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Creditless Recovery in Eastern Europe

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CREDITLESS RECOVERY IN EASTERN EUROPE

DAN CONSTANTIN OLTEANU¹

Abstract

This paper aims to investigate the presence of a creditless economic recovery in Eastern Europe, after de 2008-2009 output collapse. To this end, we use three variables: credit stock, credit flow and money supply M1. We find that the changes in the credit flow, as percentage of GDP, are the most distinctly correlated with the GDP rate. During the growth recovery, the credit flow tends to rise in six of the surveyed countries, although the credit stock declines in some cases. On the other side, the liquid segment of money supply (M1) registered in some countries strong rebounds that boosted demand recovery, due not so much to credit but to the liquidity preference.

Within domestic demand, we notice a steeper decline of the fixed capital formation than the consumption one, but also a stronger subsequent upturn. The investment recovery seems to be supported in most of countries by the credit flow growth; there is a stronger dependence of capital formation on the newly created credit than in the case of consumption, which is rather correlated with the whole money supply M1.

In conclusion, we can say that there was a “creditless recovery” phenomenon in Eastern Europe after the global crisis, but most countries recorded an increase of credit flow along with the GDP. The new flow of money is mostly used for investment and consumption, and thus supports the revival of domestic demand, especially in countries with a less developed financial system, such as the emerging european ones. On the other hand, the trend in the liquid part of the money supply may evolve, especially in times of financial instability, regardless of credit developments. This, along with other factors, strongly affects the degree to which GDP rely on credit.

Keywords: *Credit, Economic Recovery, Phoenix Miracle*

JEL: *E44, E51, G01*

1. Theoretical Framework

A phenomenon frequently discussed in literature – that of credit – GDP relation during financial crises – is known as the “Phoenix Miracle”, *i.e.*, output recovery in the absence of credit return in the post-crisis periods. It was first signalled by Calvo *et al.* (2006, p.5) for a group of emerging

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economies affected by financial crises between 1980 and 2004. They say that “*although a credit crunch appears to be central for explaining output collapse, recovery can take place without credit*”. On the average, the output decreases by 7% in two years, and the recovery, of V-shape, is also completed in two years (*ibidem*, p.18). At the same time we witness a dramatic diminution in investments, more pronounced if compared to the total output (*ibidem*, p.19).

Claessens, Kose and Terrones (2009) study 122 recessions in 21 OECD member countries and reveal that financial distress usually occurs about one year before the real economy decline, and, on average, recession ends two quarters before stopping the credit crunch.

Abiad, Dell’Aricia and Li (2011, p.4) analyze 388 economic recoveries of developed, emerging and underdeveloped economies between 1971-2007 and find out that the restart of economic growth in the absence of credit occurs in one out of five cases studied, but recoveries are weaker than those accompanied by credit revival. Also, they reveal that creditless recoveries are twice as more than when recoveries were preceded by credit booms (steep financial deepening).

Bisterbosch and Dahlhaus (2011, p.5) estimate that one out of four output recoveries is creditless and find out that such phenomena are caused major declines in economic activity, accompanied by problems of the financial system caused, in turn, by excessive indebtedness of the private sector and the dependence of foreign capital.

Sugawara and Yaldiendo (2013, pp.6-8) study 96 countries over the 1965-2011 period and show that over 25% of the recoveries are creditless, and 45% of all these phenomena, occurring over the above-mentioned period, have taken place during the present crisis, in only two years: 2009 and 2010.

The causes are many. On the supply side, one cause is the investment made of cash assets accumulated by companies during the crisis, which, along with the reactivation of unused production capacities, leads to creditless recovery (Calvo *et al.*, p.22). That is why Calvo says that the factor productivity is the main element causing the output decline and recovery. Another cause is the fact that – just as non-productive credit invested in real estate or financial assets did not support economic growth before the crisis – the decline of this part of credit does not affect production. For example, Abiad *et al.* (2011, p.3) consider that as long as the most productive sectors receive loans, the output rises despite the total credit stock stagnation. They notice that investments contribute less to economic growth in case of credit recovery (*ibidem*, p.4). Similarly,

Claessens *et al.* (2009) consider that reorientation towards sectors less dependent on credit, and replacement of domestic loans with other sources (foreign financing or through capital market) are another drivers of recovery.

