Loans to Non-financial Corporations as an Indicator of Economic Recovery – Case of Slovakia

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Abstract
Loans to non-financial corporations are considered as one of the main determinants of economic growth. The aim of this paper is firstly to map the development in the organizational structure of the Slovak economy, especially of non-financial corporations, and secondly to analyze the development of bank loans to non-financial corporations from different perspectives (loan maturity, purpose, type of economic activity of enterprises) in Slovakia from 2005 to present and their relationship to GDP growth. Additionaly, we test the relationship between GDP growth and total loans with autoregressive distributed lag model. According to the results, the GDP growth influences the total value of loans and not the other way round; thus, the causality flows from real economy to the banking sector.

Keywords: loans to non-financial corporations, financial crisis, economic growth, Slovakia
JEL codes: G20, G01, O40, O11

1. Introduction

The intensity of relationship between bank loans and economic growth in a particular economy is determined by number of factors such as the depth of the financial system (the existence of non-bank-loan forms of financing), openness of the economy (the possibility of raising loans abroad), phase of the business cycle or the level of economic development in a particular country (their importance is different in wealthy and high-income countries in comparison to low-income, poor economies).

In addition to these more or less external factors the development of bank loans to non-financial corporations is affected by internal conditions, such as the development of interest rates, inflation, exchange rate, banking business practices as well as by the presence of different types of risk on domestic market.

With respect to current financial crisis, the aim of this paper is to analyse the development of bank loans to non-financial corporations in Slovakia as their growth is considered as one of the important preconditions of economic recovery.

The initial point of our research will be the assessment of the development of the organizational structure of the Slovak economy, especially non-financial corporations. In the next step we analyse development of loans by maturity, purpose and economic activities of non-financial corporations. On the basis of our findings we investigate their contribution to economic growth.

Our analysis covers time period from 2005 until present, we will use monthly as well as quarterly data for better comparison of the results.

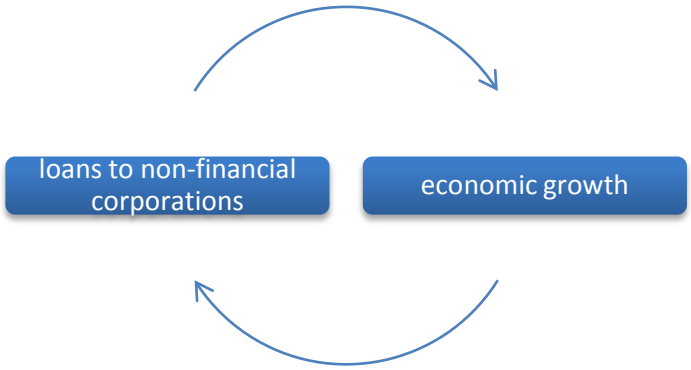
1.1 Theoretical framework and Literature Review

Non-financial corporations can cover their financial needs through internal or external funds. In the case of external resources it is possible to use the debt financing by bank loans or by issuance of own bonds. In Europe, and especially in Slovakia, the preferred forms of financing are bank loans (Beka and Čársky 2006, ECB 2011, Darvas 2013).

The importance of financial sector in bank loan intermediation and in supporting of economic growth has been examined by Aghion et al (2010). They confirmed already well-known findings that good access to the external financing improves the investment opportunities of firms, increases employment, labor productivity and leads in general to the higher efficiency of firms as well as whole economy. This occurs mainly for the middle-income economies; to smaller extent it is visible for rich, high-income economies.

Bilateral causality exists between loans to non-financial corporations and economic growth, i. e. loans to non-financial corporations can contribute to economic growth. On the other hand, the economic growth can evocate higher demand of non-financial corporations for loans as well as higher supply of loans by banks.

Figure 1: Relationship between loans to nonfinancial corporations and economic growth



Source: author

The idea that loans to non-financial corporations influence the economic growth is the basis of various studies while each of them has its own specific factors assessed and methods used.

For example, the study by ECB (2011) claims that it is necessary to monitor factors influencing the supply as well as the demand side for loans by policy makers (supply side related factors – banks funding and liquidity position, banks'capital position, loan market competition, banks' risk perception/valuation, demand side related factors – borrowers' balance sheet, alternative sources of external funds, macroeconomic determinants). According to this study, general conclusions about the importance of loans for economic growth should be supplemented by the analysis of these factors as they determine whether the loan development is sufficient for desirable economic growth.

On the other hand, other studies underline that the economic recovery is possible also without growth of loans to non-financial corporations, phenomenon known as creditless recovery (Calvo, Izquierdo and Talvi, 2006; Darvas, 2013). This process is also called Phoenix miracles and describe a situation when investment stay on weak level while there exists alternative financing sources, foreign demand is enormous and/or realocation of interests occurs (entities specialize on sectors that are not credit demanding). We will not deal with this issue any further in this article and leave it for future research.

Relationships between development of loans and economic growth have been examined also by Drehmann (2013), Takáts and Upper (2013). On the basis of the loans to GDP ratio they distinguish periods of steady development of loans and periods with potencial risk of loan boom. For example, Drehmann (2013) argues that the loan boom had preceded financial crisis, in general. On the other hand, Takáts and Upper (2013) confirm that after the crises the loans to private sector and the economic growth are not correlated any more.

