European Union the average of yearly rates was smaller than 2% only in Malta. If the respective countries have to recuperate gaps as compared to those in Western Europe, their economic growth rate should be at least of 4.5%-5%, that is the "normal" development rate of developed countries, plus the "convergence rate" of about 2%. Within the corridor of 4.5%-5% of the yearly rates average only Slovakia was placed. Averages of the growth rates of GDP comprised between 3.5% and 4.5% were recorded in Central-European countries, where the change process of the economy was finalised before 2000, such as Cyprus. In Romania and Bulgaria, as well as in the three Baltic countries, the average of GDP growth rates exceeded 5%, which indicates the existence of a convergence rate which is particularly high, due to the need of recovering the losses in value added during the change process of the economy, as well as to the emergence of new opportunities for expanding the economic activity along the lines of developing the preparation process for accession to the European Union.

The contribution which gross capital formation had in GDP expansion was different in the two groups of countries. In a relative manner, the gross capital formation contributed more to GDP expansion in countries which adhered in the period 2004-2007 as compared with Old Member States. Within EU-15, gross capital formation had a negative contribution to economic growth in Germany and Portugal. In the majority of these countries the share of gross capital formation in the relative GDP change was lower than 30%. In the New Member States the contribution of gross capital formation to GDP increase was placed between 30% and 50% in Romania and the Czech Republic, and of over 50% in Bulgaria, Estonia and Latvia.

Under these circumstances, the share of gross capital formation in GDP seems to be somewhat higher in the New Member States than in the EU-15. But, in shaping the relationship between gross capital formation and GDP, a significant role pertains also to the external trade balance stock. Because most of the New Member States are facing trading deficits, the share of gross capital formation in GDP seems to be oversized. In Old Member States the stock of the external trade balance is positive in most cases, which triggers a diminution in the share of gross capital formation in GDP in relation to the share in domestic demand. The comparative analysis reveals that in the New Member States gross capital formation holds, in general, a higher share in domestic demand than in EU-15.

In the context of lower propensity towards consumption, in the New Member States, there were recorded gross domestic product growth rates much higher than in the Old Member States. These developments which at first sight seem as positive and explicable should not ignore the absorbing character of economic growth that contributed to a more marked imbalance of the external trade balance.

Continuing such a trend would lead to the emergence of some major stoppages in GDP expansion. For a country such as Romania, which has to recover in a short period – from the historical viewpoint – gaps in the economic and social development level against western countries, the high rate increase of GDP is absolutely necessary. Yet, not any expansion of economic activity can ensure the diminution of the above-mentioned gaps and ensure the convergence with the developed countries of the European Union. In order to reach the respective objectives, one of the conditions is to maintain a reasonable limit of the external trade balance imbalance. Therefore, on short term, one of the concerns of the public authorities with responsibilities in developing macroeconomic policies should be the stimulation of competitiveness increases of the national output of goods and

services. Hence, the premises are ensured for a sensible diminution in the external trade balance and of the current account deficit.

Also, an important increase in relative knowledge with respect to the impact of gross capital formation on sustaining economic growth on short-, medium-, and long-term can be brought by improving the methodology of statistical registration of the GDP components. This means to highlight the distribution by branches of total sums intended for gross capital formation, but also of its constitutive elements, that is fixed capital formation, variation in material and finite goods stocks, purchases minus transfers of valuable objects. Within gross fixed capital formation, we consider that purchases of newly built houses should be mentioned separately. In this way the premises could be created for significantly improving the evaluation of the future expansion opportunities of the economic activity. Also, it is necessary to make a series of changes in the computation methods of the influence which the evolution of land prices has on the dynamics of gross capital formation.

Improving the evaluation methodology of gross capital formation should necessarily take place simultaneously with improving the statistical evidence about the dynamics of fixed capital. Due to the restructuring processes of the economy, as well as to the inflationist pressures in Romania, just as in other Central and East European countries, still a series of distortions are present with respect to correlating the dynamic of gross fixed capital formation with the one of fixed capital or of corporal immobilizations. To this end it is necessary to ensure not only a higher transparency with respect to transactions related to divisions or mergers between companies, putting into operation new production capacities, or wind-up of morally and physically used equipment, but also the implementation of some assessment methods of the fixed capital in accordance with the characteristics of the market economy.