On the demand side, the crucial factor is net export, which – on the rise – may strongly stimulate output. The export potential depends on the early conditions, *i.e.*, on its level (external openness) before the collapse, according to Sugawara and Yaldendo (2013, p.12). Import substitution with domestic goods and services is also beneficial. Finally, a factor influencing both demand and supply is an increase in the liquid part of the money supply (M1) to the detriment of other segments, which compensates for the decline in the money creation through credit (ECB, 2012, p.74). Moreover, Bijsterbosch and Dahlhaus (2011, p.17) point out that in countries with high levels of financial intermediation (high credit-to-GDP ratio), the deleveraging potential is high and, thus, also a creditless recovery is very likely.

A distinct study / explanation is provided by Biggs *et al.* (2010), who suggests to compare the output to the *flow* of credit, instead of its *stock*. In this case, the output recovery is accompanied by the credit flow rebound, although the credit stock decreases. Biggs shows that the credit flow is correlated with the output during the Great Depression of the 1930s and other recession periods in the USA between 1954 and 2008.

The present paper aims to investigate the presence of “Phoenix Miracle“ in the CEE countries, after de 2008-2009 output collapse. To this end, we use three variables: credit stock, credit flow and money supply M1. Following Biggs *et al.* we consider and confirm that credit flow is the most appropriate variable for testing the credit-GDP correlation and creditless recovery hypothesis. Analyzing credit and money supply behavior during the return of the output, we verify that, indeed domestic product managed to return to positive growth rates without being supported by credit growth. We also study the contribution of final consumption and fixed capital formation to GDP recovery and how these two components are correlated with the credit.

2. Credit and GDP Recovery – Empirical Evidence

In this section we discuss how the credit flow and stock dynamics are related to the output recovery for a group of nine CEE countries: Bulgaria, the Czech Republic, Hungary, Estonia, Latvia, Lithuania, Romania,

Slovenia and Slovakia. For dealing with the above-mentioned correlation, we use both the credit stock and the credit flow. Considering the credit flow is substantiated by the assumption regarding the purchasing power generated by lending, as we detailed in a previous theoretical survey (Olteanu, 2014a, pp.9-12). Expenditures on consumption and investment over a certain period are financed by both the liquid part of existing money supply and the newly created money through loans. For example, Keen (2009, p.350) finds out that the credit flow has contributed up to 20% to Australia's aggregate demand in the last decades. Without a steady rise in the money supply by lending, the domestic demand comes to a standstill, which occurred in most of the CEE countries after the global crisis. Therefore, the credit flow is a better performing indicator in the correlation with the output.

For analysis we use a set of quarterly indicators taken from a previous study on the credit-output relation (Olteanu, 2014b, pp. 36-37): real GDP, real credit stock denoted by C (using the GDP deflator for adjustment), real credit flow denoted CF, calculated as the difference between the stock of real credit at the end of current period (C_t) and the stock at the end of the previous period (C_{t-1}). Data on the credit stock were taken from the IMF International Financial Statistics and refer to bank claims on other sectors (besides the Central Bank and the Central Government). Real GDP and the GDP deflator were provided by Eurostat National Accounts.

