The Influence of Lending Activity on Economic Growth in Romania

Cătălin Emilian HUIDUMAC PETRESCU
Bucharest University of Economic Studies, Romania
catalinhuidumac@yahoo.com
Alina POP
Bucharest University of Economic Studies, Romania
alina_aserom@yahoo.com

Abstract. *The banking system has the role to eliminate the fund deficit by transferring the capital towards investments in order to support the economic growth. Economic development it is possible if there is an adequate level of capital in the economy that will ensure efficient business conditions. Credit expansion allows consumers to borrow and spend more and businesses to borrow and invest more. Increasing consumption and investment creates jobs and expands income and profits. The study aims to analyze the impact that the banking system loans have on economic growth in Romania. The analysis involves a regression model where economic growth will be measured by the growth domestic product, considered the dependent variable and loans, interest rates and inflation, the independent variables.*

Keywords: credit, economic growth, inflation, interest rate.

JEL Classification: E51, O10.

Introduction

Economic growth is a key objective in any economy. Financial markets development it is positively correlated with the economic growth process. The literature presents various studies analyzing the link between the banking sector and the real economy. The role of the banking system, which is to make deposits and to channel funds to those units that lack the resources necessary to carry on their activities in good conditions is was recognized a long time ago.

The banking sector is of particular importance because in many developing countries in the world this sector is either the only way savings can be attracted, or the main source of financing the economy. However, the development of financial activities, in particular the expansion of lending activities must be carried out prudently in order to avoid the negative effects that excessive lending can generate.

In the early 2000s, Romania's economy experienced a strong boom mainly due to the domestic demand. Consumption and investments experienced a period of growth fueled by financial development and the expansion of lending. With the onset of the crisis some loans proved unsustainable and foreign private capital inflows fell sharply. This decline reflected both the increased risk aversion of financial markets and Romania's vulnerabilities. The contraction of capital inflows led to an external financing gap, which was ultimately alleviated by borrowing from the international financial institutions.

The structure of the financial sector in Romania, it is similar to other countries in Central and Eastern Europe and its components are banks, insurers and investment funds. Among these the banking industry is prevailing. Credit institutions hold most of the assets of the financial system (80%), followed by non-banking financial institutions and investment funds. In the recent years, pension funds and investment funds have become increasingly important in the Romanian financial system. However, the total assets of the financial system as a percentage of gross domestic product (GDP) decreased, reaching 81.5% at the end of 2013. In terms of business, banks in Romania are mainly engaged in traditional financial activities. Loans represented 70% of total banking sector assets in 2014. Private credit granted is distributed among households and companies in roughly equal proportions. After the economic crisis, the volume of loans decreased primarily reflecting the decrease in loans to households, both because of the reluctance of the population and because of a greater caution from the banks. The decreasing trend was maintained in the corporate sector as well. The growth rate of loans remains currently modest due both to demand-side factors such as the high level of non-performing loans and tighter credit conditions and to supply-side factors (European Commission, 2015, pp. 41-42).

The banking system was the main source of financing for Romanian companies, before, during and after the crisis. In the last five years, banks have increased their ability to allocate resources to sectors that add value to the economy. A better adjustment of the funds to the diverse needs and changing economy, allowed banks to allocate resources more effectively within certain sectors of the economy such as industry, construction and service sector, while having a significant impact on GDP as well (Deloitte, 2015, p. 27). This is of particular importance because the stock market is not sufficiently developed in Romania so as to take some of the financing burden from the banks.

The paper is divided into two sections. The first section provides a summary of the main studies that have analyzed the impact that the financial system has on economic growth. The second section presents the results of the regression model made to verify if in Romania the banking sector supported economic growth in the last 25 years.

Literature review

The empirical data show that there is an undeniable connection between the real economy and the banking sector. Although economic analysis focuses mainly on the role that the banking sector plays in economic development, there are in fact reciprocal influences. As the economy grows the size and the complexity of the banking sector tends to increase, making it easier to transfer the resources between lenders and borrowers.

In 1862 the British economist Walter Bagehot argued that capital productivity is higher in England compared to other countries because in England, the more developed and better organized capital markets direct resources to more productive investments. This shows that since then it has been awarded an important role in allocating resources and in supporting growth to the financial sector (Salvadori, 2003 p. 342). Other economists such like Schumpeter and Hicks highlighted the role of financial markets in economic development. Hicks argued that the industrial revolution was mainly due to the expansion of the financial system which allowed the development and the application of new technologies. Schumpeter argued that development and economic growth requires credit. For a state to be able to develop there must be additional liquidity advanced beyond the liquidity that circulates current output (Bezemer, 2014, p. 2).