## References


1. D.M. Gross – "Financial intermediation: A contributing factor to economic growth and employment", mimeo, International Labour Office, Geneva, 2001
2. A. Iancu (coord.) - *Dezvoltarea economică şi integrarea în Uniunea Europeană*, (*Economic development and integration into European Union*), Vol. 2 Editura Academiei, (Publishing House of Romanian Academy) Bucharest, 2005.
3. J.B.Madsen - "The causality between investment and economic growth" in *Economic Letters*, no.74/2002
4. N.G. Mankiw, P. Romer, D. Weil - "A contribution to the empirics of Economic Growth", in *Quaterly Journal of E conomics*, no. 107/1992
5. F.M. Pavelescu - "Corelaţia dintre dinamica cererii interne şi a exportului" (Correlation between domestic demand and exports dynamics) in *Revista română de economie* (Romanian Economic Journal) no. 2/2003.
6. F.M. Pavelescu - "Caracteristici ale proceselor investiţionale din România în contextul pregătirii pentru aderarea la Uniunea Europeană" (Characteric features of investment process in Romania in the context of preparation for admition in European Union), CEEX Research Programme, Institute of National Economy, Bucharest, 2006.
7. F.M. Pavelescu - "Gross capital formation and economic growth during early 2000's in EU-member and candidates states" in *Romanian Economic Journal*, no. 1/2008.
8. S. Rebelo - "Long-Run Policy Analysis and Long-Run Growth", in *Journal of Political Economy*, no. 99/1991.
9. E. Stockhammer - "Some stylized facts on finance-dominated accumulation regime", Working Paper no. 142/ July 2007, Political Research Institute, University of Massachussetts Amherst.
10. Gh. Zaman, V. Vasile (coord.) - *Evoluţii structurale ale exportului în România. Model de prognoză a exportului şi importului pe ramuri CAEN*, (*Structural Evolutions of exports in Romania. Forecast models of exports and imports on NACE branches*), Editura Expert (Expert Publishing House), Bucharest, 2004.
11. Gh. Zaman, Z. Goschin, C. Herteliu - "Analiza corelaţiei dintre evoluţia PIB şi a factorilor capital şi muncă în România" (The analysis of the correlation between the evolution of the GDP and that of the capital and labour factors in Romania), *Revista română de economie* (Romanian Journal of Economics) no. 2/2005.
12. ***- Measurement of capital stock in transition economies, UNECE Statistical Division, Occasional Paper, Geneva, 2003

**ANNEXES**

**Annex 1**

## Share of gross capital formation in the relative yearly changes of the gross domestic product in the European Union countries in the period 2000-2006

*%*

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average 2000-2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 41.18 | -37.50 | -144.44 | 100.00 | 0.00 | 5.00 | 24.24 | 13.67 |
| Belgium | 27.03 | -100.00 | -26.67 | -10.00 | 56.67 | 109.09 | 65.63 | 32.87 |
| Denmark | 42.86 | -42.86 | 0.00 | 0.00 | 52.38 | 61.29 | 74.29 | 49.28 |
| France | 46.15 | 0.00 | -70.00 | 9.09 | 48.00 | 47.06 | 45.00 | 29.08 |
| Finland | 42.00 | 11.54 | -25.00 | 38.89 | 24.32 | 62.07 | 18.18 | 27.71 |
| Germany | 15.63 | -141.67 | Xxx | -300.00 | 16.67 | 33.33 | 32.14 | -10.99 |
| Greece | 48.89 | 23.53 | 36.84 | 66.67 | 29.79 | -8.11 | 37.21 | 34.63 |
| Ireland | 24.47 | -8.62 | 15.00 | 41.86 | 23.26 | 56.36 | 35.85 | 25.86 |
| Italy | 25.00 | 27.78 | 266.67 | xxx | 25.00 | -300.00 | 42.11 | 32.58 |
| Luxembourg | 9.52 | 52.00 | -31.58 | 107.69 | 5.56 | 40.00 | -30.65 | 7.38 |
| Netherlands | 7.69 | 10.53 | -1600.00 | -66.67 | 10.00 | 26.67 | 37.93 | 3.17 |
| Portugal | 15.38 | 15.00 | -162.50 | 300.00 | 38.46 | -180.00 | -23.08 | -35.16 |
| Spain | 30.00 | 33.33 | 33.33 | 46.67 | 43.75 | 54.29 | 48.72 | 40.96 |
| Sweden | 34.88 | -54.55 | -30.00 | 29.41 | 17.07 | 44.83 | 33.33 | 20.69 |
| United Kingdom | 10.53 | 25.00 | 14.29 | 35.71 | 30.30 | 5.56 | 50.00 | 25.26 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 42.59 | 87.80 | 20.00 | 72.00 | 48.48 | 101.61 | 101.64 | 68.87 |
| Czech Rep. | 80.56 | 80.00 | 73.68 | -11.11 | 47.83 | 6.15 | 34.62 | 36.92 |
| Cyprus | 54.00 | -27.50 | 120.00 | -38.89 | 83.33 | -12.82 | 21.05 | 28.74 |
| Estonia | 75.95 | 38.96 | 72.50 | 53.52 | 70.37 | 31.43 | 59.65 | 56.67 |
| Hungary | 32.69 | -34.15 | -6.82 | 16.67 | 47.92 | -29.27 | -23.08 | 2.93 |
| Latvia | -20.24 | 40.00 | 43.08 | 75.00 | 49.43 | 20.75 | -12.61 | 23.98 |
| Lithuania | 36.59 | 103.03 | 21.74 | 57.28 | 90.41 | 36.84 | 85.33 | 62.62 |
| Malta | 68.25 | 556.25 | -119.23 | -866.67 | 200.00 | 166.67 | 12.12 | 7.30 |
| Poland | 23.26 | -275.00 | -107.14 | 15.38 | 52.83 | 8.33 | 44.26 | 10.08 |
| Romania | 131.82 | 55.17 | -1.92 | 33.96 | 49.41 | 14.63 | 52.63 | 42.89 |
| Slovakia | … | … | … | … | … | … | … | … |
| Slovenia | 14.63 | -40.74 | 28.57 | 92.31 | 63.64 | -7.50 | 57.69 | 31.70 |