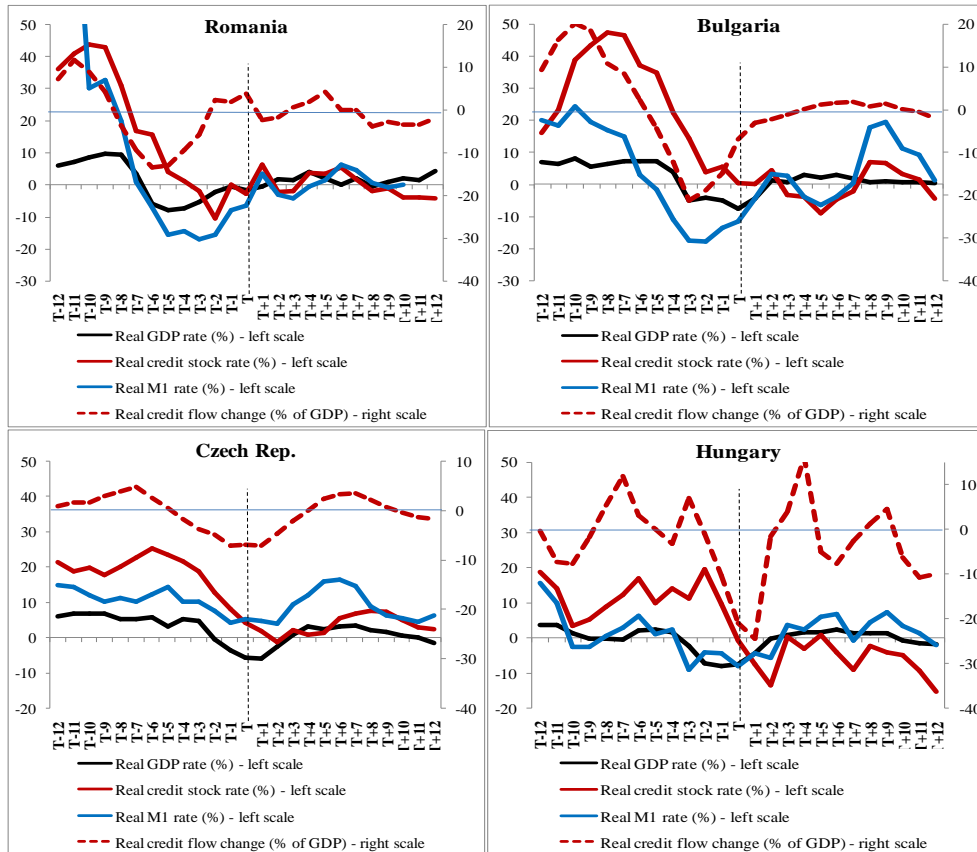
Further, in this study we add the components of domestic demand, final consumption and gross fixed capital formation (from Eurostat National Accounts). Also, we add and study the evolution of the money supply M1 (provided by the IMF) since, as we mentioned above, the propensity for liquidity increases during financial instability, and M1 may expand at the expense of other components of monetary mass, in spite of credit slowdown. The money supply – output relation is revealed by the Fisher relation: $M \cdot V = Q \cdot P$, where: M = money supply, V = velocity of money, Q = real output, P = price. Applying logarithm differences we get $\Delta Q = f [\Delta(M/P) + \Delta V]$. Therefore, the real output depends on the real money supply and the money velocity. On the other hand, credit flow contributes to the output, so that $Q = f [FC]$. Differentiating and dividing both terms by previous GDP we get $\Delta Q = f [\Delta FC / PIB]$. The relative / absolute changes are computed relative to the same period of the previous year, in order to avoid seasonal adjustment.

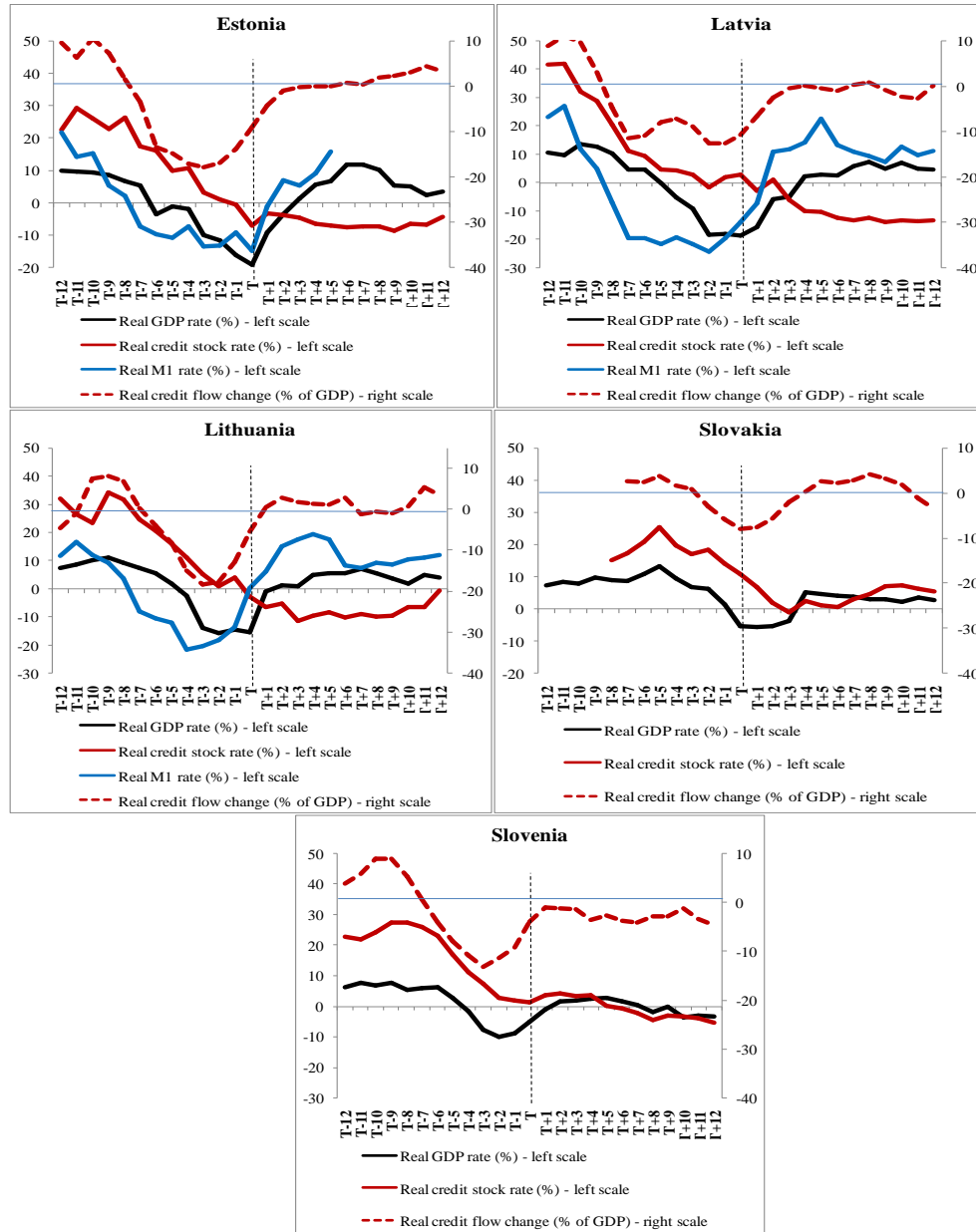
In Figure 1, we draw the real credit growth rate (continuous red line), the change of real credit flow as percent of previous GDP (dotted red line), the real M1 growth rate (blue line), and the real GDP growth rate (black