1.1 Data and Metodology

ESA´95 defines non-financial corporations (S.11) as legal persons that must be market producers, of which the main activity is the production of market products and non-financial services. In their nature, they include enterprises and non-profit institutions with the predefined activities

before. With respect to their ownership, they can take public or private entity form (the origin of owner is not important – national as well as foreign entities are included). Natural persons – entrepreneurs that are included to the sector of households do not belong to this group (S.14 and 15).

In this paper we use data about loans to non-financial corporations from National Bank of Slovakia. Permanent changes in reporting methods result in substantial lack of data. Quarterly data are available only from 2005 and only by maturity (up to 1 year, from 1 to 5 year and above 5 years); according to the other criteria (purpose, economic activities) data are available only from 2009. The similar availability occurs in data regarding the changes in the structure of non-financial corporations from the Statistical Office of the Slovak Republic.

With dataset consisting of available data (quarterly and monthly, in nominal terms in EUR as well as in annual % change) we provide analysis of the development of the non-financial corporation structure and their loans with respect to GDP. On the basis of our findings we investigate the existence of correlation (and if how strong) between the development of these loans and economic growth. The direction of this relationship is tested by simple autoregressive distributed lag model.

2. Empirical Results

2.1 Organizational structure of the Slovak economy

From 2005Q1 to 2013Q2 the number of legal persons and natural persons – entrepreneurs in Slovakia increased by 31 %. Even though during this period the shares of both types of entitities grow in nominal terms, the natural persons – entrepreneurs prevail (in this group the number of self employed persons prevail and their number increases until 2009Q1, the number of freelance employees increases permanently and the number of self employed farmers declines). Interestingly, the share of legal persons on total number of subjects gradually increases from 25 % do 39 % while the share of natural persons – entrepreneurs declines from 75 % to 61 % (Table 1).

Table 1: Organizational structure of Slovak economy

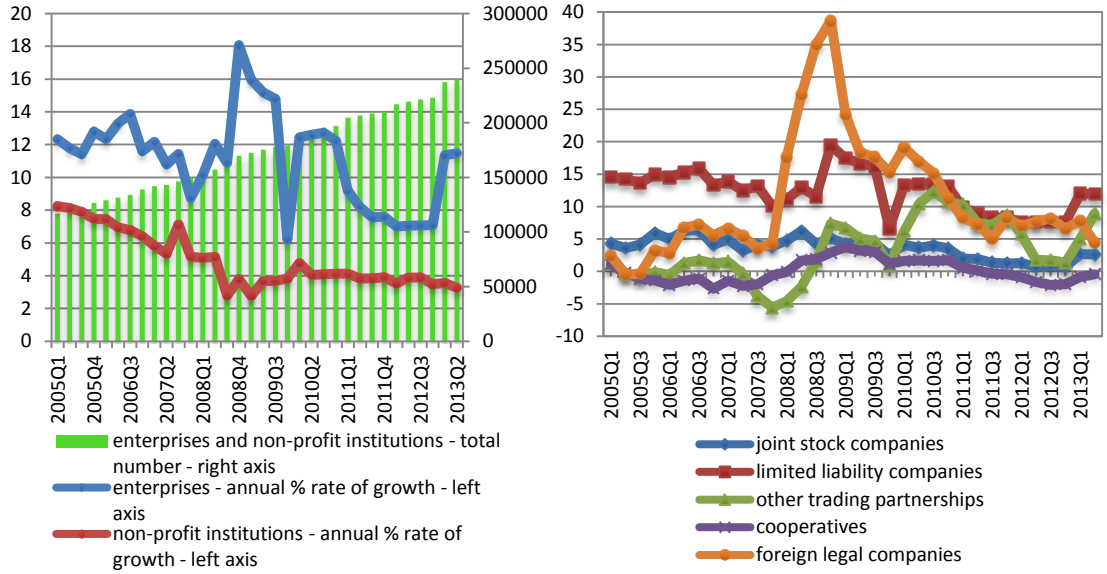
	2005	2006	2007	2008	2009	2010	2011	2012
Subjects[1] total	493871	527486	549413	588181	593219	607397	612412	610381
Legal persons[2]	126777	139240	149772	169960	179352	197089	210087	222929
Enterprises total	83710	93411	101574	119933	127409	143001	153881	164771
Trading partnerships	76632	86317	94575	112149	119268	134336	145110	155689
Joint stock companies	4598	4786	4972	5227	5358	5547	5616	5654
Lim. liability companies	71152	80638	88760	106017	112997	127778	138395	148921
Other trad. partnerships	882	893	843	905	913	1011	1099	1114
Cooperatives	1542	1501	1492	1535	1553	1580	1573	1542
State enterprises	30	22	21	23	23	21	20	20
Foreign legal companies	1565	1652	1723	2389	2755	3065	3318	3537
Nat. pers. – leg. enterp.	1817	1783	1644	1738	1651	1721	1576	1625
Non-profit institutions	43067	45829	48198	50027	51943	54088	56206	58158
Nat. pers. – enterp. total	367094	388246	399641	418221	413867	410308	402325	387452
Self-employed persons	344870	364185	374382	392841	387876	384202	375722	359575
Freelance employees	12752	15175	16725	17189	17974	18378	19069	20382
Self-employed farmers	9472	8886	8534	8191	8017	7728	7534	7495

