ANNEX 2. Economic recovery without a rebound in credit: paradox or logical pattern?

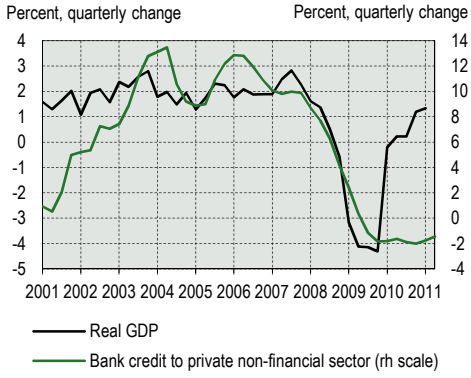
The Lithuanian economy is recovering after a sharp systemic decline related to excessive borrowing, credit contraction and reversal of international capital flows. It is notable that whilst economic recovery was gaining traction, the portfolio of bank lending to private non-financial sector continued to shrink gradually (see Chart A). The phenomenon of credit-less recovery following sudden systemic stops is quite common for emerging market economies. Calvo *et al.* (2006) call this phenomenon the Phoenix Miracle, where economy „like a proverbial bird rises from its ashes". Calvo *et al.* consider it a paradox, as shrinking economic activity during an economic downturn is often so closely related to contraction of credit aggregates; however, economic recovery is feasible without expanding bank loan portfolio.

Economic recovery may be accelerated by other factors. Economic recovery in Lithuania strongly relied on particularly rapid growth of export, the volume of which went up from trough to peak in mere one and a half year. Also, in the context of decreasing private sector debt levels, the general government picked up the baton with its debt growing from 14 percent of GDP in pre-crisis period to 39 percent of GDP in the first quarter of 2011. The general government borrowing (predominantly in foreign markets) allowed financing of an increased general government deficit and the government was able to fund the expenditures, which had, at least over the short-term, stabilising and positive effect on the economic recovery. Finally, the ongoing structural adjustments, improved competitiveness following a reduction of wages in real terms, and reduced firm reliance on credits, have also contributed to the economic growth.

There is another more direct explanation of the Phoenix Miracle. According to Biggs *et al.* (2009), it would be economically incorrect to compare GDP which is a flow indicator with the portfolio of bank loans to non-financial sector, which is a level indicator[3]. In their view, GDP should rather be associated with the credit flow (or a change in the bank loan portfolio), and they provide empirical evidence that after a sharp decrease GDP recovery is usually accompanied by more positive (or less negative) credit flow. In other words, during a given period the purchasing power of private non-financial sector and economic activity are in general primarily related to net borrowing (or debt repayment) during that period rather than the level of debts to banks. So, a situation may arise in which economy will grow on the back of increasing net credit flow to private sector with the net flow itself, however, remaining negative (i.e., the bank portfolio will be decreasing, although at a more moderate rate).

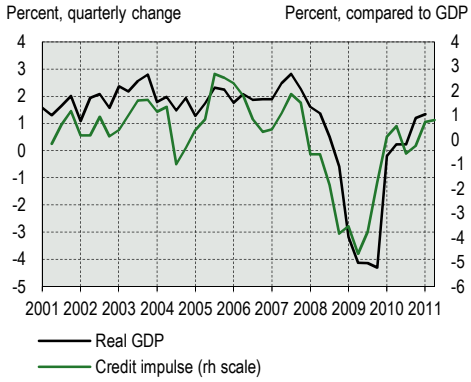
The Lithuanian data confirmed that the so called credit impulse, i.e., a ratio of credit flow change to nominal GDP, is very closely related to changes in economic activity and asset prices, while the relationship between the appropriate measure of credit and general economic development remains even after a sharp economic downturn (see Charts B, C, and D). It should be noted that a statistical relationship between credit flows and other variables does not indicate the direction of causality. Most likely there is a mutual causality, i.e., credit to the private sector, on one hand, allows to boost financial capability of individuals and enterprises to acquire consumption and capital goods, and on the other hand, banks are more inclined to credit economy when economic situation is good. Causal relationships between credit and economic processes are analysed with the help of economic models (see, for instance, Ramanauskas, 2011).