line) for the nine CEE countries. For Slovenia and Slovakia, the M1 rate is missing due to the lack of data, as they joined the Eurozone in early 2007 and early 2009, respectively. For Estonia, the M1 rate ends at the end of 2010, for the same reason. The evolution of each country is centered on the quarter of minimum level of real GDP (different from one country to another) in order to reveal the behaviour of the credit and the money supply before and especially after the critical moment of the crisis (T quarter).

Charts show that initially (two years before the crisis) the credit rate is much above the GDP rate in all countries. As we move to T, the trends come closer, and in about 3-4 quarters after time T a reversion occurs (except for Turkey), *i.e.*, the credit rate decreases below the GDP rate.

Figure 1: Credit and money supply in CEE countries





Note: T denotes the quarter when the real GDP level was minimum. Because of the relative changes related to the same quarter of the previous year, the moment of minimum GDP rate is not always the same with the moment of minimum GDP level. The changes in the credit flow (% of GDP) were smoothed by three quarter moving averages, in order to temper high volatility.

Source: indicators taken from a previous study (Olteanu, 2014b), except for M1 (own calculations based on IMF International Statistics).

During the output recovery², the credit rate continues to decline in most of the countries. The decline generates negative values reaching a minimum of approx. -10% in countries like Romania, Bulgaria, Hungary and the Baltic countries (in Lithuania, the decline is steeper, about 15%). On the other hand, in the Czech Republic and the Slovakia, the credit rate takes on negative values only accidentally. Although the output returns to positive values in about three quarters after the time T in most of first group countries, the credit rate continues to decrease for longer period of time. The Baltics and Hungary are typical examples of output recovery without credit stock recovery. The credit rate is negative and continues to diminish over the period when the GDP rate returns to positive values. In other countries, as Romania and Bulgaria, the credit rate trend goes below the GDP rate for two and five quarters, respectively, then it oscillates around the GDP trend.

On the other hand, the real credit flow changes (% of GDP) follow a trajectory obviously correlated with the GDP rate. The former decrease and recover at the same time or even before the latter. Still, the credit flow changes following the GDP rate recovery are small or even negative (in Latvia and slovenia), so they cannot be accounted as a driver of the consistent GDP recovery in countries as the Baltics, for example. Later, after six-eight quarters from time T, the credit flow declines again in most of the countries, similarly to the GDP rate.

