

## Excessive Credit Growth – An Early Indicator of Financial Instability

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### Abstract

*This article discusses the issue of excessive credit growth, which is generally considered as an early indicator of financial and macroeconomic instability. It focuses methods that should be used in order to evaluate if the level of credit growth is excessively enough in order to start applying “countercyclical capital buffer”, a macro prudential tool proposed in the new regulatory framework of Basel Committee on Banking Supervision. Analysis focused in Central and Eastern European countries experiences with credit growth approach before the global financial crisis, show that the HP filter calculation proposed by the Basel Committee is not a suitable indicator of excessive credit growth for converging countries. A broader set of indicators and methods based in economic fundamentals of each country should be employ to determine a country’s position in the credit cycle.*

**Keywords :** excessive credit growth, Basel regulation, countercyclical capital buffer

**JEL code :** G01 , G21

### I. Introduction

Basel Committee on Banking Supervision (BCBS, 2010a) has introduced an important macroprudential tool with aim to dampen the potential procyclicality of capital regulation. It introduced “countercyclical capital buffer” as an instrument to protect banking sector from periods of excessive credit growth, as a source of systemic risk. The use of this instrument means that in good times banks will create a reserve capital, which than will be used to moderate contractions in the supply of credit by banks in times of recession.

Before the last global financial crisis broke out, many countries from Central and Eastern Europe have recorded a boom in lending to the private sector, driven by many factors relating to both demand and supply side of credit market. Although the credit growth in these economies started from very low level, the rate of growth raised many concerns about how sustainable such a growth in medium term and whether it poses significant risks to the stability of the financial sector.

This paper aims to explore on the experience of the Central and Eastern European countries with credit expansion and how they may use the methods proposed by the Basel Committee. It strives to answer the question that what level of the countercyclical capital buffer these countries might have had, if regulation on the creation of capital buffers had existed before the crisis. Rationale for this analysis is to determine how suitable the Basel Committee methods for calculating excessive credit growth are for CEE countries. Given different characteristics of countries, the Basel Committee allows national regulation to exercise discretion and use different methods for setting the countercyclical capital buffer. Using a method that estimate the trade-off of private credit level using economic rudiments maybe a sustain alternative for such countries.

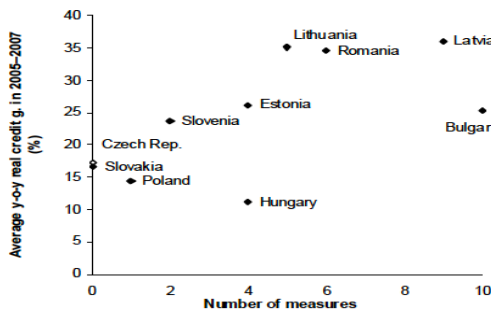
The rest of the paper is structured as follows. The section two focuses risks associated with excessive credit growth expansion, describes the situation of a such issue in some EU countries before the crisis and examines the meaning of counter cyclical buffer as proposed by Basel Committee. The next section discusses the way to determine the equilibrium of credit level. The conclusion attempts to summarize the results of the analysis and formulate recommendations for the national authorities responsible for macroprudential policy.

## II. Excessive credit growth

The rate of credit growth in many transition economies in Central and Eastern, before the last financial crisis has attracted the attention of many studies over last years. This study has tried to discover determinants of such of trend of lending, but also to identify which should be its optimal level (Brzoza-Brzezina, 2005; Egert et al., 2006; Enoch and Otker-Robe, 2007). The lending growth pace to private sector in these countries was high enough to raise concerns about whether this trend was simple an approach to converge to the average credit levels to advance countries, or whether the excessive level of credit growth poses a risk to macro economic and financial stability (Hilbers et al., 2005).