Source: Statistical Office of the Slovak Republic (2013)
Notes: [1] legal and natural persons, [2] enterprises and non-profit institutions

In the group of legal persons, the number of enterprises as well as non-profit institutions increases while the total number of enterprises is 2.38 times higher than in 2005Q1 (non-profit institutions 1.45 times). Very interesting is the development in legal forms, ownership and origin of

owners of these legal persons. From 180 727 enterprises in 2013Q2 only 21 are state enterprises (33 in 2005Q1), limited liability companies prevail (their number more than coupled during the measured period) and number of foreign legal companies increased more than 2.35 times (Figure 1, 2).

Figure 1 and 2: Non-financial corporations in Slovakia (left figure), their different forms (right figure) – annual % rate of growth



Source: author, data Statistical Office of the Slovak Republic (2013)

In terms of annual % changes we can see the gradual decline in the number of non-profit institutions, the lowest rate of growth were in 2008Q3 and in 2009 Q1. The development of enterprises is more volatile. During one year their annual growth rate reached their top as well as overall minimum (max 2008Q3, min 2009Q4). Situation stabilized during 2010, but in 2011 and 2012 the same downtrend was present with slight improvement starting only in 2013Q1. According to the legal forms and the origin of owner the limited liability companies constantly increase their rate of growth and the same applies for the foreign legal companies.

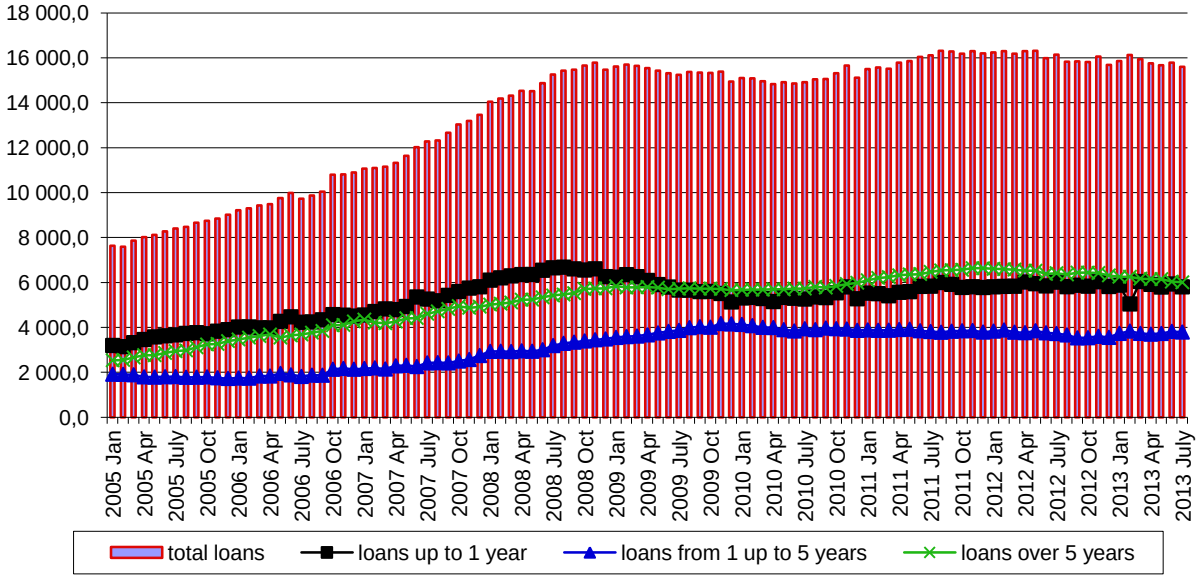
In the period analysed, mostly enterprises with number of employees up to 4 persons were established and were mainly placed in the area of wholesale and retail businessess, construction and in industrial production. The enterprises with higher number of employees (above 10) were established at a very small scale. Apart from before mentioned areas, they were mostly established in the area of metal production (besides the production of machinery and equipment)

On the basis of the results mentioned before we can induce that by organizational structure criteria the environment in Slovakia is less acceptable for natural persons – entrepreneurs, number of which gradually declines. On the other hand, the growth rate of non-profit institutions in non-financial corporations declines. In the case of enterprises the annual rates of growth are developing in the certain waves. We can generalize that for non-financial corporations the last quarter of 2009 was the worst and in 2013 we can find some signs of recovery.

2.2 Financing through the loans to non-financial corporations

The development of loans to non-financial corporations in nominal terms records an uptrend (Figure 3), with some reduction in 2009 and 2010. Until October 2009 loans with maturity up to 1 year prevail, the demand for long term loans increases in next quarters (loans with maturity over 5 years). During the same period (until October 2009) the lowest demand is for middle term loans, after this period the development of them is more or less stable.