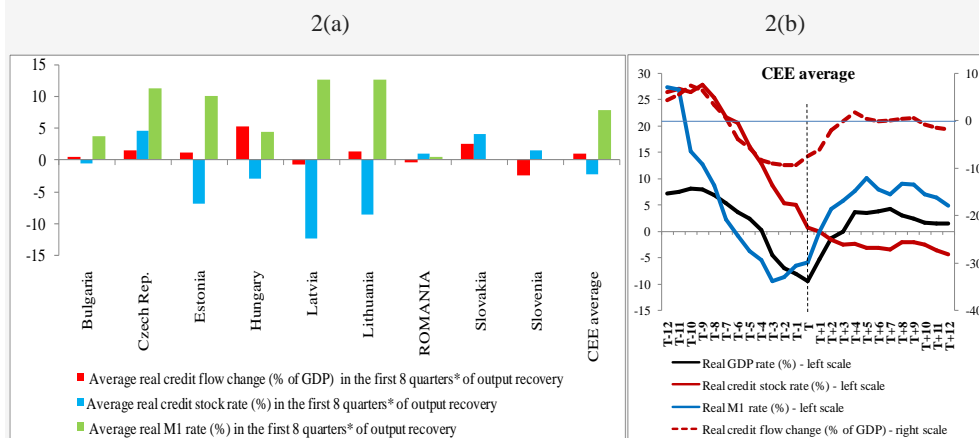
Although the relative / absolute changes in the stock and flow of real credit are modest or even they do not return to positive value, we notice that the real M1 recovery is often substantial (up to 20%), except for Romania and Bulgaria, where the money supply rate closely follows the credit rate. In the other countries, M1 recovers at the same time with the GDP, just like the credit flow. The countries with the most significant M1 growth rate - the Baltics – also witness a consistent rise in the GDP rate. Moreover, this rise occurs in spite of the continuous decline of credit stock and a weak or no recovery of credit flow, which confirms the assumption that the liquid part of money supply grows to the detriment of other components.

Usually, the definition of creditless recovery refers to a permanent (or average) negative growth rate of the credit stock during the first 2-3 years of positive growth rate. We have shown, both theoretical and empirically (Figure 1) that the credit flow is the indicator correlated with GDP, not the stock of credit. Also, we noticed that money supply M1 often explained the output recovery. Therefore, for a complete image of possible creditless recoveries, we use all the three variables, but we consider credit flow as the main criterion.

² By “recovery” we refer to the positive values of the relative / absolute changes, not to their ascending trend.

In Figure 2a we present the average changes of credit and M1 only for the first two years of output recovery. The chart shows that the average credit stock rate is negative in more than half (5) of the countries, but the average of credit flow change is positive in four of them - Hungary and the Baltics – so the recovery was accompanied by increasing the net flow of credit issued. Only in Latvia credit flow and stock decreases, but the average M1 rate is positive, so there is an increase in the money supply for reasons other than the credit return. In fact, in all the Baltic countries, M1 growth is significant, although the credit stock rate is negative and the credit flow decreases (or increases very slightly). The explanation is the propensity for liquidity. Other two countries where credit flow is negative in the recovery period are Romania and Slovenia. In Romania, M1 grows along with the credit stock, but the values are reduced, which reveals a recovery for other reasons than monetary. There are no available M1 data for Slovenia, so we are unable to study how it compensates for the absence of credit flow raise. In conclusion, using credit flow as a criterion, we can say that in three cases out of nine domestic product recovered without credit.

Figure 2: Credit and money supply M1 during the output recovery



* or less, depending on the length of output recovery.

Note: T denotes the quarter when the real GDP level was minimum. The money supply average does not include Slovenia, Slovakia, and partially (T+7 - T+12) Estonia. The changes in the credit flow (% of GDP) were smoothed by three quarter moving averages, in order to temper high volatility.

Source: Figure 2(a) - own calculations based on indicators taken from Olteanu (2014b) and IMF International Statistics; Figure 2(b) - indicators taken from Olteanu (2014b), except for M1 (own calculations based on IMF International Statistics).

On the right side of Figure 2(a) we present the average trend of each indicator, for the nine countries. The chart shows that the credit stock diminishes by 2.3% on average during the output recovery, while it amounted a maximum of 27.8% in T-9. On average, it confirms the GDP creditless recovery in the CEE countries, according to the old definition. The credit flow grows by 0.9% of GDP on average, which is a modest recovery if we remember the maximum recorded value, of 7.5%, in T-10. Nevertheless, this low value does not prevent us to consider the flow of credit as a driver of recovery in the absence of credit stock, because nor does the GDP rate reach the previous maximum level (8.1% in T-10); its recovery accounts for only 3.1%. A second explanation is the money supply, which grows by 7.8% on average, from both the newly created money from credit and other causes previously detailed. Figure 2(b) confirms the two assumptions by revealing a correlation between the credit flow and the money supply, on one hand, and the GDP, on the other hand.

In brief, we may say that in six out of the nine considered countries the change in the credit flow is positive, so the net money creation by credit increased during the recovery. As long as the issued credit is used for expenditures on goods and services and not on various assets, we may assume that it contributes to the domestic product recovery. Another factor which sustained recovery, especially but not only in the Baltic countries, is the increase of M1, even without credit, for the reasons given above.