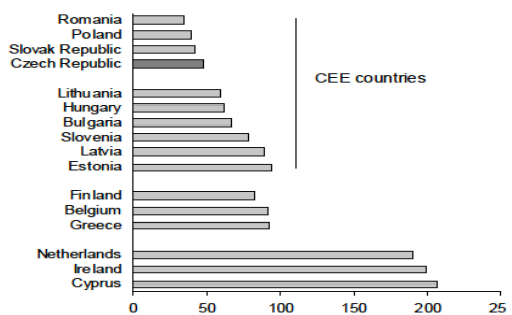
In order to take under control the future raise of credit growth, the central banks and supervisory authorities in some countries introduced some measures and tools for limiting future credit growth. These tools generally included monetary policy tools – increases in official interest rates or reserve requirements, regulatory measures – increase risk weights on selected loans, restrictions on loan-to-value and/or debt-to-income ratios, tighter regulation of large exposure, and also administrative restrictions on credit portfolio growth. Based in a study of IMF, the number of different tools used to limit credit growth in individual countries was correlated to a large degree with credit growth rate. While the number of measures might not be the best proxy for the degree of policy intervention, it merely serves as a reliable indicator of policymakers' effort (Figure 1 and 2) .

**Figure 1**  
**Credit growth and number of tools applied to limit credit booms**



Source: IMF, national authorities' websites

**Figure 2**  
**Private credit ratios in selected EU countries**  
(as % of GDP; 2007 Q4)



Source: IMF IFS, authors' calculations

Discussing about the effectiveness of these tools, it is difficult to assess their effectiveness, due to their implementation just before the eruption of global financial crisis. The decline in credit growth observed at that period maybe has reflected the economic contraction and reduced demand for loan. The studies focused on the effectiveness of those tools and measures conclude that they were ineffective and the excessive credit growth should be limited only in a very limited way during a good times (Kraft, 2005; Herzberg, 2008).

The figure 2 shows that the stock of credit in many countries of CEE near the crisis year was relatively low, in comparison of EU countries. The private-credit-to-GDP ratio in countries of the region had reached typical levels of some euro area countries. Under such conditions, are they showing excessive credit levels?

It is a wide consensus between academics and regulatory standard settings that excessive credit growth threatens financial and macroeconomic stability in many ways. The credit support consumption, the high increase in business sector loans stimulate aggregate demand beyond the potential of output and cause the economy to overheat, with effects on inflation, current account deficit, interest rates and real exchange rate. (Bakker and Gulde, 2010).

Over a rise phase of economic cycle, lending institutions have very optimistic expectations on future borrowers' ability to repay debts, hence they increase the supply of credit, undertaking high risks. A specific of lending in CEE countries was

lending in foreign currency, due to lower foreign interest rates. This increases further the risks for the banking sector, because if the domestic currency depreciated, the credit amount in domestic currency rises, debt services costs go up, and foreign exchange risks turns into credit risk. In many cases, the primary measure targeted primarily at reducing growth in foreign currency loans. In cases where the credit boom was financed from foreign sources, the domestic banking sector faced the risk of having insufficient balance-sheet liquidity increases.

IMF study of 2004 estimates that more than 75% of credit booms were followed by banking or currency crisis. This is consistent with existing studies in the field of early signals, according to which excessive credit growth can be considered one of the most reliable indicators of future problems in the banking sector (Borio and Lowe, 2002; Borio and Drehmann, 2009; FSB 2008; Drehmann et al., 2010)

Basel III regulatory framework for banks has proposed several tools for reducing the pro-cyclical behavior of the banking sector. One of the key tools is proposal for banks to create countercyclical buffers during credit booms. Such buffers, expressed as a percentage of risk-weighted assets (RWA) and covered by high quality capital (Tier1, or even core Tier1) would be set by the regulator within the range of 0% to 2.5%.