The analysis of the link between finance and economic growth has become the subject of a large number of scientific papers in recent years. In a study conducted by Goldsmith in 1969, he tried to explain the link between financial development and economic growth, using data for the period 1860-1963 for a total of 35 countries. The objective of the analysis was to show how the financial structure changes as countries develop. The research results were however constrained by the lack of theories on the financial development and financial structure.

Following the developments in economics research, particularly in the financial area in 1973 it was developed the Mckinnon - Shaw Model. This represented the starting point of the main analysis and monetary policy decisions in upcoming years. Prior to 1970, most developing countries were subject to a financial repression which consisted in adopting low interest rates, below the inflation rate and high rates of reserve requirements (Huang, 2010, p. 2).

In the McKinnon - Shaw Model, the two economists analyze the effects of reducing the financial repression within the domestic financial system in the developing countries. The analysis showed that reducing financial constraints in these countries, mainly by allowing the free determination of real interest rates, can positively influence growth rates due to the fact that interest rates will rise to the level of equilibrium. Under this analysis, imposing limits set artificially for interest rates will lead to lower savings and capital accumulation and discourage efficient allocation of resources. McKinnon and Shaw's

assumptions argued that liberalization, which is associated with higher real interest rates stimulate saving. Therefore, higher savings rates will enable the financial sector to finance more investment, which will lead to a higher economic growth rate (Gemech and Struthers, 2003, pp. 2-3).

Starting with the McKinnon - Shaw Model there were conducted several studies that analyze the relationship between finance and growth. In his work *Finance and Growth: Theory and Evidence*, Levine shows that the financial sector is a key element in economic development. In addition, research results show that more developed financial systems reduce the financing constraints faced by firms. Some of these studies were based on exogenous growth models, subsequently adopting the endogenous growth models.

The latest research has focused on the problems of information asymmetry on the financial sector. In *The Theory of Economic Growth work: a "Classical" Perspective*, Salvadori says that costs of information asymmetry problems can cause financial arrangements different from those based on the assumption that economic agents are fully or symmetrically informed. Therefore, the structure of the financial system is the result of the economic units' attempts to reduce these costs endogenously determined hence, the financial structure it cannot be analyzed as an exogenously determined structure.

Information asymmetry occurs when one party to a financial contract holds less information than the other party. Asymmetric information favors the emergence of two problems in the financial system: adverse selection and moral hazard (Mishkin, 1997, p. 56).

Adverse selection is a problem of asymmetric information that appears before transaction. In case of loan contracts, customers who want to take higher risks will be the ones who will actively pursue a loan, therefore the probability that they would be selected to benefit from this loan increases.

Moral hazard is a problem of asymmetric information that occurs after the transaction. Moral hazard problem stems from the fact that the debtor might be tempted to invest in risky projects which bring high profits, but in case of failure, the costs will be borne largely by the lender. An example of moral hazard is state guarantees for the loans. When banks know that the loans are guaranteed by the government they will be tempted to undertake risky projects to make higher profits knowing that if they fail, the majority of the costs will be borne by the state.

Given the role that the financial system plays in the economy, the emergence of obstacles (for example: excessive or inadequate regulation, a low number of market operators) which would not allow to fulfill this role efficiently will lead to the malfunctioning of the economy and to a slowdown in growth. Many existing studies in the literature show that one of the main reasons for why poor countries remain poor is that their financial sector remains underdeveloped.

In a work performed by Khan and Senhadji (2000) for a total of 159 developed and developing countries it is shown that the level of financial development is a determinant factor for the differences in growth registered in these countries.

Kunt and Levine-Demirgüç (2008) shows that countries with a developed financial system tend to grow faster than other countries. The size of the banking system and the liquidity of

the stock markets are each positively correlated with economic growth. A better functioning of the financial system is needed to reduce external financing constraints. External funds, where internal funds are not sufficient, enable firms and industries to expand which will implicitly lead to the development of the economy in question. The manifestation of the positive effects of the financial system on the real economy entails the fulfillment of certain conditions. First, a well-functioning financial system requires stable macroeconomic policies and a strengthened regulatory framework. Thus, improving the financial infrastructure should be a priority. Secondly, the financial system should be characterized by low barriers to entry to allow the entrance of other financial institutions so that work is carried out in a competitive environment. Thirdly, the impact that the policies adopted by national governments have on the financial sector should also be reviewed to ensure that they do not contravene to the proper functioning of the system.

Cojocaru, Hoffman and Miller (2011) showed in a study conducted for the period 1990-2008 in 25 countries in Central and Eastern Europe and former Soviet Union states, including Romania that the loan granted by the banking sector contributes significantly to the economic growth registered in the countries included in the analysis. The study also shows that there is a negative relationship between the interest rate spread and economic growth.