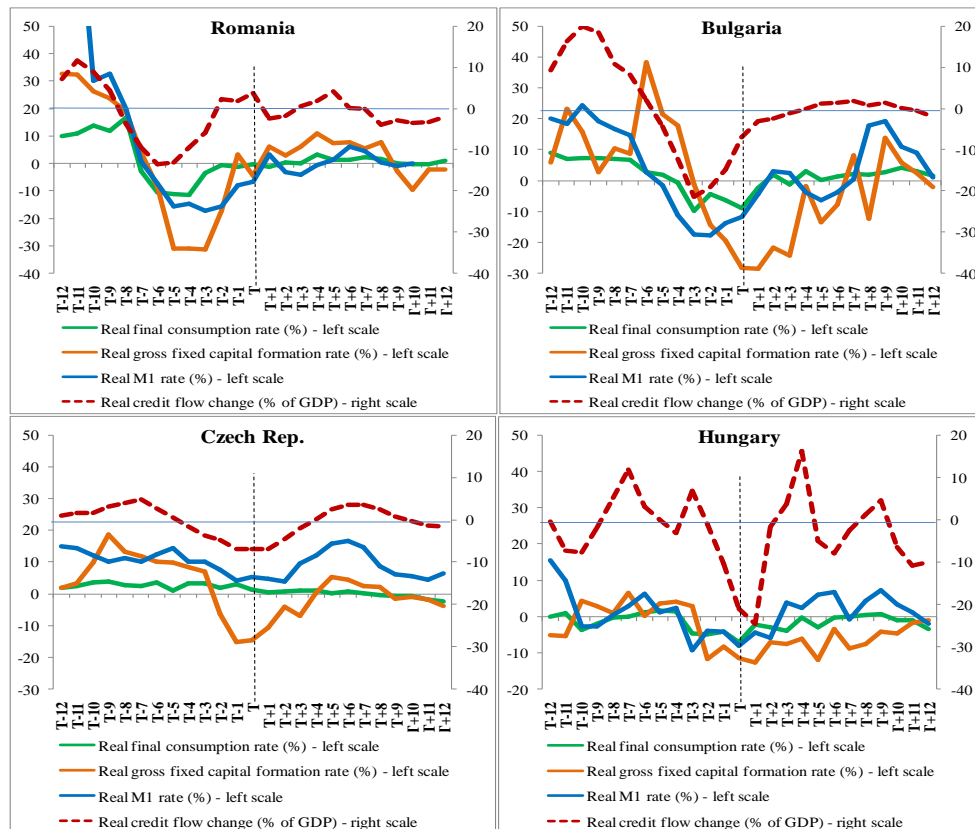
3. Final Consumption and Investments during the Recovery

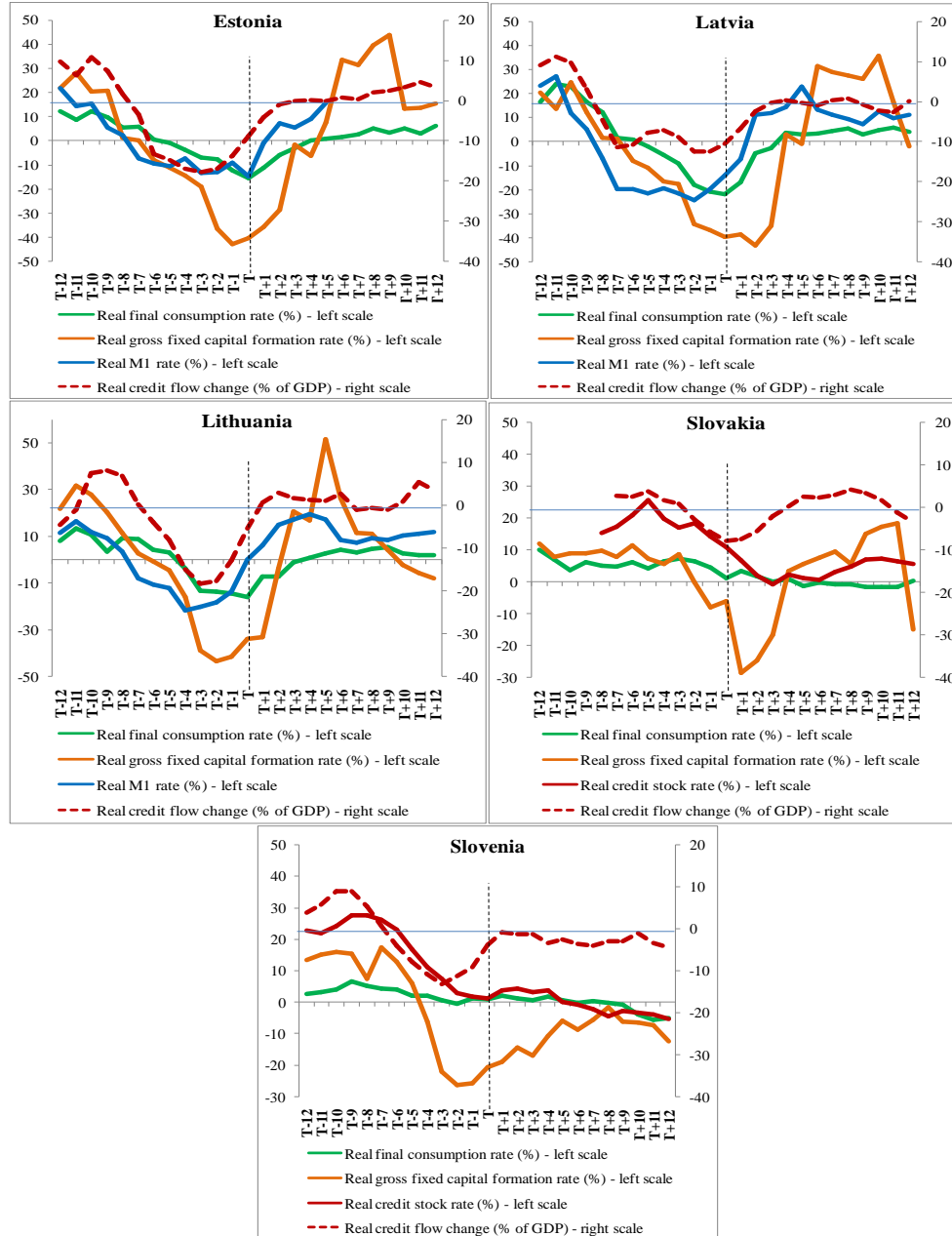
For the previous analyses, we used the domestic product to study economic decline and recovery during the global crisis. An important component of GDP is export, which is linked to credit only to a very small extent (commercial loans). Therefore, the GDP may recover by exports in the absence of credit-based demand. At the same time, part of credit is used on imported products, not included in GDP. That is why we present in the next figure the two components of domestic demand – consumption and investment – to study the correlation with credit / M1.