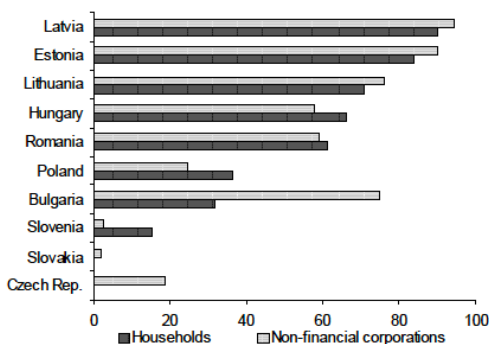
As a guide for the setting of the buffer, the Basel Committee is proposing to use and regularly publish the difference between the current private credit ratio as a percentage of GDP and its trend value estimated using the HP filter (the "credit-to-GDP gap"). However, regulators may also use other methods to calculate the trend and other variables, such as the prices of various relevant assets and credit conditions. In bad times, this capital buffer would be "released" in order to slow any fall in the credit supply and thereby reduce the procyclicality of the financial system. The capital buffer would start to be created when the credit-to-GDP gap exceeded two percentage points. If the gap reached 10 percentage points or more, the buffer would reach the aforementioned maximum of 2.5% of RWA. For gaps of between 2 and 10 percentage points, the buffer would vary linearly between 0% and 2.5%. For example, for a gap of six percentage points the buffer would be 1.25% of RWA (see Figure 4).

For cross-border exposures, the buffer set by the regulator in the foreign jurisdiction would apply. For cross-border banking groups, the capital buffer would be applied on both a solo and a consolidated basis.

**Figure 3**

**Shares of foreign currency bank loans**

(as of end-2009; as % of total loans to given sector)



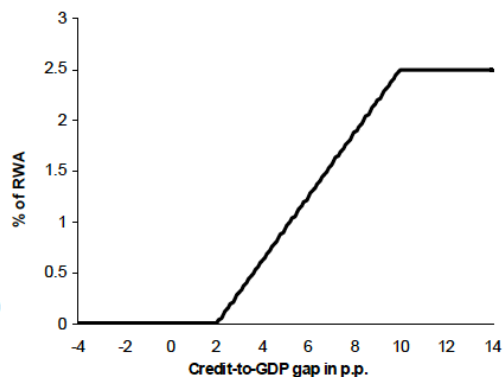
Note: Slovak Republic and Slovenia were already members of the euro area in 2009, so their foreign currency loans comprise currencies other than EUR.

Source: ECB

**Figure 4**

**Countercyclical capital buffer**

(% of RWA as function of credit-to-GDP gap)



Source: CNB

During the discussion phase within the Basel Committee that a simple filtering technique would in many cases not

necessarily lead to reliable estimates of excessive credit, so the final version of Basel III (BCBS, 2010b) gives regulators considerable discretion to set the buffer. The need of other relevant indicators for identifying risky episodes highlighted other studies, as credit-to-GDP alone may not be sufficient (IMF, 2011). The primary aim of the buffer, however, is not to restrict credit growth, but to create a capital reserve to give the banking sector greater protection from sudden changes in the credit cycle. At the same time, the Basel Committee documents emphasize the complementarity of this buffer with other macro prudential tools (BCBS, 2010b, p. 5), such as various limits on key indicators of borrowers' ability to repay loans (the loan-to-collateral and loan-to-income ratios).

### III. Equilibrium credit level

In order to determine the level of credit growth that is excessive and might pose a threat to the financial sector, traditionally is used the statistical of Hodrick-Prescott (HP) filter, which obtains the trend from the time series. By comparing the actual credit to GDP ratio with its long trend obtained by HP filter we can then estimate whether or not the credit level is excessive. Hilbers et al., (2005) consider a credit-to-GDP gap of greater than five percentage points to be an indicator of excessive credit in the economy.