Chart A. Changes in real GDP and credit to private nonfinancial sector (moving sums)



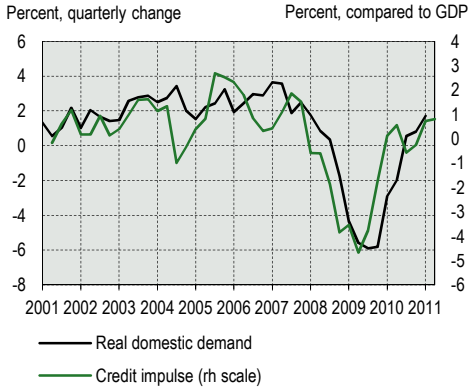
Sources: Statistics Lithuania and Bank of Lithuania calculations.

Chart B. Credit impulse and changes in real GDP (moving sums)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

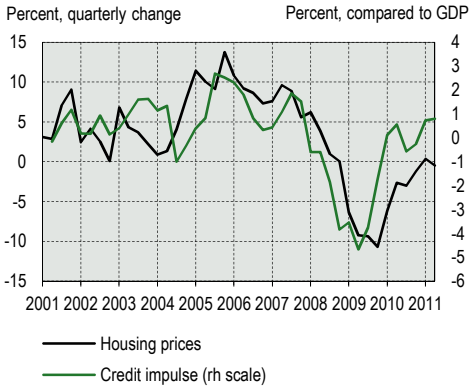
Chart C. Credit impulse and changes in real domestic demand (moving sums)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

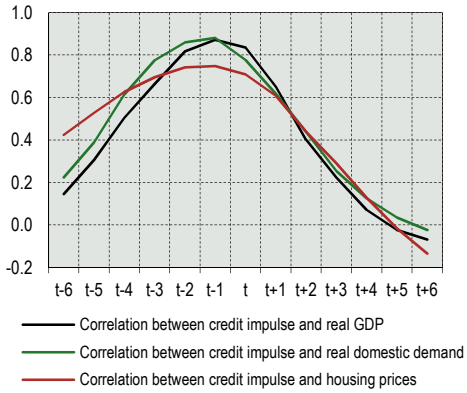
[3] Level indicator shows the (cumulative) size of the described variable at a specific point of time, while flow indicator shows volumes of the described variable over a certain time interval.

Chart D. Credit impulse and changes in housing prices (moving sums)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Chart E. Correlations between credit impulse in quarter t+i and economic variables in quarter i



Source: Bank of Lithuanian calculations.

As can be seen from Charts B, C, and D, fluctuations in real GDP, real domestic demand[4] and housing price index quite closely match fluctuations in credit impulse. It is worthwhile noting that in quarters prior to 2008 crisis declines in credit impulse preceded those of economic activity, domestic demand or housing prices. The growth of credit impulse observed later was once again a leading indicator of coming economic recovery and stabilisation of housing prices. Simple correlation analysis also shows that the highest correlation is between current quarter macroeconomic variables and credit impulse in previous quarter, while correlation between credit and macroeconomic processes in previous quarters fades off pretty fast (see Chart E). This suggests that credit variables may be useful for forecasting economic development[5]. This informal analysis provides evidence of importance of credit (and partially, bank lending decisions) to economy during the economic growth, downturn, and recovery periods. It also suggests that the Phoenix Miracle may not be an economic paradox.

References

Biggs, M., Mayer, T. and Pick, A. (2009): „Credit and economic recovery". *De Nederlandsche Bank Working Paper No. 218 / July 2009*.

Calvo, G.A., Izquierdo, A. and Talvi, E. (2006): „Phoenix miracles in emerging markets: Recovering without credit from systemic financial crises". *NBER Working Paper 12101*.

Ramanauskas, T. (2011): „What caused the recent boom-and-bust cycle in Lithuania? Evidence from a macromodel with the financial sector*". Bank of Lithuania Working Paper No. 10/2011*.

[4] Here, domestic demand is defined as a sum of real consumption spending and real gross fixed capital formation spending (excluding changes in inventories).

[5] It should be noted that the results of correlation analysis should be interpreted with caution due to possible non-stationarity and autocorrelation.