First, we notice a steeper decline in the real gross fixed capital formation, compared to the real consumption. The investment rate reaches extreme negative values, below -40%, in the Baltic states and other countries, except for Hungary and the Czech Republic, with values down to

-30%. Final consumption reaches minimum values of -15% in Estonia and Lithuania, and -20% in Latvia; so the decline is twice as small. This differs from what happened 2-3 years before time T, when investment rate was higher. Later, although in some countries the investment recovery lag 2-3 quarters behind the consumption recovery, its growth rate gets higher – except for Hungary – than the consumption rate. The return on investment is accompanied, in some countries, by the increased flow of credit. As we pointed out in the theoretical section, a plausible assumption is that the liquidities collected by companies during the crisis were used later to partially compensate for scarce external funding. Then, as relative figures, the high short term values occurring during the investment recovery might be caused by the low initial values.

Figure 3: Consumption, investment, credit flow and money supply





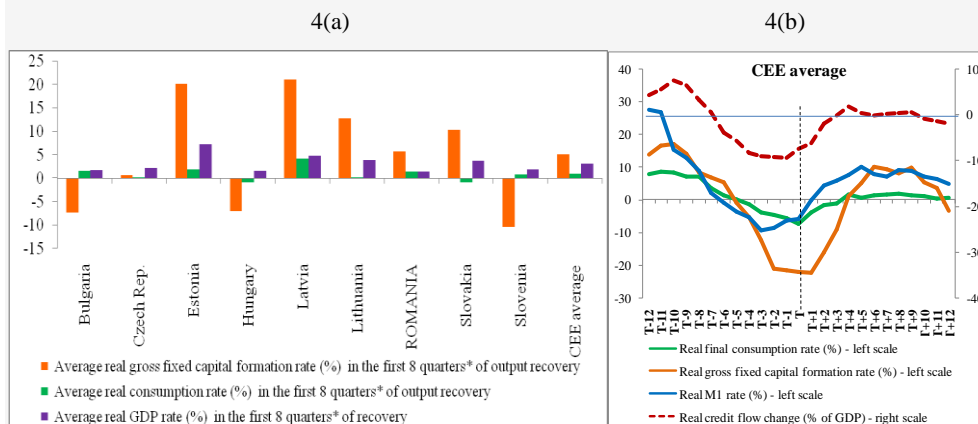
Note: T denotes the quarter when the real GDP level was minimum. The changes in the credit flow (% of GDP) were smoothed by three quarter moving averages, in order to temper high volatility. For Slovenia and Slovakia, the money supply was replaced with the credit stock due to the lack of data.