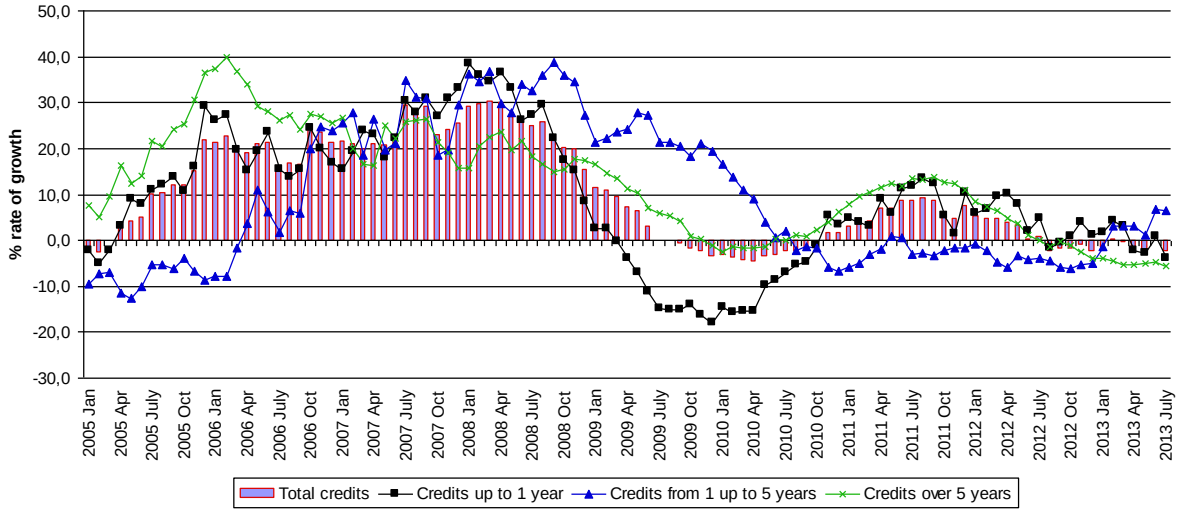
Figure 3: Credit development by the maturity (mil. of EUR)



Source: author, data NBS (2013)

In terms of annual % changes the development of loans to these companies was not so stable. From July 2009 to November 2010 total loans records negative rates of growth, later there are some signs of recovery of demand present but these rates of growth are only in 1/3 of level achieved before the crisis. Up to the present we can still observe downturn of demand for these loans. In loans with maturity up to 1 year the decline in growth rates starts in 2008 with the strongest decline at the end of 2009. Later, some uptrend occurres until the last quarter of 2011, from this point the dynamics of growth declines and even recordes negative rates of growth in 2013.

Figure 4: Credit development by the maturity (annual % rate of growth)



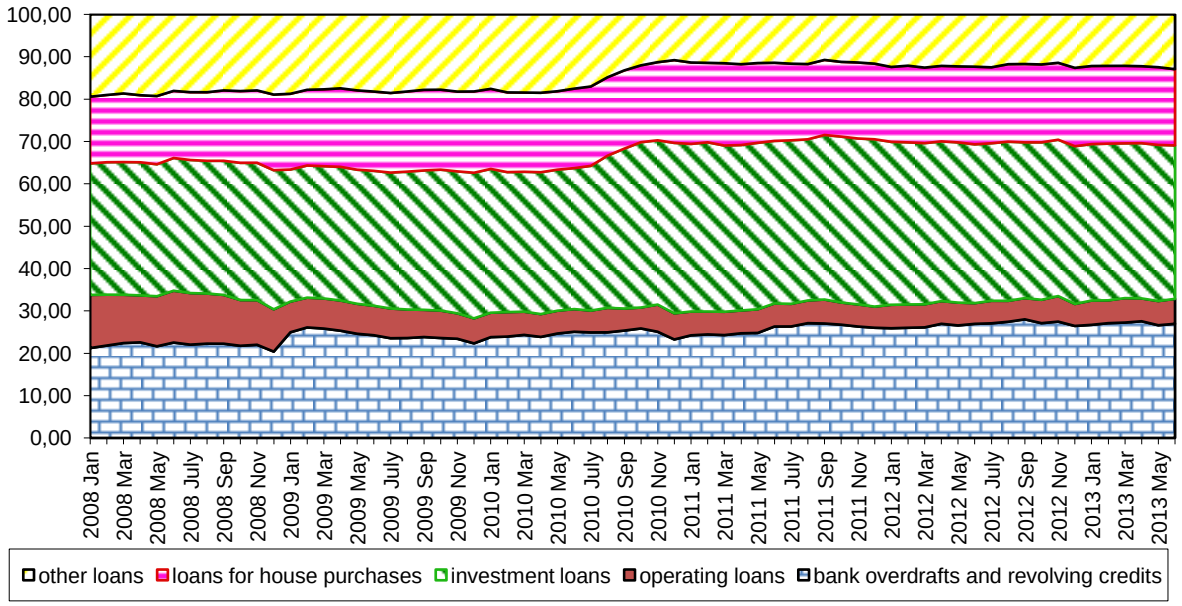
Source: author, data NBS (2013)

In loans with maturity from 1 to 5 year the rates of growth starts decreasing later than in previous cases (October 2008) and remains unchanged until the start of 2011. After that we can observe slight fluctuations (but in negative rates of change). During 2013 some recovery of demand occurres and in present the annual rate of change is the highest among all types. In long term loans (over 5 years) we can find the start of the downturn at the beginning of 2006 that intensifies during 2009. Reversion in development is recorded approximately in the same period as for short term loans

(the end of 2009) and positive growth trajectory is present until the autumn 2011. From this point the rate of growth decreases and reaches negative level in 2013.