*Source: Computed after UNECE Statistical Division Database.*

**Annex 2**

## Yearly changes in the gross domestic product in the European Union countries in the period 2000-2006

*%*

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average 2000-2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 3.4 | 0.8 | 0.9 | 1.2 | 2.3 | 2.0 | 3.3 | 1.99 |
| Belgium | 3.7 | 0.8 | 1.5 | 1.0 | 3.0 | 1.1 | 3.2 | 2.04 |
| Denmark | 3.5 | 0.7 | 0.5 | 0.4 | 2.1 | 3.1 | 3.5 | 1.97 |
| France | 3.9 | 1.9 | 1.0 | 1.1 | 2.5 | 1.7 | 2.0 | 2.01 |
| Finland | 5.0 | 2.6 | 1.6 | 1.8 | 3.7 | 2.9 | 5.5 | 3.30 |
| Germany | 3.2 | 1.2 | 0.0 | -0.2 | 1.2 | 0.9 | 2.8 | 1.30 |
| Greece | 4.5 | 5.1 | 3.8 | 4.8 | 4.7 | 3.7 | 4.3 | 4.41 |
| Ireland | 9.4 | 5.8 | 6.0 | 4.3 | 4.3 | 5.5 | 5.3 | 5.80 |
| Italy | 3.6 | 1.8 | 0.3 | 0.0 | 1.2 | 0.1 | 1.9 | 1.27 |
| Luxembourg | 8.4 | 2.5 | 3.8 | 1.3 | 3.6 | 4.0 | 6.2 | 4.26 |
| Netherlands | 3.9 | 1.9 | 0.1 | 0.3 | 2.0 | 1.5 | 2.9 | 1.80 |
| Portugal | 3.9 | 2.0 | 0.8 | -0.7 | 1.3 | 0.5 | 1.3 | 1.30 |
| Spain | 5.0 | 3.6 | 2.7 | 3.0 | 3.2 | 3.5 | 3.9 | 3.56 |
| Sweden | 4.3 | 1.1 | 2.0 | 1.7 | 4.1 | 2.9 | 4.2 | 2.90 |
| United Kingdom | 3.8 | 2.4 | 2.1 | 2.8 | 3.3 | 1.8 | 2.8 | 2.71 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 5.4 | 4.1 | 4.5 | 5.0 | 6.6 | 6.2 | 6.1 | 5.41 |
| Czech Rep | 3.6 | 2.5 | 1.9 | 3.6 | 4.6 | 6.5 | 5.2 | 3.99 |
| Cyprus | 5.0 | 4.0 | 2.0 | 1.8 | 4.2 | 3.9 | 3.8 | 3.53 |
| Estonia | 7.9 | 7.7 | 8.0 | 7.1 | 8.1 | 10.5 | 11.4 | 8.67 |
| Hungary | 5.2 | 4.1 | 4.4 | 4.2 | 4.8 | 4.1 | 3.9 | 4.39 |
| Latvia | 8.4 | 8 | 6.5 | 7.2 | 8.7 | 10.6 | 11.9 | 8.76 |
| Lithuania | 4.1 | 6.6 | 6.9 | 10.3 | 7.3 | 7.6 | 7.5 | 7.19 |
| Malta | 6.3 | -1.6 | 2.6 | -0.3 | 0.1 | 3.3 | 3.3 | 1.96 |
| Poland | 4.3 | 1.2 | 1.4 | 3.9 | 5.3 | 3.6 | 6.1 | 3.69 |
| Romania | 2.2 | 5.8 | 5.2 | 5.3 | 8.5 | 4.1 | 7.6 | 5.53 |
| Slovakia | 2.0 | 3.2 | 4.1 | 4.2 | 5.4 | 6.0 | 8.3 | 4.74 |
| Slovenia | 4.1 | 2.7 | 3.5 | 2.6 | 4.4 | 4.0 | 5.2 | 3.79 |