Methodology

The hypothesis from which we started in the analysis is that the loans granted by the banking sector positively affect economic growth, as the economic theories presented in the previous section suggest. We also assumed that between interest rates, inflation and economic growth there is an inverse relationship.

The methodology is based on econometric modeling using Eviews 8.0. The data series used in the regression model have a yearly fervency; the period for which the analysis is carried out is 1990-2014.

The data on the four indicators analyzed were collected from various national and international databases. For inflation data were obtained from the website of the National Institute of Statistics, the data for interest rate and credits were obtained from the website of the National Bank of Romania (NBR) and refer to values recorded at the end of each year, and for gross domestic product per capita (GDP per capita) from the database of the International Monetary Fund (IMF) - Word Economic Outlook.

Regarding the credits, the data for the period 2007-2014 are composed of loans to households, non-financial corporations, non-monetary financial institutions, government and non-residents and for the period 1990-2006 they relate to nongovernment and government credits.

Given the high record values for GDP per capita and loans, they were logarithmic.

The aim of the research is to identify the relationship and the impact of the credits, inflation and interest rate on economic growth.

To avoid getting the wrong regression results it was applied the Augmented Dickey-Fuller Unit Root Test to ensure the stationary nature of the data series used in the analysis. The

Augmented Dickey-Fuller Unit Root Test (ADF) allows highlighting stationary or non-stationary nature of dynamic series, by determining the deterministic or random trend.

The Augmented Dickey-Fuller Unit Root Test hypothesis:

Null hypothesis: the variable has a unit root (it is not stationary);

Alternative hypothesis: variable does not have a unit root (it is stationary).

The results achieved for the Augmented Dickey-Fuller Unit Root Test are shown in Table 1.

Table 1. *The Augmented Dickey-Fuller Unit Root Test*

Variables	The obtained value	1% critical value at level	Status	Conversion	Value after conversion	1% critical value at level
LNGDP	-7,687	-3,769	stationary	-	-	-
LNCREDITS	-3,954	-3,737	stationary	-	-	-
Inflation rate	-6,886	-2,692	stationary	-	-	-
Interest rate	-1,473	-2,674	Not stationary	First difference	-3,880	-2,685

Source: own calculations.

The values obtained by applying the ADF test show that the GDP per capita (LNGDP), loans (LNCREDITS) and inflation series are stationary in level. The series for interest rate is non-stationary in level, therefore, it was converted into a stationary series by conversion to the first difference, and the result is also presented in the table above.

To analyze the link between the three independent variables, credits, interest rate and inflation rate and GDP per capita the dependent variable, the regression function can be expressed as:
GDP = f (loans, inflation, interest rate)
or
LNGDP = C (1) + C (2) * LNCREDITS + C (3) * Interest_rate + C (4) * Inflation_rate
Where:
C (1) – it is the constant;
C (2), C (3), C (4) – represent the slope of the regression line;
LNGDP - natural logarithm of GDP;
LNCREDITS – natural logarithm of credits.

Figure 1. *The estimated regression model*

```
Dependent Variable: LNGDP
Method: Least Squares
Date: 11/22/15   Time: 11:08
Sample (adjusted): 1991 2014
Included observations: 24 after adjustments

    Variable      Coefficient   Std. Error    t-Statistic     Prob.

         C         -6.013232     2.519048     -2.387105      0.0270
    LNCREDITS       0.890823     0.097795      9.109088      0.0000
 DINTEREST_RATE    -1.216543     1.549667     -0.785035      0.4416
  INFLATION_RATE   -0.139700     0.422978     -0.330277      0.7446

R-squared           0.961199    Mean dependent var      14.99554
Adjusted R-squared  0.955379    S.D. dependent var       2.390826
S.E. of regression  0.505033    Akaike info criterion    1.622627
Sum squared resid   5.101171    Schwarz criterion        1.818969
Log likelihood    -15.47152     Hannan-Quinn criter.     1.674716
F-statistic       165.1489      Durbin-Watson stat       0.778843
Prob(F-statistic)   0.000000
```

Source: own calculation Eviews 8.0

The regression results model presented in Figure 1 shows the relationship between the examined variables and can be expressed as follows:

LNGDP = -6.013 + 0.890 * LNCREDITS - * 1.216 Dinterest_rate - 0.139 * inflation_rate

The analysis of the results confirms the initial hypotesis that, that there is a positive link between loans and economic growth.

Conversely, between the interest rate, inflation rate and the GDP variable used in the equation to quantify growth, there is a negative relationship. The model results show however, that the two independent variables respectively, inflation and interest rates are not significant in statistical terms, growth was mainly influenced only by the volume of credits.

The values obtained for the correlation coefficient $R = 0.96$ and $R^2 = 0.95$ suggest a positive linear correlations. This indicates that 95% of the variation in the dependent variable is explained by variations in the independent variable, loans.