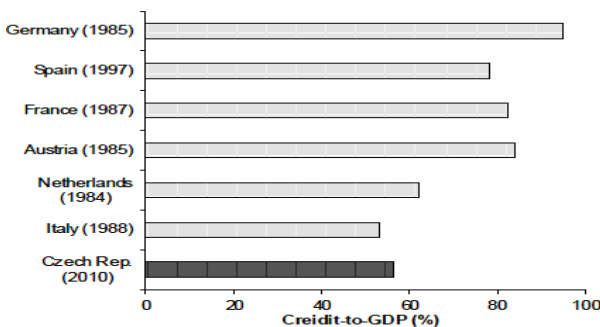
Although the HP filter method is used quite often to determine trends in macroeconomic variables, it does have its drawbacks. A time series trend is dependent to a significant extent on the length of the chosen time series and the calculation is very sensitive to the smoothing parameter ( $\lambda$ ).

The main criticism of the HP filter technique, however, is that it does not take into account economic conditions that affect the equilibrium stock of loans. An alternative method is to estimate the equilibrium private credit level in relation to key economic variables (such as the level of development of the economy measured in terms of real GDP per capita).

This method says that if GDP per capita – as a proxy for the standard of living of an economy is the main and only economic fundamental, all countries with the same level of development should have a similar equilibrium credit level. Poorer countries should have a lower equilibrium credit level than wealthier countries. A positive linkage between the credit-to-GDP ratio and the economic development of a country is referred to as financial deepening (Terrones and Mendoza, 2004). A comparison of bank loans as a percentage of GDP for selected euro area countries in years when they were at a similar level of economic development indicates, in contrast to the HP filter findings, that the credit ratio for some countries are below the level consistent with its economic level (see Figure 5).

**Figure 5**

#### **Credit-to-GDP ratios for a similar level of economic development**



Note: approx. 22 500 GDP per capita in PPP constant 2005 international \$ as Czech Rep. in 2010.

Source: IMF IFS, WB WDI, authors' calculations

Other economic fundamentals besides the above-mentioned GDP per capita should also be considered as factors

influencing the equilibrium credit level in a particular country, and a suitable econometric model should therefore be employed.

One of the questions associated with the new Basel III rules is whether the requirement to create a countercyclical capital buffer would contribute to the creation of capital reserves in the CEE countries which experienced significant problems in their banking sectors during the global financial crisis.

The setting of the framework for countercyclical buffer decision rule will not be straightforward for authorities in countries with limited length of times series. Still, these authorities will probably need some discretion and expert judgment for setting the threshold that triggers countercyclical buffers, since analysis based on the short historical data may not be sufficient.

Another specific issue related to the countercyclical buffers is also correct timing for its release. This is an important but still unsolved problem, as determining accurate timing will influence the meaningfulness of the proposed regulation as it determines to which extent it will prevent the supply of credit being constrained in time of economic distress. As a result, proper conditioning variables, which could guide to release of capital, must be identified, since credit-to-GDP ratio may be lagging indicator. Different set of proxies can be used, for example banks' charge-offs, non-performing loans, or information from bank lending surveys about tightening of credit standards, however, recent analysis also shows, that expert judgment will be necessary (Drehmann et al., 2010).

## Conclusions

This paper discusses about excessive credit growth in Central and Eastern European countries, in the terms of suitability level as the input needed to calculate the countercyclical capital buffer introduced by the Basel Committee on Banking Supervision (BCBS, 2010a). The BCBS has recommended the use of an excessive credit indicator based on the Hodrick-Prescott (HP) filter technique as a guide for setting this buffer.

For CEE countries in particular, rapid credit expansion may simply mean convergence to values typical of the advanced countries, and not excessive borrowing. The paper suggests as an alternative for calculating excessive credit growth level, methods that better reflect the evolution of the country's economic fundamentals. Also, a broader set of indicators and methods should be employed to determine a country's position in credit cycle.

With regard to macroprudential policy regime, the analysis of this paper suggest that countercyclical buffer is one of the main instruments, but the national authorities can not rely in a single indicator only, they have to apply judgment and analytic analysis to identify the position of the economy in credit cycle with respect to economic conditions.

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