Source: own calculations, based on Eurostat National Accounts and IMF International Financial Statistics, except for the real credit flow, taken from Olteanu (2014b).

It is worth mentioning three countries (Czech Republic, Slovenia and Slovak Republic) with consumption affected only very late, after 8-9 quarters, while the investment declined steeply. In the same countries, the money supply / credit stock rate are positive most of the time, while the credit flow decreases significantly. This raises the supposition that the investment is dependent on the credit flow to a greater extent than consumption, while the latter is rather correlated with the money supply; this assumption is also confirmed by other countries. For example, in the Baltics, the consumption path is visibly correlated with the M1, while the investment diminution is much more substantial, to the extent of the credit flow diminution. The small number of cases does not allow for a numerical analysis of correlations.

In the next figure we show the dynamics of consumption and investment during the GDP recovery.

Figure 4: The dynamics of consumption and investment during the output recovery



* Or less, depending on the length of output recovery.

Note: T denotes the quarter when the real GDP level was minimum. The money supply average does not include Slovenia, Slovakia, and partially (T+7 - T+12) Estonia. The changes in the credit flow (% of GDP) were smoothed by three quarter moving averages, in order to temper high volatility.

Source: Figure 4(a) - own calculations based on Eurostat National Accounts; Figure 4(b) - own calculations based on Eurostat National Accounts, except for the credit flow (Olteanu, 2014b).

Graph 4(a) shows major differences among countries with regard to the evolution of the two components. In two countries (Bulgaria and Slovenia) investments continue to decrease during the output recovery. It reveals that the other important component of GDP (final consumption), which did not rise so much (Figure 4a), held a higher share in the domestic

product. Also, we may assume that the third component of the GDP – net export – significantly contributed to recovery. In time of global crisis, this is especially due to the substitution of import with domestic products, while export is restricted by the low external demand. In Slovakia, the situation is different: investments support the GDP growth in spite of the consumption fall. Hungary is an extreme case since the output recovered due to both consumption and investment diminution; this reveals either a strong export boost, or a significant import adjustment, or both of them. Finally, the Czech Republic and Romania display the most balanced growth of consumption and investments.

Figure 4(a) also reveals an average investment rate higher than the consumption one. The high share of the latter in GDP leads to an average output rate between the rates of the two components. Figure 4(b) confirms the strong recovery of fixed capital formation in a steep rising trend. On the other side, the final consumption decline and rise is less steep, as it follows the evolution of money supply M1.

4. Conclusions

The purpose of this paper is verifying the existence of a creditless recovery of domestic product in Eastern Europe, following the output collapse caused by the global crisis. Analyses reveal that output returns to positive rates, on average, after three quarters, while the credit stock rate continues to decline. During the first eight quarters of output recovery, the average credit stock rate remains negative in five out of nine countries under survey, so they might be consistent with the usual definition of “creditless recovery”. But we do not follow this definition, using instead the credit *flow* as the main criterion. If we look at the changes in the credit flow, as percentage of GDP, we notice an obvious correlation with the GDP rate. During the growth recovery, the credit flow tends to rise in six of the surveyed countries, although the credit stock declines in some cases. The newly created credit fuels the demand for goods and services both directly and by contributing to the substantial positive rates of money supply. We also mention that the liquid segment of money supply (M1) registered in some countries strong rebounds that boosted demand recovery, due not so much to credit but to the liquidity preference.

The evolution of the domestic demand components, presented in section 3, reveals a steeper decline of the fixed capital formation than the consumption one. As we mentioned in the theoretical section, a potential factor is represented

by the liquidities collected by companies during the crisis, which were later used for investment, and partially compensated for the scarce external funding. Later, during the recovery, the investment rate reaches figure higher than consumption. The investment recovery is supported in most of countries by the credit flow growth. The graphs show a stronger dependence of investments on the newly created credit than in the case of consumption, which is rather correlated with the whole money supply M1.

In conclusion, we can say that there was a “creditless recovery” phenomenon in Eastern Europe after the global crisis, but most countries recorded an *increase* of credit flow along with the GDP. The new flow of money is mostly used for investment and consumption, especially in countries with a less developed financial system, such as Emerging Europe. On the other hand, the trend in the liquid part of the money supply – which support the demand for goods and services – may evolve, especially in times of financial instability, regardless of credit developments. This, along with other many factors, strongly affects the degree to which economic demand rely on credit. Among the other factors we mention the net export rise (which is mostly independent from credit), the way the credit is directed towards productive sectors, and not towards real estate or financial assets, the companies’ ability to get funds from other sources (foreign, capital market) than bank credit.

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