Overall, the data suggests that loans to the financial sector had a significantly positive impact on economic growth in Romania between 1990 and 2014. This shows on the one hand that the banking sector is a driver of growth in Romania and secondly that a malfunction (e.g. the increasing number of nonperforming loans) thereof can have a major impact on the economy.

The regulations in the field require banks to create provision for risks which are recorded in their balance sheet causing therefore an increase of the costs and a decrease of the profit. Consequently, as bigger the volume of nonperforming loans as smaller becomes the profit. In recent years, banks have transferred the nonperforming loans to specialized recovery companies, but this does not solve the problem unless they are recovered, but even so, provisions that were already created diminished the profits. In these circumstances banks could become more reluctant in granting credits, and this would in turn affect economic growth.

Conclusions

The banking sector plays an important role in the economy by supporting saving, capital accumulation and targeting resources towards profitable investment projects. Economic development is closely connected with the development of the banking sector in an economy. Expanding and developing economic activities require additional funding, funding which most often and especially in Romania, comes from the banking sector.

The analysis on the Romanian economy for the period 1990-2014 shows that much of the economic growth recorded during this period was due to funds coming from the banking sector in the form of loans. These results highlight the importance of the banking sector in supporting economic growth. Therefore, future action should further encourage the provision of both long-term and short-term loans and their orientation towards profitable economic activities.

Providing support to the economy by granting loans should occur in parallel with the development of a strong regulatory framework in order to prevent the excessive risk taking that could turn the granted loans into nonperforming loans.

References

Bezemer, D.J., 2014. Schumpeter Might Be Right Again: The Functional Differentiation of Credit. *Journal of Evolutionary Economics*. 24 (5). http://www.economicsofcreditand debt.org/media/research/The_Functional_Differentiation_of_Credit.pdf.

Cojocaru, L., Hoffman, S.D. and Miller, B.J., 2011. Financial Development and Economic Growth in Transition Economies: Empirical Evidence from the CEE and CIS Countries. *Working paper*. No. 2011-2022. Department of Economics. University of Delaware. Newark. DE. 19716. USA. http://www.lerner.udel.edu/sites/default/files/ECON/PDFs/RePEc/dlw/ WorkingPapers/2011/UDWP2011-22_0.pdf.

Demirgüç-Kunt, A. and Levine, R., 2008. Finance, Financial Sector Policies, and Long-Run Growth. *Policy Research Working Paper*. 4469. The World Bank Development Research Group Finance and Private Sector Team. https://openknowledge.worldbank.org/ bitstream/handle/10986/6443/wps4469.pdf?%20sequence=1.

European Commission, 2015. Country Report Romania 2015 Including an In-Depth Review on the prevention and correction of macroeconomic imbalances. Brussels. February 26th, http://ec.europa.eu/europe2020/pdf/csr2015/cr2015_romania_en.pdf.

Gemech, F. and Struthers, J., 2003. The Mckinnon-Shaw Hypothesis: Thirty Years on: A Review of Recent Developments in Financial Liberalization Theory. Paper presented at Development Studies Association (DSA) Annual Conference on "Globalisation and Development", Glasgow. Scotland. September.

Goldsmith, R.W., 1969. Financial Structure and Development. *The Economic Journal.* 80 (318).

Huang, Y., 2010. *Determinants of Financial Development.* Palgrave Macmillan. New York.

Khan, M.S. and Senhadji. A.S., 2000. Financial Development and Economic Growth: An Overview. *IMF Working Paper.* https://www.imf.org/external/pubs/ft/wp/2000/ wp00209.pdf.

Levine, R., 2005. Finance and Growth: Theory and Evidence. Department of Economics. Brown University and the NBER, 64 Waterman Street. Providence. RI 02912. USA http://faculty.haas.berkeley.edu/ross_levine/papers/forth_book_durlauf_finngrowth.pdf.

Mishkin, F.S., 1997. The Causes and Propagation of Financial Instability: Lessons for Policymakers. https://www.kansascityfed.org/publicat/sympos/1997/pdf/s97mishk.pdf.

Salvatori, N., 2006. *The Theory of Economic Growth: a "Classical" Perspective.* Edward Elgar Cheltenham. Great Britain. Northampton. MA. SUA. http://digamo.free.fr/salva03.pdf.

International Monetary Fund-World Economic Outlook Database. http://www.imf.org/external/ pubs/ft/weo/2015/01/

National Bank of Romania. „Buletine lunare". http://www.bnr.ro/PublicationDocuments. aspx?icid=1182.

National Institute of Statistics. „IPC - serii de date" http://www.insse.ro/cms/ro/content/ipc-serii-de-date.