By the purpose of loans, the highest share on total have investment loans (36.23 %), then overdrafts and revolving loans (26.95 %), the third highest share belongs to loans for house purchases (17.99 %). In period analysed, only small changes in these shares are recorded, especially in the second half of 2010 when the share of investment loans increases at the expense of other types of loans. Additionally, we can observe gradually increase in overdrafts and revolving loans starting at the end of 2009 (Figure 5).

Figure 5: Shares of different types of credits on total credits (in %)

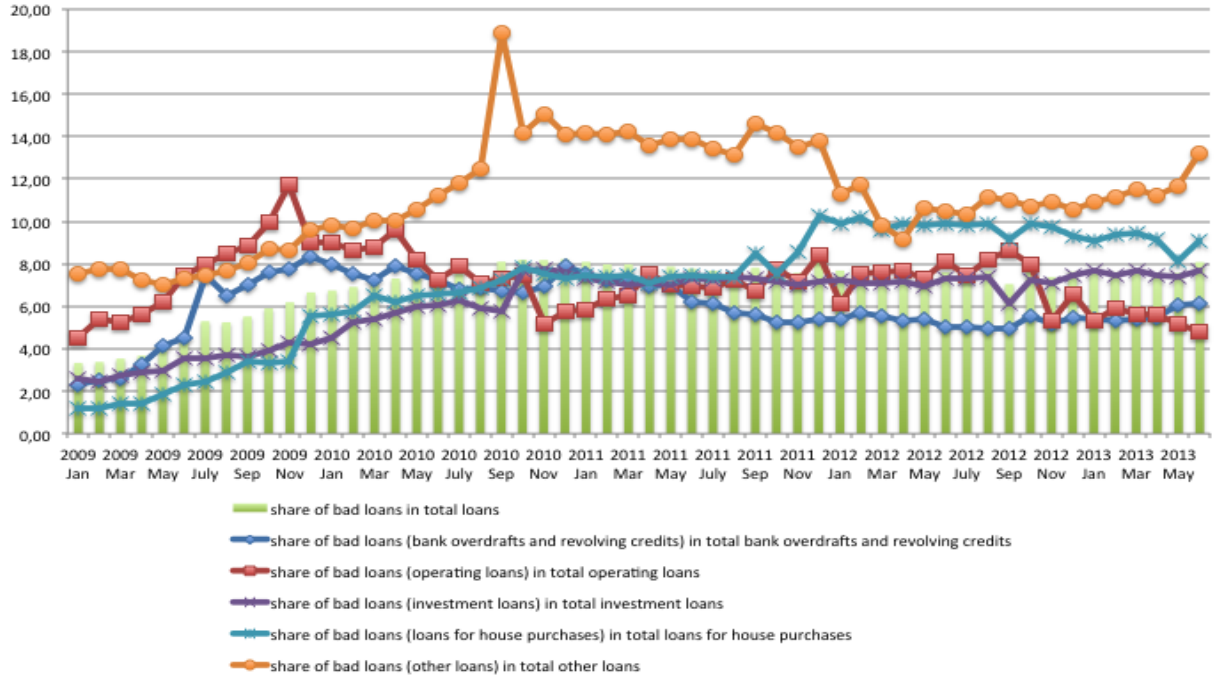


Source: author, data NBS (2013)

On the basis of available data (from 2009) we can state that the ratio of bad loans of non-financial corporation to total loans increases from the start of 2009 on the level below 8 % and this ratio is kept stable for today. The most problematic are the other loans for which the default rate increases to 19 % in autumn 2010. The year later is kept on 14 % and from 2012 it starts increasing again (actually 13.24 %).

The higher default rate is present in loans for house purchases for which this rate gradually increases (actually 9.09 %). The similar development is recorded in investment loans, but after the autumn 2010 the default rate is stable (8 %). It is important to highlight that investment loans are the greatest part of bad loans (36 %), which can be explained by fact, that they represent the highest share in total loans to non-financial corporations. In overdraft and revolving loans the growth of their share in bad loans culminates at the end of 2009 and now decreases (at present 6 %). The similar trend but with higher variation is present in the development of bad operating loans. Currently it is close to 4 %.