*Source: Computed after UNECE Statistical Division Database.*

**Annex 3**

## Yearly changes in domestic demand in the European Union countries in the period 2000-2006

*%*

| Country | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average 2000-2006 |
|---|---|---|---|---|---|---|---|---|
| *EU-15* | | | | | | | | |
| Austria | 3.1 | -0.2 | -1 | 2.5 | 1.5 | 1.2 | 2.2 | 1.33 |
| Belgium | 3.9 | 0.3 | 0.8 | 1.0 | 3.1 | 1.6 | 4.0 | 2.10 |
| Denmark | 3.1 | 0.0 | 1.7 | 0.1 | 4.3 | 4.5 | 5.5 | 2.74 |
| France | 4.4 | 1.8 | 1.1 | 1.8 | 3.3 | 2.3 | 2.4 | 2.44 |
| Finland | 3.7 | 2.2 | 1.4 | 4.0 | 3.0 | 4.5 | 2.8 | 3.09 |
| Germany | 2.2 | -0.5 | -2.0 | 0.7 | 0.0 | 0.5 | 1.7 | 0.37 |
| Greece | 5.6 | 3.1 | 4.8 | 5.4 | 4.7 | 2.3 | 3.9 | 4.26 |
| Ireland | 9.0 | 4.0 | 4.1 | 3.4 | 4.8 | 7.9 | 6.3 | 5.64 |
| Italy | 2.8 | 1.6 | 1.3 | 0.9 | 1.1 | 0.3 | 1.6 | 1.37 |
| Luxembourg | 4.3 | 4.5 | 2.5 | 4.0 | 2.6 | 5.2 | 0.3 | 3.34 |
| Netherlands | 2.7 | 2.3 | -0.4 | 0.5 | 0.5 | 0.9 | 2.9 | 1.34 |
| Portugal | 3.3 | 1.7 | 0.0 | -2.0 | 2.4 | 0.8 | 0.3 | 0.93 |
| Spain | 5.3 | 3.8 | 3.2 | 3.8 | 4.8 | 5.0 | 4.6 | 4.36 |
| Sweden | 3.9 | -0.2 | 0.8 | 1.6 | 1.8 | 2.6 | 3.3 | 1.97 |
| United Kingdom | 3.8 | 2.9 | 3.1 | 2.8 | 3.8 | 1.7 | 3.1 | 3.03 |
| *NMS-12* | | | | | | | | |
| Bulgaria | 6.9 | 7.1 | 4.2 | 8.2 | 7.3 | 9.9 | 10.2 | 7.69 |
| Czech Rep | 3.8 | 3.7 | 3.9 | 4.4 | 3.2 | 1.6 | 4.0 | 3.51 |
| Cyprus | 6.2 | 3.5 | 4.3 | 1.7 | 6.5 | 3.1 | 3.8 | 4.16 |
| Estonia | 10.8 | 7.3 | 12.2 | 7.3 | 9.5 | 7.4 | 15.1 | 9.94 |
| Hungary | 4.7 | 2.2 | 6.4 | 6.2 | 4.2 | 1.4 | -0.4 | 3.53 |
| Latvia | 4.6 | 11.1 | 6.0 | 10.6 | 12.1 | 9.3 | 17.3 | 10.14 |
| Lithuania | 2.5 | 5.8 | 6.7 | 12.2 | 13.0 | 8.9 | 7.6 | 8.10 |
| Malta | 10.7 | -7.5 | -3.3 | 5.8 | 1.8 | 7.0 | 2.6 | 2.44 |
| Poland | 3.4 | -1.3 | 0.9 | 2.7 | 5.9 | 2.6 | 6.7 | 2.99 |
| Romania | 5.5 | 9.4 | 4.9 | 8.4 | 12.0 | 8.0 | 12.7 | 8.70 |
| Slovakia | 0.1 | 8.0 | 4.1 | -1.3 | 6.2 | 8.6 | 6.4 | 4.59 |
| Slovenia | 1.3 | 0.8 | 2.3 | 4.9 | 5.2 | 1.9 | 5.5 | 3.13 |

*Source: Computed after UNECE Statistical Division Database.*