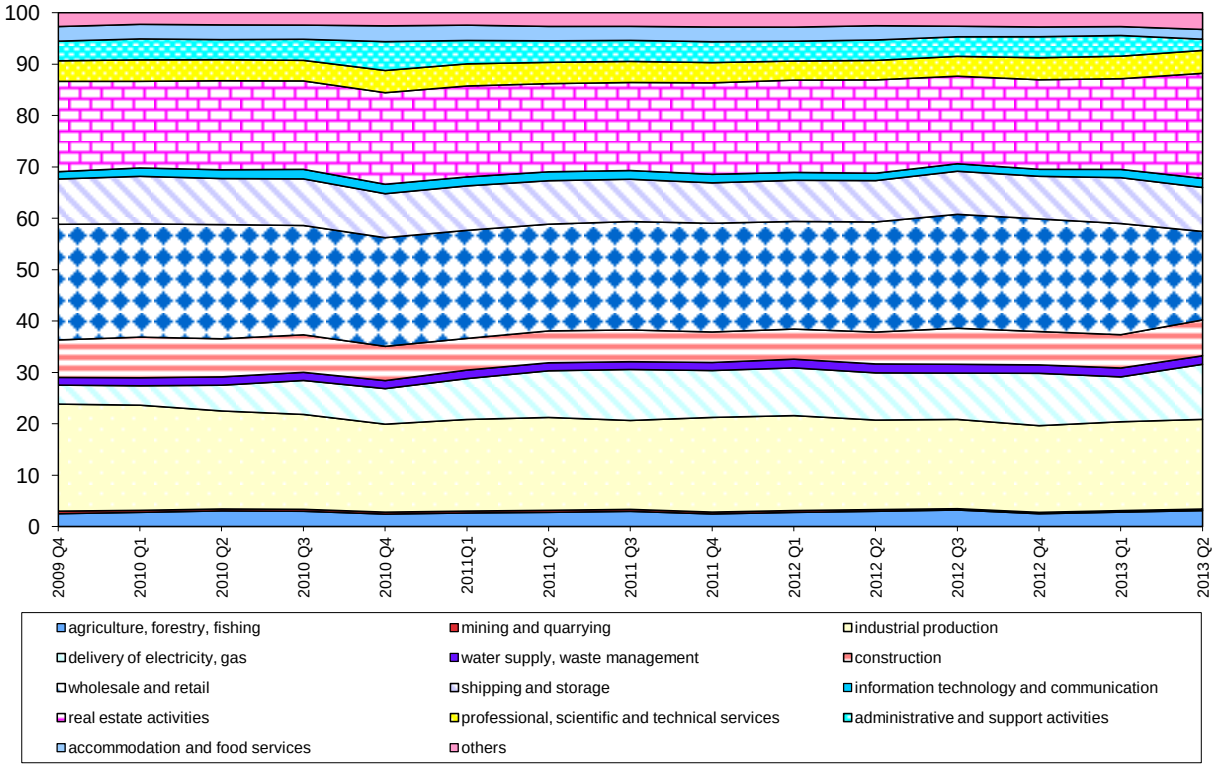
Figure 6: Shares of bad loans in total loans by types (in %)



Source: author, data NBS (2013)

According to the classification of economic activities, the highest amount of loans is transferred to the wholesale and retail businesses, real estate activities, and to the industrial production. The positive changes occur mainly in 2013 for real estate activities, delivery of electricity and gas against wholesale and retail businesses.

Figure 7: The shares of loans by type of economic activities in total loans (%)

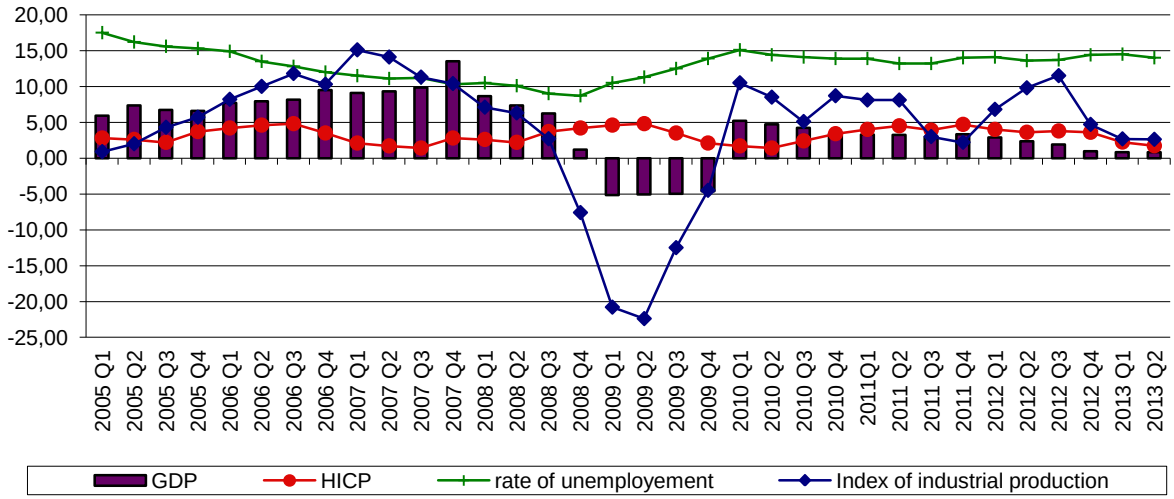


Source: author, data NBS (2013)

2.3 Relationships between the loans of non-financial corporations and the economic growth

Positively can be viewed the period to the last quarter of 2007, when GDP and index of industrial production increases while the unemployment rate and inflation rate decrease simultaneously. At this point the situation changes and GDP declines to its minimum (- 5%) in 2009Q1 and index of industrial production meets its bottom due to lower demand. The deteriorated conditions in the real economy bring higher unemployment while inflation increases until the half of 2009. During 2010 we can observe improvement in GDP growth and in index of industrial production, but the growth rates do not reach their pre-crisis level. Moreover the unemployment increases to 15 %. From this year the annual % GDP growth rate declines (also the index of industrial production), although the inflation and unemployment decrease only slightly.

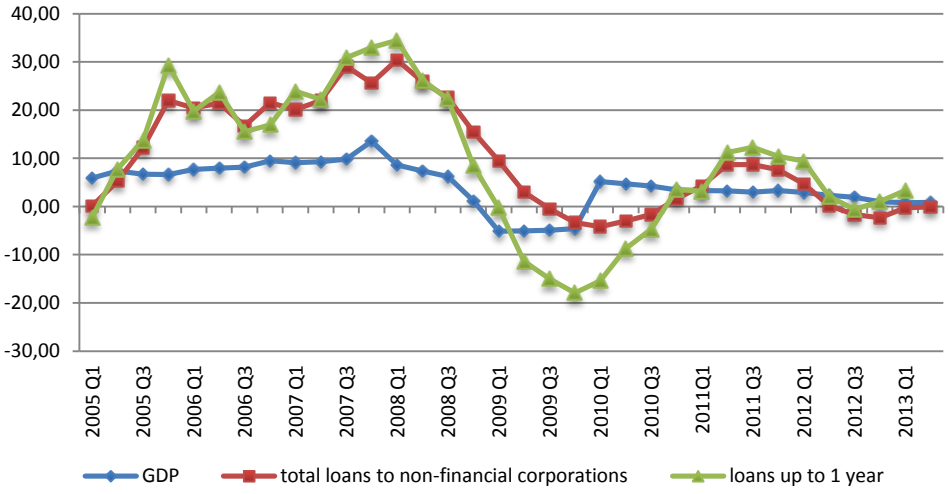
Figure 8: Development of GDP, HICP, unemployment and index of industrial production (annual % rate of change)



Source: author, data NBS (2013)

The loans to non-financial corporations in period analysed (from 2005Q1 to 2013Q2) grow from 84 to 123 % GDP. The Figure 9 ilustrates the annual % rate of growth of GDP and total loans to non-financial corporations.

Figure 9: GDP and loans to non-financial corporations (annual % change)



Source: author, data NBS (2013)

As we can observe the period of higher economic growth is usually connected with higher growth of these loans and the loans reaction has some time lag, approximately 2 quarters. As it appears the loan growth rate reacts to the GDP growth with some lag and not the other way round as the standard theory would suggest.

To analyze this relationship in a more rigorous way we use basics of correlation and regression analysis. Firstly, we compare quarterly data (annual % rate of GDP and loans of non-financial corporations) and secondly monthly data (annual % rate of index of industrial production and loans of non-financial corporations).

Quarterly correlation analysis showed us, that GDP (YQ) is strongly positive correlated (0.774) with the loans with maturity up to 1 year (total loans are only middle strongly positive correlated – 0.676). On the other hand, among loans we found very strong correlation between loans with maturity up to 1 year and loans with maturity over 5 years.

Table 2: Correlation matrix 2005Q1: 2013Q1

	YQ	*TLQ*	*L1Q*	*L15Q*	*L5Q*
YQ	1	0.676	**0.774**	0.0738	0.5878
TLQ		1	0.925	0.5643	0.5862
L1Q			1	0.2946	**0.7796**
L15Q				1	0.2139
L5Q					1

Source: author, programme used Gretl

Monthly correlation analysis shows that correlation between the index of industrial production and loans is very weak (the highest value was between loans up to 1 year 0.3958; the second highest value was obtained with total loans 0.2308). We find no stronger correlation between middle term loans and GDP or between these loans and other types of loans, neither on quarterly nor on monthly data.

Table 3: Estimation results (ARDL)

Model I Dependent YQ		Model II Dependent TLQ	
const	0.4799 (0.5807)	const	-0.546724 (0.4631)
TLQ	0.0164864 (0.7593)	YQ	0.677149*** (4.02e-07)
YQ_1	0.818832*** (0.0002)	TLQ_1	0.775054*** (1.27e-14)
R-squared	0.712132	R-squared	0.913990
Adj R-squared	0.692279	Adj R-squared	0.908059
F(2,29)	25.73300	F(2,29)	378.47
P-value (F)	3.74e-07	P-value (F)	1.67e-21

Source: author's estimation

Note: The regression is estimated by OLS with Gretl software. Numbers in brackets are p-values. Three stars indicate that the variable is significant at 1% level of confidence. Quarterly data: YQ – annual % change of GDP, TLQ - annual % change of total loans, YQ_1 – lag by 1 quarter of annual % change of GDP, TLQ_1 – lag by 1 quarter of % change of total loans.

Based on the results of correlation analysis we test relationship between total loans and GDP in both directions with quarterly data.[1] Results of the simple ARDL (1,0) model for both relationships are presented in the Table 3. As apparent, the causality runs from GDP growth to the total loans growth rate and not the other way round. In the Model II the LM test for autocorrelation does not show presence of serial correlation in residuals, RAMSEY test for correct specification proves that model is adequate. Errors in Model II are normally distributed and standard errors are estimated with robust standard errors, thus no heteroscedasticity is present as confirmed by White's test.

3. Conclusion

As our analysis shows the number of entrepreneurs in Slovak republic has increased during the period of 2005Q1 to 2013Q1, as well as the share of legal persons that has been gradually growing while the opposite was true for the share of natural persons – entrepreneurs. This development is likely to reflect the changes in income taxes and in payments to social insurance scheme that happened during the period.

In the group of non-financial corporations the number of enterprises increases more rapidly than of the non-profit institutions. The prevailed legal form is the limited liability company. Positively can be viewed the dynamic growth of the number of foreign entities (except 2013 Q1).

In Slovakia the establishment of enterprises with lower number of employees prevailes (up to 4 people). In other words, the higher the number of employees the lower the number of newly established businesses. New enterprises are created mainly in the sector of wholesale and retail businesses, construction and industrial production.

Loans to non-financial corporations had been growing in nominal terms until the end of 2009, but annual % rate of growth has started to decelerate already at the beginning of 2008. Despite some recovery in 2011 and 2012, the growth rates for this type of loans are negative during this year. In comparison to 2005 the amount of loans to non-financial corporations has more than doubled, but since the crisis in 2008 it is not possible to talk about credit expansion (positive growth rate have currently only the middle term loans).

The loans indebtednes (ratio of loans to non-financial corporations to GDP) provides a different picture. This ratio had jumped from 84 to 123 % with its peak in 2009Q1 (139 %). This jump can be partially addressed to the decline of GDP. The share of bad loans on total loans to non-financial corporations remains steady at the during-the-crisis level of 8 % (from 2010).

By nominal terms, the preferred types of loans are investment loans, followed by overdrafts and by loans for house purchases. In accordance with creation of enterprises the loans are predominantly oriented to the wholesale and retail businesses, real estate activities and to the industrial production.

After the decline of economic growth as a direct consequence of the economic crisis, certain economic recovery has occurred in form of positive annual % growth rate at the beginning of 2010, but since than this rate has been gradually decreasing with actual value of 0.83 % for 2013Q2.

On the basis of correlation analysis of quarterly data we can conclude that the GDP growth rate is strongly and positively correlated with the loans with maturity up to 1 year; the total loans show middle strong correlation. On monthly with index of industrial production instead of GDP the results points out to positive but weaker correlation.

Darvas (2013) argues that creditless recoveries, in which the stock of real credit does not return to the pre-crisis level, are not rare and are characterised by remarkable real GDP growth rates. However, the implications of these historical episodes for the current European situation are limited, for two main reasons. First, creditless recoveries are much less common in high-income countries, than in low-income countries which are financially undeveloped. Second, creditless recoveries were associated with significant real exchange rate depreciation, which has hardly occurred so far in most of Europe.

[1] As described previously, monthly data do not point out to significant relationship between loans and GDP in any direction. The main suspect for this result lies in the fact that we test only relationship between index of industrial production and not the GDP itself. Neither regression on quarterly data between the loans up to 1 year and GDP do not point out to significant relationship in any direction.

Results from our regression points out to the fact that the credit recovery of Slovak economy does not need to work as the causality between loans and GDP growth flows from real economy to the banking sector not the other way round. In other words, the loans does not influence the overall economic growth but the economy affects the overall bank loans available for non-financial corporations.

Our results can be related to some extent to the fact that economic entities in Slovakia (households or non-financial corporations) had had not the habit to live on debt until the crisis. In pre-crisis period our strong economic growth was mainly influenced by the entry of foreign investors to our economy which resulted in higher export not founded primarily by domestic loans. Consequently, the growing economy (higher demand for goods and services) provoked higher demand for loans and redemption was not consider risky to the future.

In addition to this, our results are in line with Darvas (2013) observations that as the Slovak financial system is considered to be less developed with lower depth and breath of financial instruments available, the creditless recovery is more likely. However, the second condition proposed by Darvas (2013) was and will not be fulfilled due to two following facts: (1) the historical GDP growth was not caused by the exchange rate depreciation (in fact, the Slovak republic needed to revaluate twice before entering the eurozone) but rather due to high inflows of foreign direct investments; (2) due to the single monetary policy conducted by Eurosystem the exchange rate depreciation as a tool is not available any more for any domestic monetary purposes.

As the domestic level of indebtedness of non-financial corporations is relatively high and due to low levels of economic activity the space for further loan expansion is limited. The real economic recovery will likely to depend on other than further credit financing.

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